


COMMONWEALTH OF PENNSYLVANIA



OFFICE OF CONSUMER ADVOCATE

555 Walnut Street, 5th Floor, Forum Place  
Harrisburg, Pennsylvania 17101-1923  
(717) 783-5048  
800-684-6560

 @pa\_oca

 /pennoca

FAX (717) 783-7152  
consumer@paoca.org

April 1, 2022

Rosemary Chiavetta, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission  
v.  
City of Lancaster – Water Department  
Docket No. R-2021-3026682

Dear Secretary Chiavetta:

Consistent with 52 Pa. Code Section 5.412a of the Commission's regulations, which requires the electronic submission of pre-served testimony, and were admitted into the record by ALJ Heep's Order Granting Motion for Admission of Testimony and Exhibits issued on March 30, 2022. Enclosed for electronic filing please find the following Pre-Served Testimony and Exhibits on behalf of the Office of Consumer Advocate ("OCA") in the above-referenced proceeding.

**Office of Consumer Advocate's Direct Testimony**

- OCA Statement 1 - Direct Testimony of Lafayette K. Morgan –OCA Schedules LKM-1 through LKM -11 and Appendix A
- OCA Statement 2 - Direct Testimony of Morgan N. DeAngelo – Appendix A and OCA Schedules MND – 1 through MND - 2
- OCA Statement 3 – Direct Testimony of David J. Garrett – Appendix A, Appendix B, and OCA Exhibits DJG-1 through DJG-17
- OCA Statement 4 – Direct Testimony of Jerome D. Mierzwa – OCA Schedules JDM-1 through JDM-4
- OCA Statement 5 – Direct Testimony of Terry L. Fought – Appendix A and OCA Exhibits TLF-1 through TLF-6

Rosemary Chiavetta, Secretary  
April 1, 2022  
Page 2

**Office of Consumer Advocate's Surrebuttal Testimony**

OCA Statement 1SR - Surrebuttal Testimony of Lafayette K. Morgan – OCA Schedules LKM-1-SR through LKM-11-SR  
OCA Statement 2SR - Surrebuttal Testimony of Morgan N. DeAngelo – OCA Schedules MND-1SR and MND-2SR  
OCA Statement 3SR – Surrebuttal Testimony of David J. Garrett  
OCA Statement 4SR – Surrebuttal Testimony of Jerome D. Mierzwa – OCA Schedules JDM-5 and JDM-6  
OCA Statement 5SR – Surrebuttal Testimony of Terry L. Fought

All testimony is accompanied by a witness verification. The OCA's submission also addresses the requirements of the Commission's January 10, 2013 Implementation Order at Docket M-2012-2331973, which requires electronic access to pre-served testimony.

All parties and the presiding officer have been served previously with the testimony and exhibits and copies have been served per the attached Certificate of Service.

Respectfully submitted,

/s/ Christy M. Appleby  
Christy M. Appleby  
Assistant Consumer Advocate  
PA Attorney I.D. # 85824  
E-Mail: [CAAppleby@paoca.org](mailto:CAAppleby@paoca.org)

Enclosures:

cc: The Honorable Darlene Heep (Cover Letter and Certificate of Service only – **via email**)  
Athena Delvillar (Cover Letter and Certificate of Service only – **via email**:  
[sdelvillar@pa.gov](mailto:sdelvillar@pa.gov))  
Certificate of Service

\*326365

CERTIFICATE OF SERVICE

Re: Pennsylvania Public Utility Commission :  
 :  
 v. : Docket No. R-2021-3026682  
 :  
 City of Lancaster – Water Department :

I hereby certify that I have this day served a true copy of the following document, the Office of Consumer Advocate’s Pre-Served Testimony, upon parties of record in this proceeding in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant), in the manner and upon the persons listed below:

Dated this 1<sup>st</sup> day of April 2022.

**SERVICE BY E-MAIL ONLY**

Gina L. Miller, Esquire  
Bureau of Investigation & Enforcement  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street, 2<sup>nd</sup> Floor  
Harrisburg, PA 17120  
[ginmiller@pa.gov](mailto:ginmiller@pa.gov)

Erin K. Fure, Esquire  
Office of Small Business Advocate  
555 Walnut Street  
1<sup>st</sup> Floor, Forum Place  
Harrisburg, PA 17101-1923  
[efure@pa.gov](mailto:efure@pa.gov)

Courtney L. Schultz, Esquire  
Shane P. Simon, Esquire  
Saul Ewing Arnstein & Lehr LLP  
1500 Market Street  
Centre Square West, 38<sup>th</sup> Floor  
Philadelphia, PA 19102  
[Courtney.schultz@saul.com](mailto:Courtney.schultz@saul.com)  
[Shane.simon@saul.com](mailto:Shane.simon@saul.com)

Frank D. Kitzmiller  
1041 Preston Road  
Lancaster, PA 17601  
[dkitz@comcast.net](mailto:dkitz@comcast.net)

Andre W. Renna and Patricia A. Renna  
2129 Quail Drive  
Lancaster, PA 17601  
[AWrenna@comcast.net](mailto:AWrenna@comcast.net)

William Waters  
1113 Sunwood Lane  
Lancaster, PA 17601  
[WMW1113@aol.com](mailto:WMW1113@aol.com)

**SERVICE BY E-MAIL ONLY (continued)**

Tony K. Koenig  
623 Covington Place  
Lancaster, PA 17601  
[TK17601@gmail.com](mailto:TK17601@gmail.com)

Robert Arters  
4 Blueberry Circle  
Lancaster, PA 17602  
[rdarters@yahoo.com](mailto:rdarters@yahoo.com)

/s/ Christy M. Appleby  
Christy M. Appleby  
Assistant Consumer Advocate  
PA Attorney I.D. # 85824  
E-Mail: [CAAppleby@paoca.org](mailto:CAAppleby@paoca.org)

Christine Maloni Hoover  
Senior Assistant Consumer Advocate  
PA Attorney I.D. # 50026  
E-Mail: [CHoover@paoca.org](mailto:CHoover@paoca.org)

Counsel for:  
Office of Consumer Advocate  
555 Walnut Street  
5<sup>th</sup> Floor, Forum Place  
Harrisburg, PA 17101-1923  
Phone: (717) 783-5048  
Fax: (717) 783-7152  
Dated: April 1, 2022  
\*326122

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Pennsylvania Public Utility Commission** )  
 )  
**v.** ) **Docket No. R-2021-3026682**  
 )  
**City of Lancaster – Water Department** )

**DIRECT TESTIMONY  
OF  
LAFAYETTE K. MORGAN, JR.**

**ON BEHALF OF THE  
OFFICE OF CONSUMER ADVOCATE**

**December 23, 2021**

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION .....	1
II. SUMMARY AND RECOMMENDATIONS .....	5
III. OCA ADJUSTMENTS TO THE CITY’S COST OF SERVICE.....	6
Plant in Service .....	6
Cash Working Capital.....	7
Operating Revenues .....	7
Payroll Expense .....	8
Susquehanna Treatment Plant Maintenance Expense.....	10
Capital Outlay Expense.....	11
Trench Paving Expense.....	12
Professional and Contract Services Expense .....	12
Rate Case Normalization Expense.....	13
Depreciation Expense .....	13
IV. ADDITIONAL CONSIDERATIONS .....	13

Schedules

Appendix A – Resume of Lafayette K. Morgan, Jr.

1 I. INTRODUCTION

2 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

3 A. My name is Lafayette K. Morgan, Jr. My business address is 10480 Little Patuxent  
4 Parkway, Suite 300, Columbia, Maryland, 21044. I am a Public Utilities Consultant  
5 working with Exeter Associates, Inc. (Exeter). Exeter is a consulting firm specializing  
6 in issues pertaining to public utilities.

7 Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND  
8 QUALIFICATIONS.

9 A. I received a Master of Business Administration degree from The George Washington  
10 University. The major area of concentration for this degree was Finance. I received a  
11 Bachelor of Business Administration degree with concentration in Accounting from  
12 North Carolina Central University. I was previously a CPA licensed in the state of  
13 North Carolina, however, in 2009, I elected to place my license in an inactive status as  
14 I focused on start-up activities for other business interests.

15 Q. WOULD YOU PLEASE DESCRIBE YOUR PROFESSIONAL  
16 EXPERIENCE?

17 A. From May 1984 until June 1990, I was employed by the North Carolina Utilities  
18 Commission - Public Staff in Raleigh, North Carolina. I was responsible for analyzing  
19 testimony, exhibits, and other data presented by parties before the North Carolina  
20 Utilities Commission. I had the additional responsibility of performing the examination  
21 of books and records of utilities involved in rate proceedings and summarizing the  
22 results into testimony and exhibits for presentation before that Commission. I was also  
23 involved in numerous special projects, including participating in compliance and

1 prudence audits of a major utility and conducting research on several issues affecting  
2 natural gas and electric utilities.

3 From June 1990 until July 1993, I was employed by Potomac Electric Power  
4 City (Pepco) in Washington, D.C. At Pepco, I was involved in the preparation of the  
5 cost of service, rate base and ratemaking adjustments supporting the City's requests for  
6 revenue increases in the State of Maryland and the District of Columbia.

7 From July 1993 through 2010, I was employed by Exeter as a Senior Regulatory  
8 Analyst. During that period, I was involved in the analysis of the operations of public  
9 utilities, with emphasis on utility rate regulation. I reviewed and analyzed utility rate  
10 filings, focusing primarily on revenue requirements determination. This work involved  
11 natural gas, water, electric, and telephone companies.

12 In 2010, I left Exeter to focus on start-up activities for other ongoing business  
13 interests. In late 2014, I returned to Exeter continuing to work in a similar capacity as  
14 prior to my hiatus.

15 Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY  
16 PROCEEDINGS ON UTILITY RATES?

17 A. Yes. I have previously presented testimony and affidavits on numerous occasions  
18 before the Pennsylvania Public Utility Commission, the North Carolina Utilities  
19 Commission, the Virginia Corporation Commission, the Louisiana Public Service  
20 Commission, the Georgia Public Service Commission, the Maine Public Utilities  
21 Commission, the Kentucky Public Service Commission, the Public Utilities  
22 Commission of Rhode Island, the Vermont Public Service Board, the Illinois  
23 Commerce Commission, the West Virginia Public Service Commission, the Maryland  
24 Public Service Commission, the Corporation Commission of Oklahoma, Kansas



1 Corporation Commission, the Philadelphia Gas Commission, the Philadelphia Water,  
2 Sewer and Storm Water Rate Board, the Colorado Public Utilities Commission, the  
3 Public Service Commission of South Carolina, and the Federal Energy Regulatory  
4 Commission (FERC). My resume is attached hereto as Appendix A.

5 Q. ON WHOSE BEHALF ARE YOU APPEARING?

6 A. I am presenting testimony on behalf of the Pennsylvania Office of Consumer Advocate  
7 (OCA).

8 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS  
9 PROCEEDING?

10 A. Exeter has been retained by the OCA to assist in the evaluation of the general rate filing  
11 submitted by City of Lancaster – Water Department (the City). I have been asked by  
12 the OCA to present my findings with respect to the City’s revenue requirement and its  
13 proposed rate increase. I calculate the City’s rate base, pro forma operating income  
14 under present rates, and overall revenue deficiency based upon my recommended  
15 adjustments to the City’s claims. My findings are based upon incorporating the  
16 recommendations and findings of other OCA witnesses who are also presenting  
17 testimony in this proceeding.

18 Q. PLEASE IDENTIFY THE OCA’S OTHER EXPERT WITNESSES WHO  
19 ARE PRESENTING TESTIMONY IN THIS PROCEEDING.

20 A. In addition to my testimony, there are four witnesses presenting testimony on behalf of  
21 the OCA. Mr. David Garrett provides testimony on the appropriate rate of return and  
22 cost of capital issues. Mr. Jerome Mierzwa is the OCA’s witness who provides  
23 testimony on class cost of service and rate design issues. Mr. Terry Fought is the OCA  
24 witness who provides testimony on the system operations issues. Ms. Morgan

1 DeAngelo provides testimony on behalf of the OCA addressing COVID-19 issues,  
2 certain tariff provisions, the impact of the proposed increase on low-income customers,  
3 and certain accounting and policy issues.

4 Q. IN CONNECTION WITH THIS CASE, HAVE YOU PERFORMED AN  
5 EXAMINATION AND REVIEW OF THE CITY'S TESTIMONY AND  
6 EXHIBITS?

7 A. Yes. I have reviewed the City's testimonies, exhibits and its rate filing. I have also  
8 reviewed the City's responses to the OCA, and the Bureau of Investigation &  
9 Enforcement (I&E) interrogatories.

10 Q. WHAT PERIOD HAVE YOU USED IN MAKING YOUR  
11 DETERMINATION OF THE CITY'S REVENUE REQUIREMENTS?

12 A. I used the Fully Projected Future Test Year (FPFTY) ending December 31, 2022, as  
13 filed by the City, as the basis for determining its rate year revenue requirements.

14 Q. HAVE YOU PREPARED SCHEDULES TO ACCOMPANY YOUR  
15 TESTIMONY?

16 A. Yes. I have prepared Schedules LKM-1 through LKM-11. Schedule LKM-1 provides  
17 a summary of revenues and expenses under present and proposed rates. Schedule LKM-  
18 2 summarizes my adjustments to the City's FPFTY rate base. Schedule LKM-3  
19 provides a summary of my adjustments to the FPFTY revenues and expenses and the  
20 resulting operating income. The various adjustments that I am recommending to the  
21 City's claimed rate base, revenues and operating expenses are presented on Schedules  
22 LKM-4 through LKM-11.

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

1 A. First, I provide a summary of the City's filing and my findings and recommendations.  
2 Then, I document and explain each of the adjustments I made to the City's rate base  
3 and operating income to arrive at the rate year revenue requirement shown on Schedule  
4 LKM-1. My discussion of these adjustments is organized into sections corresponding  
5 to the issue being addressed. These sections are set forth in the Table of Contents for  
6 this testimony.

7 II. SUMMARY AND RECOMMENDATIONS

8 Q. PLEASE SUMMARIZE THE RATE RELIEF REQUESTED BY THE CITY  
9 IN ITS FILING.

10 A. On September 30, 2021, the City filed its base rate case with the Pennsylvania Public  
11 Utility Commission (the Commission) to increase base utility rates by \$4,024,593 for  
12 its Outside City customers. If the City's entire request is approved, this increase would  
13 amount to increases of 21.2 percent, 14.0 percent, and 7.6 percent for residential,  
14 commercial, and industrial customers, respectively. The City indicates that the reason  
15 for its request for rate relief is to recover increased costs to provide water service,  
16 including recovery of the added capital investment in the City's water facilities.

17 Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS.

18 A. As shown on Schedule LKM-1, I have determined that the City's annual revenue  
19 should be increased by \$1,608,023 for the FPFTY ending December 31, 2022. This  
20 represents a decrease of \$2,416,570 from the City's requested net increase of  
21 \$4,024,593. This is the amount by which revenues exceed those required to generate  
22 an overall rate of return on rate base of 5.60 percent after accounting for the OCA's  
23 adjustments to the City's claimed rate base and operating income. The overall return of

1 5.60 percent represents OCA witness Garrett’s findings regarding the City’s overall  
2 rate of return. In comparison, the City is seeking an overall return of 6.63 percent.

3 III. OCA ADJUSTMENTS TO THE CITY’S COST OF SERVICE

4 Plant in Service

5 Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO THE CITY’S PLANT IN  
6 SERVICE.

7 A. On Schedule 4 of Exhibit GRH-1, the City presents its FPFTY rate base on which it  
8 proposes to earn a return of 6.63 percent. The City included \$281,962,431 and  
9 \$292,270,922 for the future test year (FTY) and the FPFTY plant balances,  
10 respectively. During the response to data requests, the City revised two of its pre-filed  
11 exhibits (Exhibits JJS-2 and JJS-3)<sup>1</sup> which support its rate base claim. In the revised  
12 exhibits, the City revised its plant in service and the related depreciation claims for the  
13 FTY and the FPFTY. The single largest revision made by the City was to remove its  
14 inclusion of the South Pump Station project. The City explained that the construction  
15 of the pump station has been delayed and is not anticipated to be completed until  
16 2023/2024, and that it had removed all of the projected costs except for design-related  
17 costs of \$179,600.

18 The adjustment I am recommending accepts the City’s revised plant in service  
19 and the related depreciation amounts. In addition, I recommend the removal of the  
20 design-related costs, related to the South Pump Station Project, of \$179,600 that the  
21 City has left in its plant in service claim.

---

<sup>1</sup> See the City’s Updated (10/29/21) responses to I&E-RB-7 and 8.

1 Q. WHY ARE RECOMMENDING THE REMOVAL OF PROJECT'S  
2 DESIGN-RELATED COSTS?

3 A. The project's design-related costs do not form an independent property unit or usable  
4 plant asset. Instead, they are the costs related to the project design, which is just one of  
5 the many components of the total South Pump Station project. Accordingly, the design-  
6 related costs should be classified as part of construction work in progress (CWIP). This  
7 Commission has a long-standing policy of not allowing CWIP in rate base. Therefore,  
8 I am removing these costs from the rate base in this proceeding.

9 On Schedule LKM-4, I present my adjustment which results in a net decrease  
10 of \$5,572,037 in the City's rate base.

11 Cash Working Capital

12 Q. WHAT ADJUSTMENT HAVE YOU MADE TO CASH WORKING  
13 CAPITAL?

14 A. I have made an adjustment to reflect OCA witness Morgan DeAngelo's recommended  
15 adjustment to decrease the City's cash working capital claim. Ms. DeAngelo has  
16 provided me with the adjustment amount of \$64,321, which I have included on  
17 Schedule LKM-2.

18 Operating Revenues

19 Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO OPERATING REVENUE.

20 A. The annualization of revenues from residential, commercial, and industrial customers  
21 is partly based on the change in the number of customers during the rate effective  
22 period. For purposes of the revenue annualization for the FPFTY, the City has  
23 determined the change in the number of customers based upon the change in customers

1 between 2019 and 2020. For the FPFTY, the Company's projection of the gain/(loss)  
2 of customers was 344, (2), and 3 for residential, commercial, and industrial customers,  
3 respectively.

4 Because of the COVID-19 pandemic, 2020 was an abnormal year for businesses  
5 and individuals. In Pennsylvania, Governor Wolf declared a State of Emergency,  
6 during which economic activity was curtailed for many commercial establishments  
7 because of the stay-at-home restrictions. In my opinion, an adjustment to revenues,  
8 based upon the change between 2019 and 2020 would reflect the abnormal activity that  
9 occurred during 2020 and understate the annualized revenue.

10 Therefore, I am recommending an adjustment to revise the operating revenue  
11 annualization adjustment by the most recent 3-year compound growth factor. On  
12 Schedule LKM-5, page 2, I calculate the growth in the number of customers  
13 experienced for the years 2018, 2019 and 2020. I then apply the growth factor to the  
14 2020 and 2021 number of customers to derive the increase in the number of customers  
15 for the FPFTY. Using the same approach as the City, I applied the increase in the  
16 number of customers to the average annual bill, as calculated by the City. This  
17 calculation results in an increase in annual revenue of \$20,409, as shown on Schedule  
18 LKM-5, page 1.

19 Payroll Expense

20 Q. WHAT ADJUSTMENT ARE YOU RECOMMENDING TO PAYROLL  
21 EXPENSE?

22 A. I am recommending an adjustment to payroll expense to remove a post-FPFTY  
23 adjustment to increase payroll expense from the cost of service. In deriving the ongoing  
24 level of payroll expense, the City began with the 2020 (the HTY) payroll amount and

1 adjusted the HTY annualized amount to reflect pay rate increases granted, or to be  
2 granted, in January 2021, January 2022 and January 2023. The pay rate increase that is  
3 anticipated for January 2023 occurs after the end of the FPFTY which ends on  
4 December 31, 2022 and should not be included in the cost of service in this proceeding.  
5 Therefore, I am recommending an adjustment that removes the January 2023  
6 adjustment from the cost of service. Since these costs are post-test year costs, they are  
7 not eligible for recovery in this proceeding.

8 Q. WHY ARE THE POST-FPFTY COSTS NOT ELIGIBLE FOR RECOVERY  
9 IN THIS PROCEEDING?

10 A. The use of a fully projected future test year is intended to allow rates to be set to reflect  
11 the costs and revenues that will be incurred during the first year the new rates will be  
12 in effect. The City's wage increase adjustment attempts to include cost increases that  
13 will occur after the end of the test year. As a result, inclusion of these costs will violate  
14 the FPFTY concept.

15 In utility ratemaking, the test year serves as a hard cut-off point for cost  
16 recognition, otherwise the decision over what costs to include in the costs of service  
17 could become subjective and biased. It should be noted that under the use of the fully  
18 projected future test year, under Act 11 of 2012 (Act 11), the basis of the cost of service  
19 for utilities is to allow the costs that are expected to be incurred during the rate effective  
20 period. In the Implementation Order for Act 11, on page 5, it states:

21 Section 315 of the Code, 66 Pa. C.S. § 315, contains the burden of  
22 proof a utility has in various proceedings before the Commission.  
23 With the enactment of Act 11, the burden of proof standard for  
24 utilities in rate proceedings has been amended to permit use of either  
25 a future test year or a "fully-projected future test year" in rate cases.  
26 The fully-projected test year is defined as the 12-month period that  
27 begins with the first month that the new rates will be placed into  
28 effect, after application of the full suspension period permitted under

1                   Section 1308(d). *See* 66 Pa. C.S. § 1308(d). Under this approach, the  
2 risks associated with regulatory lag will be substantially reduced  
3 because the new rates will be consistent with the test year used to  
4 establish those rates for at least the first year.

5                   Hence, the City's post-test year pay rate increase reaches out an additional year beyond  
6 the FPFTY to capture specific costs. The inclusion of the post-test year costs creates a  
7 mismatch with revenues and other expenses that are based on FPFTY.

8                   Based on the foregoing, I am adjusting payroll expense to reflect a decrease of  
9 \$139,912 on Schedule LKM-6. On this schedule, I also present the corresponding  
10 adjustment to reduce payroll taxes by \$10,703 since those costs are calculated as a  
11 percentage of payroll.

12                   Susquehanna Treatment Plant Maintenance Expense

13                   Q.                   WHAT ADJUSTMENT ARE YOU RECOMMENDING TO THE  
14                   SUSQUEHANNA TREATMENT PLANT MAINTENANCE EXPENSE?

15                   A.                   I am recommending an adjustment to normalize the Susquehanna Treatment Plant  
16 Maintenance Expense. The test year amount for Maintenance of Equipment Account  
17 No. 620.3 was abnormally high when compared to previous years. The City explained  
18 that it completed certain maintenance on the treatment plant's equipment. As explained  
19 by the City, the specific maintenance is not required annually. Therefore, on Schedule  
20 LKM-7, I am recommending an adjustment to normalize the expense based on an  
21 average of the three-year period 2018, 2019 and 2020. This adjustment results in a  
22 decrease to O&M expense of \$41,923.



1 Capital Outlay Expense

2 Q. WHAT ADJUSTMENT ARE YOU RECOMMENDING TO CAPITAL  
3 OUTLAY EXPENSE?

4 A. In accounting, expenditures are either classified as an expense or a capital item.  
5 Expenses are recorded in the income statement as a cost in the current period, while  
6 capital items are recorded in capital accounts (balance sheet accounts such as plant in  
7 service). In general, the determining factor for whether an expenditure is an expense or  
8 capital item is whether an expenditure benefits more than one accounting period.  
9 Expenditures that benefit more than one accounting period are generally considered  
10 capital items and recorded in a balance sheet account. The City's accounting policy is  
11 to expense capital items that do not exceed \$10,000. In other words, when the  
12 expenditure does not exceed \$10,000, it is treated as though it is an expense.

13 The cost of service, as filed by the City, included Capital Outlay Expenses  
14 related to the Susquehanna and Conestoga Treatment Plants. These expenditures  
15 appear to be abnormal since, in the two previous years, the City reported \$0 for this  
16 category. According to the City in I&E-RE-13, the Capital Outlay Expense related to  
17 the Susquehanna Treatment Plant was associated with the same Maintenance of  
18 Equipment (Account No. 620.3) work that it indicated was not required annually. The  
19 Capital Outlay Expense related to the Conestoga Treatment Plant, according to the  
20 City's response to I&E-RE-16, was not related to a specific project, but appear to be  
21 capital items that were below the City's threshold for capitalizing. Nevertheless, in the  
22 prior two years there were no expenses in this category.

23 I am recommending an adjustment to remove these two expenditures from the  
24 O&M expenses to reflect a normal level of expenses given that these categories had no

1 costs during the two previous years. In addition, as I explained, the nature of capital  
2 expenditures is that they benefit more than one accounting period. Hence, it is not  
3 expected that these costs would be incurred annually. Therefore, on Schedule LKM-8,  
4 I am recommending an adjustment to decrease O&M expense by \$124,851.

5 Trench Paving Expense

6 Q. WHAT ADJUSTMENT ARE YOU RECOMMENDING TO TRENCH  
7 PAVING EXPENSE?

8 A. I am recommending an adjustment to normalize the Trench Paving Expense. The test  
9 year amount for Trench Paving (Account No. 620.5) was significantly higher than the  
10 previous years. The City's explanation in I&E-RE-16 acknowledges that trench paving  
11 was higher during 2020 but provided no specific reason for the higher level of expense.

12 On Schedule LKM-9, I am recommending an adjustment to normalize the  
13 expense based on an average of the three-year period 2018, 2019 and 2020. This  
14 adjustment results in a decrease to O&M expense of \$85,541.

15 Professional and Contract Services Expense

16 Q. WHAT ADJUSTMENT ARE YOU RECOMMENDING TO  
17 PROFESSIONAL AND CONTRACT SERVICES EXPENSE?

18 A. I am recommending an adjustment to normalize the Professional Services Expense  
19 (Account No. 631.8) and Contract Services Expense (Account No. 675.8). The test year  
20 amount for these accounts were abnormally higher than the previous years. As a result,  
21 I believe it is appropriate to normalize the expense.

1 On Schedule LKM-10, I am recommending an adjustment to normalize the  
2 expense based on an average of the three-year period 2018, 2019 and 2020. This  
3 adjustment results in a decrease to O&M expense of \$111,634.

4 Rate Case Normalization Expense

5 Q. WHAT ADJUSTMENT HAVE YOU MADE TO RATE CASE  
6 NORMALIZATION EXPENSE?

7 A. Ms. DeAngelo is recommending an adjustment to decrease rate case expense and I have  
8 included her adjustment in the cost of service. She has provided me with the adjustment  
9 amount of \$70,909. I have included her adjustment on Schedule LKM-3.

10 Depreciation Expense

11 Q. WHAT ADJUSTMENT ARE YOU RECOMMENDING TO  
12 DEPRECIATION EXPENSE?

13 A. Earlier in this testimony, I explain my adjustment to reduce FPFTY Plant in Service.  
14 Since Depreciation expense is calculated as a percentage of the plant balances, it is  
15 appropriate to adjust depreciation expense based upon the lower plant balances.

16 On Schedule LKM-11, I am recommending an adjustment to decrease  
17 depreciation expense to reflect my adjustment to plant in service. This adjustment  
18 results in a decrease to Depreciation Expense by \$91,146.

19 IV. ADDITIONAL CONSIDERATIONS

20 Q. WHAT ARE THE ADDITIONAL CONSIDERATIONS THAT YOU  
21 HAVE?

22 A. In the responses to OCA-VI-3, 4 and 5, the City has indicated that there may be  
23 additional federal and state funds available to the City and/or the Bureau of Water

1 through various federal COVID-19 relief legislation. As I understand it, the City (and  
2 not necessarily the Bureau of Water) has already received some funding. I also  
3 understand that the City is actively reviewing options to obtain funding for the Bureau  
4 of Water, primarily for water system infrastructure improvements.

5 Part of the reason these funds were made available to water utilities is to provide  
6 some benefit and relief for customers, particularly those customers that are having  
7 difficulty with their utility bills. I am recommending that the Commission direct the  
8 City to capture any funds received for infrastructure improvement, and other capital  
9 expenditures, in a manner that reduces or offset the cost of plant and rate base additions  
10 on which it earns a return for ratemaking purposes. The rationale behind this  
11 recommendation is to preserve the benefits of these funds for ratepayers.

12 Q. DOES THIS COMPLETE YOUR DIRECT TESTIMONY?

13 A. Yes, it does.

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Pennsylvania Public Utility Commission**     )  
  )  
**v.**   )  
  )  
**City of Lancaster – Water Department**     )

**Docket No. R-2021-3026682**

**SCHEDULES ACCOMPANYING THE  
DIRECT TESTIMONY  
OF  
LAFAYETTE K. MORGAN, JR.**

**ON BEHALF OF THE  
OFFICE OF CONSUMER ADVOCATE**

**December 23, 2021**

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Summary of Operating Income  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Company Amounts at Present Rates	OCA Adjustments	Amounts After OCA Adjustments	Pro Forma Change in Revenues	Amounts After Change in Revenues
	<u>Operating Revenues</u>					
1	Total Water Sales	\$ 18,881,955	\$ 20,409	\$ 18,902,364	\$ -	\$ 18,902,364
2	Total Other Revenues	495,323	-	495,323	-	495,323
3	Revenue Increase	-	-	-	1,608,023	1,608,023
4	Total Operating Revenues	<u>19,377,278</u>	<u>20,409</u>	<u>19,397,687</u>	<u>1,608,023</u>	<u>21,005,710</u>
5						
6	<u>Operating Expenses</u>					
7	O&M Expenses	10,375,302	(585,473)	9,789,829	-	9,789,829
8	Depreciation	3,432,327	(91,146)	3,341,181	-	3,341,181
9	Taxes, Other Than Income	-	-	-	-	-
10	State Income Taxes	-	-	-	-	-
11	Federal Income Taxes	-	-	-	-	-
12						
13	Total Operating Expenses	<u>13,807,629</u>	<u>(676,619)</u>	<u>13,131,010</u>	<u>-</u>	<u>13,131,010</u>
14						
15	Net Operating Income	<u>\$ 5,569,649</u>	<u>\$ 697,029</u>	<u>\$ 6,266,678</u>	<u>\$ 1,608,023</u>	<u>\$ 7,874,701</u>
16						
17	Rate Base	<u>\$ 144,624,169</u>		<u>\$ 140,619,656</u>		<u>\$ 140,619,656</u>
18						
19	Return On Rate Base	<u>3.85%</u>		<u>4.46%</u>		<u>5.60%</u>

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Summary of Revenue Increase at OCA Rate of Return  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Amount	Source
1	Adjusted Rate Base	\$ 140,619,656	Schedule LKM-2, Page 2
2	Required Rate of Return	<u>5.600%</u>	OCA Witness Garrett
3			
4	Net Operating Income Required	\$ 7,874,701	
5	Net Operating Income at Present Rates	<u>6,266,678</u>	Schedule LKM-1, Page 1
6			
7	Income Deficiency/(Surplus)	\$ 1,608,023	
8	Revenue Multiplier	<u>1.000000</u>	
9			
10	Required Change in Company Revenue	<u><u>\$ 1,608,023</u></u>	

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Summary of Rate Base  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Amount per Company Filing	OCA Rate Base Adjustments	Amount After OCA Adjustments
1	Original Cost of Utility Plant in Service	\$ 292,270,922	\$ (5,700,000)	\$ 286,570,922
2	Accumulated Depreciation	<u>(78,430,891)</u>	<u>127,963</u>	<u>(78,302,928)</u>
3	Net Plant in Service	213,840,031	(5,572,037)	208,267,994
4	Other Rate Base Items:			
5	Customer Advances for Construction	(544,557)	-	(544,557)
6	Accumulated Depreciation	<u>245,581</u>	<u>-</u>	<u>245,581</u>
7	Subtotal	(298,976)	-	(298,976)
8	Customer Advances for Construction	(14,390,926)	-	(14,390,926)
9	Accumulated Depreciation	<u>2,902,037</u>	<u>-</u>	<u>2,902,037</u>
10	Subtotal	(11,488,889)	-	(11,488,889)
11				
12	Cash Working Capital	<u>1,826,674</u>	<u>(73,184)</u>	<u>1,753,490</u>
13	Total Rate Base	\$ 203,878,840	\$ (5,645,221)	\$ 198,233,619
14	Outside City Allocation Factor		<u>0.70936331</u>	<u>0.70936331</u>
15	Outside City Total Rate Base	<u>\$ 144,624,169</u>	<u>\$ (4,004,513)</u>	<u>\$ 140,619,656</u>



**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Summary of Rate Base Adjustments  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Source	Amount
1	Rate Base per Company Filing	Schedule LKM-2, Page 1	\$ 144,624,169
2			
3			
4	<u>OCA Adjustments:</u>		
5	Adjustment to Reflect Revised Rate Base Components	Schedule LKM - 4	\$ (5,572,037)
6	Reflect OCA's Adjustment in Cash Working Capital	OCA Witness DeAngelo	(73,184)
7			-
8			
9	Total Ratemaking Adjustments		\$ (5,645,221)
10			
11	Adjusted Rate Base per OCA		\$ 138,978,948

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Summary of Adjustments to Income Before Income Taxes  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Amount	Source
1	Operating Income per Company	\$ 5,569,649	Schedule LKM-1
2			
3	<u>OCA Adjustments:</u>		
4	Annualize Operating Revenues	\$ 20,409	Schedule LKM-5
5	Reflect FPFTY Payroll	150,615	Schedule LKM-6
6	Normalize Susquehanna Maintenance of Equipment	41,923	Schedule LKM-7
7	Non-Recurring Capital Outlay Expense	124,851	Schedule LKM-8
8	Normalize Trench Paving Expense	85,541	Schedule LKM-9
9	Normalize Professional & Contract Services Fees	111,634	Schedule LKM-10
10	Remove FPFTY Plant from Depreciation Expense	91,146	Schedule LKM-14
11	Normalization of Rate Case	70,909	OCA witness DeAngelo
12			
13	Total OCA Adjustments	<u>697,029</u>	
14			
15	Total OCA Adjustments	<u>\$ 6,266,678</u>	

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Summary of Adjustments to Operating Income  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Operating Revenues	O&M Expenses	Depreciation & Amortization	Taxes Other Than Income	State Income Taxes	Federal Income Taxes	Operating Income Before Income Taxes
1	Amount per Company	\$ 19,377,278	\$ 10,375,302	\$ 3,432,327	\$ -	\$ -	\$ -	\$ 5,569,649
2								
3	<u>OCA Adjustments:</u>							
4	Annualize Operating Revenues	\$ 20,409	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20,409
5	Reflect FPFTY Payroll	-	(150,615)	-	-	-	-	150,615
6	Normalize Susquehanna Maintenance of Equipment	-	(41,923)	-	-	-	-	41,923
7	Non-Recurring Capital Outlay Expense	-	(124,851)	-	-	-	-	124,851
8	Normalize Trench Paving Expense	-	(85,541)	-	-	-	-	85,541
9	Normalize Professional & Contract Services Fees	-	(111,634)	-	-	-	-	111,634
10	Remove FPFTY Plant from Depreciation Expense	-	-	(91,146)	-	-	-	91,146
11	Normalization of Rate Case	-	(70,909)	-	-	-	-	70,909
12								
13								
14	Total OCA Adjustments	\$ 20,409	\$ (585,473)	\$ (91,146)	\$ -	\$ -	\$ -	\$ 697,029
15								
16	Total Adjusted Income Before Income Taxes	\$ 19,397,687	\$ 9,789,829	\$ 3,341,181	\$ -	\$ -	\$ -	\$ 6,266,678

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Adjustment to Reflect Revised Rate Base Components  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Amount per City Filing <sup>1/</sup>	FPFTY Amount per Revised Exhibit JJS-3 <sup>2/</sup>	OCA Rate Base Adjustments
1	<u>Plant in Service:</u>			
2	Original Cost of Utility Plant in Service	\$ 292,270,922	\$ 286,750,522	\$ (5,520,400)
3	South Pump Station Design Related Costs			<u>(179,600)</u>
4	Total Adjustment to Plant in Service			<u>\$ (5,700,000)</u>
5	<u>Accumulated Depreciation</u>			
6	Total Depreciable Plant - Accumulated Depreciation	\$ (78,430,891)	\$ (78,306,323)	\$ 124,568
7	South Pump Station Design Related Costs Accumulated Depreciation			<u>3,395</u>
8	Total Adjustment to Accumulated Depreciation			<u>\$ 127,963</u>
9	Net Decrease in Rate Base			<u><u>\$ (5,572,037)</u></u>

Notes:  
<sup>1/</sup> Exhibit GRH-1, Schedule 4.  
<sup>2/</sup> Revised Exhibit JJS-3.

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Adjustment to Annualize Operating Revenues  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Number of Customers 31-Dec-20 <sup>1/</sup>	Growth Factor	Number of Customers 31-Dec-21 <sup>2/</sup>	FPFTY Gain/Loss in Customers	Number of Customers 31-Dec-22	Increase in Customers Over HTY	Average Annual Bill, Present Rates	FPFTY Revenue Adjustment <sup>1/</sup>
1	Residential	28,914	100.65997%	29,105	100.65997%	29,297	383	\$ 311.86	\$ 119,415
2	Commercial	1,870	100.35907%	1,877	100.35907%	1,883	13	970.05	13,050
3	Industrial	69	101.49276%	70	101.49276%	71	2	7,262.51	15,072
4									
5	Total								147,538
6	Annualized Operating Adjustment per City								<u>127,129</u> <sup>1/</sup>
7									
8	Adjustment to Annualize Operating Revenues								<u>\$ 20,409</u>

Notes:  
<sup>1/</sup> Exhibit GRH-1, Schedule 5.  
<sup>2/</sup> Schedule LKM-4, Page 2.

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Calculation Compound Customer Growth Rate  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Customer Classification	As of 12/31/2017		As of 12/31/2018		As of 12/31/2019		As of 12/31/2020		3-Year Compound Growth Rate
		Inside-City	Outside-City	Inside-City	Outside-City	Inside-City	Outside-City	Inside-City	Outside-City	
	(1)	(2)	(3)	(2)	(3)	(2)	(3)	(4)	(5)	
1	Residential	14,893	28,349	14,932	28,570	14,930	28,725	14,924	28,914	0.65997%
2	Commercial	2,012	1,850	1,900	1,872	1,894	1,878	1,890	1,870	0.35907%
3	Industrial	42	66	40	66	40	67	40	69	1.49276%
4	Other Water Utilities	0	5	0	5	0	5	0	5	
5	Total	16,947	30,270	16,872	30,513	16,864	30,675	16,854	30,858	

Data Source:  
 I&E-RS-4-D

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Adjustment to Reflect FPPTY Payroll  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Annualized Based on 1/1/2022	<sup>1/</sup>	Annualized Based on 1/1/2023	<sup>1/</sup>	Adjustment
<b>Regular Payroll</b>						
1	Susquehanna Treatment Plant	\$ 1,015,365		\$ 1,043,288		\$ (27,923)
2	Conestoga Treatment Plant	1,003,698		1,031,300		(27,602)
3	Laboratory	243,696		250,398		(6,702)
4	Laboratory - Temporary	-		-		-
5	Transmission/Distribution	966,077		992,644		(26,567)
6	Transmission/Distribution - Temporary	-		-		-
7	Meter Shop	542,125		557,033		(14,908)
8	Meter Shop - Temporary	-		-		-
9	Admin - Salary Bureau Chief	31,812		32,687		(875)
10	Admin - Personnel	922,402		947,768		(25,366)
11	Grounds Maintenance	134,410		138,107		(3,697)
12	Total Regular Payroll	4,859,585		4,993,225		(133,640)
<b>Overtime Payroll</b>						
14	Susquehanna Treatment Plant	\$ 71,093		\$ 73,048		(1,955)
15	Conestoga Treatment Plant	83,299		85,590		(2,291)
16	Transmission/Distribution	37,836		38,876		(1,040)
17	Grounds Maintenance	16,705		17,164		(459)
18	Meter Shop	19,136		19,663		(526)
19	Total Overtime Payroll	228,070		234,341		(6,272)
20	Adjustment to Combined Payroll					\$ (139,912)
21	Adjustment to Payroll Tax					\$ (10,703)

Note:

<sup>1/</sup> Exhibit GRH-1, Schedule 6, Page 1.

**CITY OF LANCASTER – BUREAU OF WATER**  
Outside City Revenue Requirement  
Adjustment to Normalize Maintenance of Equipment  
Susquehanna Treatment Plant  
For the Fully Projected Future Test Year Ending December 31, 2022

<u>Line No.</u>	<u>Description</u>	<u>Amount</u> <sup>1/</sup>
1	<u>Maintenance of Equipment Acct. 620.3</u>	
2	2018 Expense	\$ 198,439
3	2019 Expense	166,402
4	2020 Expense	<u>245,306</u>
5	Average Expense	203,382
6	FPFTY Expense	<u>245,306</u>
7	Adjustment to O&M Expense	<u>\$ (41,923)</u>

Notes:

<sup>1/</sup> Response I&E-1 Attachment



**CITY OF LANCASTER – BUREAU OF WATER**  
Outside City Revenue Requirement  
Adjustment to Non-Recurring Capital Outlay Expense  
For the Fully Projected Future Test Year Ending December 31, 2022

<u>Line No.</u>	<u>Description</u>	<u>Amount</u> <sup>1/</sup>
1	Susquehanna Capital Outlay Expense	\$ 54,015
2	Conestoga Capital Outlay Expense	<u>70,836</u>
3	Total Non-Recurring Capital Outlay Expense	<u>\$ 124,851</u>
4	Adjustment to O&M Expense	<u><u>\$ (124,851)</u></u>

Notes:

<sup>1/</sup> Response I&E-1 Attachment

**CITY OF LANCASTER – BUREAU OF WATER**  
Outside City Revenue Requirement  
Adjustment to Normalize Trench Paving Expense  
For the Fully Projected Future Test Year Ending December 31, 2022

<u>Line No.</u>	<u>Description</u>	<u>Amount</u> <sup>1/</sup>
1	<u>Trench Paving Acct. 620.5</u>	
2	2018 Expense	\$ 30,954
3	2019 Expense	44,128
4	2020 Expense	<u>165,853</u>
5	Average Expense	80,312
6	FPFTY Expense	<u>165,853</u>
7	Adjustment to O&M Expense	<u><u>\$ (85,541)</u></u>

Notes:

<sup>1/</sup> Response I&E-1 Attachment

**CITY OF LANCASTER – BUREAU OF WATER**  
Outside City Revenue Requirement  
Adjustment to Normalize Professional & Contract Services Fees  
For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Amount <sup>1/</sup>
1	<u>Professional Services Acct. 631.8</u>	
2	2018 Expense	\$ 454,291
3	2019 Expense	406,768
4	2020 Expense	<u>588,685</u>
5	Average Expense	\$ 483,248
6	<u>Contract Services Acct. 675.8</u>	
7	2018 Expense	\$ 19,726
8	2019 Expense	13,500
9	2020 Expense	<u>25,909</u>
10	Average Expense	\$ 19,712
11	Total Professional & Contract Services Fees	502,960
12	FPFTY Expense	<u>614,594</u>
13	Adjustment to O&M Expense	<u>\$ (111,634)</u>

Notes:

<sup>1/</sup> Response I&E-1 Attachment

**CITY OF LANCASTER – BUREAU OF WATER**

Adjustment to Depreciation Expense  
For the Fully Projected Future Test Year Ending December 31, 2022

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>
1	City's Revised Annualized FPPTY Depreciation Expense	\$ 3,341,181 <sup>1/</sup>
2	City's Annualized FPPTY Depreciation Expense	<u>3,432,327</u> <sup>2/</sup>
3	Adjustment to Depreciation Expense	<u><u>\$ (91,146)</u></u>

Note:

<sup>1/</sup> Revised Exhibit JJS-3.

<sup>2/</sup> Exhibit GRH-1, Schedule 1, Page 3.

**BEFORE THE**  
**PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Pennsylvania Public Utility Commission )**

**v. )**

**City of Lancaster – Water Department )**

**Docket No. R-2021-3026682**

**Appendix A**

## **LAFAYETTE K. MORGAN, JR.**

Mr. Morgan is an independent regulatory consultant focusing in the area of the analysis of the operations of public utilities with particular emphasis on rate regulation. He has reviewed and analyzed utility rate filings, focusing primarily on revenue requirements determination, accounting and regulatory policy and cost recovery mechanisms. This work has included natural gas, water, electric, and telephone utilities.

### Education and Qualifications

B.B.A. (Accounting) – North Carolina Central University, 1983

M.B.A. (Finance) – The George Washington University, 1993

C.P.A. – Licensed in the State of North Carolina (Inactive status)

### Previous Employment

1993-2010     Senior Regulatory Analyst  
                  Exeter Associates, Inc.  
                  Columbia, MD

1990-1993     Senior Financial Analyst  
                  Potomac Electric Power Company  
                  Washington, D.C.

1984-1990     Staff Accountant  
                  North Carolina Utilities Commission – Public Staff  
                  Raleigh, NC

### Professional Experience

As a Staff Accountant with the North Carolina Utilities Commission – Public Staff, Mr. Morgan was responsible for analyzing testimony, exhibits, and other data presented by parties before the Commission. In addition, he performed examinations of the books and records of utilities involved in rate proceedings and summarized the results into testimony and exhibits for presentation before the Commission. Mr. Morgan also participated in several policy proceedings and audits involving regulated utilities.

As a Senior Financial Analyst with Potomac Electric Power Company, Mr. Morgan was a lead analyst and was involved in the preparation of the cost of service, rate base, and ratemaking adjustments supporting the Company's request for revenue increases in its retail jurisdictions.

As a Senior Regulatory Analyst with Exeter Associates, Inc., Mr. Morgan has been involved in the analysis of the operations of public utilities with particular emphasis on rate regulation. He has reviewed and analyzed utility rate filings, focusing primarily on revenue requirements determination, accounting and regulatory policy and cost recovery mechanisms. This work included natural gas, water, electric, and telephone utilities.

Expert Testimony  
of Lafayette K. Morgan, Jr.

Kings Grant Water Company (North Carolina Utilities Commission, Docket No. W-250, Sub 5), 1984. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Northwood Water Company (North Carolina Utilities Commission, Docket No. W-690, Sub 1), 1985. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Emerald Village Water System (North Carolina Utilities Commission, Docket No. W-184, Sub 3), 1985. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

General Telephone Company of the South (North Carolina Utilities Commission, Docket No. P-19, Sub 207), July 1986. Presented testimony on the level of cash working capital allowance on behalf of the North Carolina Utilities Commission – Public Staff.

Heins Telephone Company (North Carolina Utilities Commission, Docket No. P-26, Sub 93), November 1986. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Carolina Power and Light Company (North Carolina Utilities Commission, Docket No. E-2, Sub 537), March 1988. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Public Service Company of North Carolina, Inc. (North Carolina Utilities Commission, Docket No. G-5, Sub 246), August 1989. Presented testimony on rate base, cash working capital allowance, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Conestoga Telephone and Telegraph Company (Pennsylvania Public Utility Commission, Docket No. I-00920015), September 1993. Presented testimony on cost of service on behalf of the Pennsylvania Office of Consumer Advocate.

Louisiana Power and Light Company (Louisiana Public Service Commission, Docket No. U-20925), February 1995. Presented testimony on rate base and working capital issues on behalf of the Louisiana Public Service Commission Staff.

South Central Bell Telephone Company – Louisiana (Louisiana Public Service Commission, Docket No. U-17949, Subdocket E), June 1995. Presented testimony on rate base and working capital issues on behalf of the Louisiana Public Service Commission Staff.



Expert Testimony  
of Lafayette K. Morgan, Jr.

Apollo Gas Company (Pennsylvania Public Utility Commission, Docket No. R-00953378), August 1995. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Carnegie Natural Gas Company (Pennsylvania Public Utility Commission, Docket No. R-00953379), August 1995. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Tennessee Gas Pipeline Company (Federal Energy Regulatory Commission, Docket No. RP95-112), September 1995. Presented testimony rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Virginia-American Water Company (Virginia State Corporation Commission, Case No. PUE-950003), March 1996. Presented testimony on rate base and cost of service issues on behalf of the City of Alexandria.

GTE North, Inc. Interconnection Arbitration (Pennsylvania Public Utility Commission, Docket No. A-310125F0002), September 1996. Presented testimony on the determination of the appropriate resale discount on behalf of the Pennsylvania Office of Consumer Advocate.

United Cities Gas Company (Georgia Public Service Commission, Docket No. 6691-U), October 1996. Presented testimony on rate base and cost of service issues on behalf of the Office of Governor, Consumer Utility Counsel Division.

GTE North, Inc. (Pennsylvania Public Utility Commission, Docket Nos. R-00963666 and R-00963666C001), February 1997. Presented testimony on the determination of the appropriate resale discount on behalf of the Pennsylvania Office of Consumer Advocate.

Consumers Maine Water Company (Maine Public Utilities Commission, Docket No. 96-739), May 1997. Presented testimony on rate base, cost of service, and rate of return issues on behalf of the Maine Office of the Public Advocate.

Pennsylvania-American Water Company (Pennsylvania Public Utility Commission, Docket No. R-00973944), July 1997. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Pennsylvania-American Water Company – Wastewater Operations (Pennsylvania Public Utility Commission, Docket No. R-00973973), July 1997. Presented testimony on rate base, cost of service, depreciation, and rate design issues on behalf of the Pennsylvania Office of Consumer Advocate.

Expert Testimony  
of Lafayette K. Morgan, Jr.

Jackson Purchase Electric Cooperative Corporation (Kentucky Public Service Commission, Case No. 97-224), December 1997. Presented testimony on rate base and cost of service issues on behalf of the Kentucky Office of the Attorney General.

Henderson Union Electric Cooperative Corporation (Kentucky Public Service Commission, Case No. 97-220), January 1998. Presented testimony on the return of patronage capital on behalf of the Kentucky Office of the Attorney General.

Green River Electric Corporation (Kentucky Public Service Commission, Case No. 97-219), January 1998. Presented testimony on the return of patronage capital on behalf of the Kentucky Office of the Attorney General.

Western Kentucky Gas Company (Kentucky Public Service Commission, Case No. 99-070), November 1999. Presented testimony on rate base and cost of service issues on behalf of the Kentucky Office of the Attorney General.

American Broadband, Inc. (Rhode Island Public Utilities Commission, Docket No. 2000-C-3), June 2000. Presented report and testimony on the Company's financing plan on behalf of the Rhode Island Division of Public Utilities and Carriers.

PPL Utilities (Pennsylvania Public Utility Commission, Docket No. R-00005277), October 2000. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

T.W. Phillips Oil and Gas Company (Pennsylvania Public Utility Commission, Docket No. R-00005459), October 2000. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Pike County Light & Power Company (Pennsylvania Public Utility Commission, Docket No. P-00011872), May 2001. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Vermont Gas Systems, Inc. (Vermont Public Service Board, Docket No. 6495), June 2001. Presented testimony on rate base and cost of service issues on behalf of the Vermont Public Service Department.

Community Service Telephone Company (Maine Public Utilities Commission, Docket No. 2001-249), July 2001. Presented joint testimony on rate base and cost of service issues on behalf of the Maine Office of the Public Advocate.

Expert Testimony  
of Lafayette K. Morgan, Jr.

West Virginia-American Water Company (Public Service Commission of West Virginia, Docket No. 01-0326-W-42-T), August 2001. Presented testimony on rate base and cost of service issues on behalf of the Consumer Advocate Division.

Philadelphia Suburban Water Company (Pennsylvania Public Utility Commission, Docket No. R-00016750) February 2002. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Illinois-American Water Company (Illinois Commerce Commission, Docket No. 02-0690) January 2003. Presented testimony on cost of service issues on behalf of Citizens Utility Board.

Pennsylvania-American Water Company (Pennsylvania Public Utility Commission, Docket No. R-00027983), February 2003. Presented testimony addressing surcharge mechanism to recover security costs on behalf of the Pennsylvania Office of Consumer Advocate.

FairPoint New England Telephone Companies (Maine Public Utilities Commission, Docket Nos. 2002-747, 2003-34, 2003-35, 2003-36, and 2003-37), June 2003. Presented testimony on rate base and cost of service issues on behalf of the Maine Office of the Consumer Advocate.

Pennsylvania-American Water Company (Pennsylvania Public Utility Commission, Docket No. R-00038304), August 2003. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

PPL Electric Utilities Corporation (Pennsylvania Public Utility Commission, Docket No. R-00049255), June 2004. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Entergy Louisiana, Inc. (Louisiana Public Service Commission, Docket No. U-20925 RRF 2004), August 2004. Presented testimony on rate base and cost of service issues on behalf of the Louisiana Public Service Commission Staff.

Vectren Energy Delivery of Indiana (Indiana Utility Regulatory Commission, Cause No. 42598), September 2004. Presented testimony on O&M expense issues on behalf of the Indiana Office of Utility Consumer Counselor.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission, Docket No. R-00049656), December 2004. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Expert Testimony  
of Lafayette K. Morgan, Jr.

Block Island Power Company (Rhode Island Public Utilities Commission, Docket No. 3655), April 2005. Presented testimony on cash working capital on behalf of the Rhode Island Division of Public Utilities & Carriers.

Verizon New England, Inc. (Maine Public Utilities Commission, Docket No. 2005-155), September 2005. Presented joint testimony with Thomas S. Catlin on rate base and cost of service issues on behalf of the Maine Office of the Public Advocate.

T.W. Phillips Oil and Gas Company (Pennsylvania Public Utility Commission, Docket No. R-00051178), May 2006. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Duquesne Light Company (Pennsylvania Public Utility Commission, Docket No. R-00061346), July 2006. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Company (Pennsylvania Public Utility Commission, Docket No. R-00061493), September 2006. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Southern Indiana Gas & Electric Co. (Indiana Utility Regulatory Commission, Cause No. 43112), January 2007. Presented testimony on rate base and cost of service issues on behalf of the Indiana Office of Utility Consumer Counsel.

PPL Electric Utilities (Pennsylvania Public Utility Commission, Docket No. R-00072155), July 2007. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Aqua Pennsylvania, Inc. (Pennsylvania Public Utility Commission, Docket No. R-00072711), February 2008. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company (Pennsylvania Public Utility Commission, Docket No. R-2008-2029325), October 2008. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

The Narragansett Bay Commission (Rhode Island Public Utilities Commission, Docket No. 4026), April 2009. Presented testimony on rate base and cost of service issues on behalf of the Rhode Island Division of Public Utilities and Carriers.

Expert Testimony  
of Lafayette K. Morgan, Jr.

Maryland-American Water Company (Maryland Public Service Commission, Case No. 9187), July 2009. Presented testimony on rate base and cost of service issues on behalf of the Maryland Office of People's Counsel.

Monongahela Power Company & The Potomac Edison Company, both d/b/a Allegheny Power Company (West Virginia Public Service Commission, Case No. 09-1352-E-42T), February 2010. Presented testimony on rate base and cost of service issues on behalf of the West Virginia Consumer Advocate Division.

PPL Electric Utilities (Pennsylvania Public Utility Commission, Docket No. R-2010-2161694), June 2010. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Pawtucket Water Supply Board (Rhode Island Public Utilities Commission, Docket No. 4550), June 2015. Presented testimony on revenue requirements issues on behalf of the Rhode Island Division of Public Utilities and Carriers.

Columbia Gas of Pennsylvania (Pennsylvania Public Utility Commission, Docket No. R-2015-2468056), June 2015. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Indianapolis Power and Light Company (Indiana Utility Regulatory Commission, Cause No. 44576/44602), July 2015. Presented testimony on revenue requirements issues on behalf of the Indiana Office of Utility Consumer Counselor.

Public Service Company of Oklahoma (Corporation Commission of Oklahoma, Cause No. PUD 201500208), October 2015. Presented testimony on revenue requirements and environmental compliance rider issues on behalf of the United States Department of Defense and the Federal Executive Agencies.

Northern Indiana Public Service Company (Indiana Utility Regulatory Commission, Cause No. 44688), January 2016. Presented testimony on the company's electric division operating revenues, operating expenses and income taxes issues on behalf of the Indiana Office of Utility Consumer Counselor.

Philadelphia Water Department (Philadelphia Water, Sewer And Storm Water Rate Board, FY2017-2018 Rate Proceeding), March 2016. Presented testimony on revenue requirements issues on behalf of the Public Advocate.

Columbia Gas of Maryland (Public Service Commission of Maryland, Case No. 9417), June 2016. Presented testimony on rate base and cost of service issues on behalf of the Office of People's Counsel.

Expert Testimony  
of Lafayette K. Morgan, Jr.

Chesapeake Utilities Corporation (Delaware Public Service Commission, PSC Docket No. 15-1734), August 2016. Presented testimony on rate base and cost of service issues on behalf of the Staff of the Delaware Public Service Commission.

Kent County Water Authority (Public Service Commission of Rhode Island, Docket No. 4611), September 2016. Presented testimony on rate base and cost of service issues on behalf of the Division of Public Utilities and Carriers.

Northern Utilities, Inc. (Maine Public Utilities Commission, Docket No. 2017-00065), August 2017. Assisted the Maine Office of Public Advocate (OPA) with Northern Utilities application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements, the utility's request to renew and modify its alternative rate plan, and its Targeted Infrastructure Replacement Adjustment.

Indiana Michigan Power Company (Indiana Utility Regulatory Commission, Cause No. 44967), November 2017. Presented testimony on rate base, operating revenues and operating expenses issues on behalf of the Indiana Office of Utility Consumer Counselor.

Emera Maine (Maine Public Utilities Commission, Docket No. 2017-00198), December 2017. Assisted the Maine Office of Public Advocate (OPA) with Emera Maine's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements, the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

UGI-Electric (Pennsylvania Public Utility Commission, Docket No. R-2017-2640058), April 2018. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Electric's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OCA, on accounting issues including test year revenue requirements, the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

Philadelphia Water Department (Philadelphia Water, Sewer And Storm Water Rate Board, FY2019-2020 Rate Proceeding), April 2018. Presented testimony on revenue requirements and the Department's three-year rate plan issues on behalf of the Public Advocate.

Westar Energy, Inc. (Westar Energy) and Kansas Gas and Electric Company (KGE), (Kansas State Corporation Commission, Docket No. 18-WSEE-328-RTS), May 2018. Presented testimony on revenue requirements on behalf on behalf of the Federal Executive Agencies.

Expert Testimony  
of Lafayette K. Morgan, Jr.

Duquesne Light Company (Pennsylvania Public Utility Commission, Docket No. R-2018-3000124), June 2018. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Electric's application for an increase in rates. Presented testimony, on behalf of the OCA, on accounting issues including test year revenue requirements, the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

Bangor Natural Gas Company (Maine Public Utilities Commission, Docket No. 2018-00007), June 2018. Assisted the Maine Office of Public Advocate (OPA) Presented testimony, on behalf of the OPA, on the changes brought about by the Tax Change and Jobs Act of 2017.

SUEZ Water Pennsylvania, Inc. (Pennsylvania Public Utility Commission, R-2018-3000834), July 2018. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with SUEZ Water's application for an increase in rates. Presented testimony, on behalf of the OCA, on accounting issues including Rate Base, Operating Income, Inclusion of Costs Related to Expansion Territories and the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

Woonsocket Water Division (Public Service Commission of Rhode Island, Docket No. 4879), January 2019. Presented testimony on cost of service issues on behalf of the Division of Public Utilities and Carriers.

Central Maine Power Company (Maine Public Utilities Commission, Docket No. 2018-00194), January 2019. Assisted the Maine Office of Public Advocate (OPA) with Central Maine Power's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements, the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

Newport Water Department (Public Service Commission of Rhode Island, Docket No. 4933), July 2019. Presented testimony on cost of service issues on behalf of the Division of Public Utilities and Carriers.

UGI-Gas (Pennsylvania Public Utility Commission, Docket No. R-2018-3006814), April 2019. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Gas' application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OCA, on accounting issues including Rate Base and Net Operating Income.

Columbia Gas of Maryland (Public Service Commission of Maryland, Case No. 9609), August 2019. Presented testimony on rate base and cost of service issues on behalf of the Office of People's Counsel.

Expert Testimony  
of Lafayette K. Morgan, Jr.

Public Service Company of Colorado (Colorado Public Utility Commission, Proceeding No. 19AL-0268E), September 2019. Mr. Morgan provided testimony, on behalf of the Department of Energy and the Federal Executive Agencies, on accounting issues including test year revenue requirements, Rate Base and Net Operating Income.

Northern Utilities, Inc. (Maine Public Utilities Commission, Docket No. 2019-00092), September 2019. Assisted the Maine Office of Public Advocate (OPA) with Northern Utilities application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements and the utility's request to institute a Capital Investment Recovery Mechanism.

Citizens' Electric Company of Lewisburg (Pennsylvania Public Utility Commission, Docket No. R-2019-3008212), October 2019. Provided testimony on Plant in Service, Construction Work in Progress, Materials and Supplies, Customer Deposits, Depreciation Expense, Growth Factor, and The Tax Cuts and Jobs Act. Mr. Morgan provided testimony, on behalf of the Pennsylvania Office of Consumer Advocate (OCA).

Valley Energy, Inc. (Pennsylvania Public Utility Commission, Docket No. R-2019-3008209), October 2019. Provided testimony on Plant in Service, Construction Work in Progress, Materials and Supplies, Customer Deposits, Depreciation Expense, Growth Factor, and The Tax Cuts and Jobs Act. Mr. Morgan provided testimony, on behalf of the Pennsylvania Office of Consumer Advocate (OCA).

Wellsboro Electric Company (Pennsylvania Public Utility Commission, Docket No. R-2019-3008208), October 2019. Provided testimony on Plant in Service, Construction Work in Progress, Materials and Supplies, Customer Deposits, Depreciation Expense, Growth Factor, and The Tax Cuts and Jobs Act. Mr. Morgan provided testimony, on behalf of the Pennsylvania Office of Consumer Advocate (OCA).

Blue Granite Water Company (Public Service Commission of South Carolina, (Docket No. 2019-290-WS), January 2020. Assisted the South Carolina Department of Consumer Affairs. Presented testimony on accounting policy issues including test year revenue requirements.

UGI-Gas (Pennsylvania Public Utility Commission, Docket No. R-2019-3015162), May 2020. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Gas' application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OCA, on accounting issues including Rate Base and Net Operating Income.

Columbia Gas of Maryland (Public Service Commission of Maryland, Case No. 9644), July 2020. Presented testimony on rate base and cost of service issues on behalf of the Office of People's Counsel.



Expert Testimony  
of Lafayette K. Morgan, Jr.

PECO Energy Company - Gas Division (Pennsylvania Public Utility Commission, Docket No. R-2020-3018929), December 2020. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with PECO-Gas' application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OCA, on accounting issues including Rate Base and Net Operating Income.

Philadelphia Water Department (Philadelphia Water, Sewer And Storm Water Rate Board, Fiscal Years 2022 - 2023 Rates Proceeding), March 2021. Presented testimony on revenue requirements and the Department's three-year rate plan issues on behalf of the Public Advocate.

Versant Maine (Maine Public Utilities Commission, Docket No. 2020-00316), April 2021. Assisted the Maine Office of Public Advocate (OPA) with Emera Maine's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements.

Maine Water Company (Maine Public Utilities Commission, Docket No. 2021-00053), April 2021. Assisted the Maine Office of Public Advocate (OPA) with Maine Water Company's Request for Approval of Rate Increase and Rate Smoothing Mechanism Pertaining to The Maine Water Company Biddeford & Saco Division. Mr. Morgan provided testimony, on the authorization of the Rate Smoothing Mechanism.

UGI-Electric (Pennsylvania Public Utility Commission, Docket No. R-2021-3023618), May 2021. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Electric's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OCA, on accounting issues including Rate Base and Net Operating Income.

Bangor Natural Gas Company (Maine Public Utilities Commission, Docket No. 2021-00024), June 2021. Assisted the Maine Office of Public Advocate (OPA) with Bangor Natural Gas' application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements.

Philadelphia Gas Works (Philadelphia Gas Commission, Fiscal Years 2021 - 2022 Operating Budget Proceeding), June 2021. Presented testimony on the reasonableness of the Fiscal Year 2022 Operating Budget on behalf of the Public Advocate.

Duquesne Light Company (Pennsylvania Public Utility Commission, Docket No. R-2021-3024750), June 2021. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Electric's application for an increase in rates. Presented testimony, on behalf of the OCA, on accounting issues including test year revenue requirements.

Expert Testimony  
of Lafayette K. Morgan, Jr.

Columbia Gas of Maryland (Public Service Commission of Maryland, Case No. 9664), July 2021. Presented testimony on rate base and cost of service issues on behalf of the Office of People's Counsel.

Palmetto Wastewater Reclamation, Inc. (Public Service Commission of South Carolina, (Docket No. 2021-153-S), September 2021. Assisted the South Carolina Department of Consumer Affairs. Presented testimony on accounting policy issues including test year revenue requirements.

Maine Water Company (Maine Public Utilities Commission, Docket No. 2021-00289), November 2021. Assisted the Maine Office of Public Advocate (OPA) with Maine Water Company's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements.

## **Special Projects**

Developed a Uniform System of Accounts and Financial Data Collection Template for five countries participating in the National Association of Regulatory Utility Commissioners (NARUC)/East Africa Regional Energy Regulatory Partnership. Also conducted training seminars and participated as a panel member addressing issues in the utility industry from the perspective of the regulator. This work was conducted by NARUC) and the United States Agency for International Development (USAID).

## **Other Projects**

Texas Gas Transmission Corporation (Federal Energy Regulatory Commission, Docket No. RP93-106). Technical analysis and participation in settlement negotiations on cost of service, invested capital, and revenue deficiency on behalf of the Indiana Office of Utility Consumer Counselor.

Natural Gas Pipeline Company of America (Federal Energy Regulatory Commission, Docket No. RP93-36). Technical analysis and participation in settlement negotiations on cost of service, invested capital, and revenue deficiency on behalf of the Indiana Office of Utility Consumer Counselor.

Texas Gas Transmission Company (Federal Energy Regulatory Commission, Docket No. RP94-423). Technical analysis and participation in settlement negotiations on cost of service, invested capital, and revenue deficiency on behalf of the Indiana Office of Utility Consumer Counselor.

Lafourche Telephone Company (Louisiana Public Service Commission, Docket No. U-21181). Analysis and investigation of earnings and appropriate rate of return on behalf of the Louisiana Public Service Commission Staff.

Natural Gas Pipeline Company of America (Federal Energy Regulatory Commission, Docket No. RP95-326). Technical analysis and participation in settlement negotiations on cost of service, invested capital, and revenue deficiency on behalf of the Indiana Office of Utility Consumer Counselor.

Pymatuning Independent Telephone Company (Pennsylvania Public Utility Commission, Docket No. R-00953502). Technical analysis and development of settlement position in the Company's rate case on behalf of the Pennsylvania Office of Consumer Advocate.

Illinois Bell Telephone Company (Illinois Commerce Commission, Docket No. 96-0172). Technical analysis of the Company's annual rate filing pursuant to its Price Cap Plan on behalf of Citizens Utility Board.

Illinois Bell Telephone Company (Illinois Commerce Commission, Docket No. 97-0157).  
Technical analysis of the Company's annual rate filing pursuant to its Price Cap Plan on behalf of Citizens Utility Board.

TDS Telecom (Pennsylvania Public Utility Commission, Docket Nos. R-00973892 and R-00973893). Technical analysis regarding rate base, cost of service, rate design, and rate of return, and assistance in settlement negotiations in the Company's rate case and alternative regulatory filing on behalf of the Pennsylvania Office of Consumer Advocate.

Appalachian Power Company (Virginia State Corporation Commission, Case No. PUE 960301).  
Technical analysis regarding rate base and cost of service and assistance in settlement negotiations in the Company's rate case and alternative regulatory filing on behalf of the Virginia Office of the Attorney General.

Central Maine Power Company (Maine Public Utilities Commission, Docket No. 97-580).  
Technical analysis regarding attrition and accounting issues in the Company's Transmission and Distribution unbundling proceeding on behalf of the Maine Public Utilities Commission Staff.

Illinois Bell Telephone Company (Illinois Commerce Commission, Docket No. 98-0259).  
Technical Analysis of the Company's annual rate filing pursuant to its Price Cap Plan on behalf of Citizens Utility Board.

Maine Public Service Company (Maine Public Utilities Commission, Docket No. 98-577).  
Technical analysis regarding attrition and accounting issues in the Company's Transmission and Distribution unbundling proceeding on behalf of the Maine Public Utilities Commission Staff.

Bangor Hydro-Electric Company (Maine Public Utilities Commission, Docket No. 97-596).  
Technical analysis regarding attrition and accounting issues in the Company's Transmission and Distribution unbundling proceeding on behalf of the Maine Public Utilities Commission Staff.

TDS Telecom (Maine Public Utilities Commission, Docket Nos. 98-894, 98-895, 98-904, 98-906, 98-911, and 98-912). Technical analysis regarding accounting issues and access rate changes on behalf of the Maine Office of the Public Advocate.

Mid-Maine Telecom (Maine Public Utilities Commission, Docket No. 2000-810). Technical analysis regarding accounting issues and access rate changes on behalf of the Maine Office of the Public Advocate.

Unitel, Inc. (Maine Public Utilities Commission, Docket No. 2000-813). Technical analysis regarding accounting issues and access rate changes on behalf of the Maine Office of the Public Advocate.

Hydraulics International, Inc. (Armed Services Board of Contract Appeals, ASBCA No. 51285). Technical analysis and support relating to the Economic Adjustment Clause claim on behalf of the Air Force Materiel Command.

Tidewater Telecom and Lincolnville Telephone Company (Maine Public Utilities Commission, Docket Nos. 2002-100 and 2002-99). Technical analysis regarding accounting issues and access rate changes on behalf of the Maine Office of the Public Advocate.

TDS Telecom (Vermont Public Service Board, Docket No. 6576). Technical analysis regarding rate base, cost of service, and depreciation expense on behalf of the Vermont Department of Public Service.

CenterPoint Energy-Entex (Louisiana Public Service Commission, Docket No. U-26720, Subdocket A). Technical analysis regarding rate base and cost of service on behalf of the Louisiana Public Service Commission Staff.

CenterPoint Energy-Arkla (Louisiana Public Service Commission, Docket No. U-27676). Technical analysis regarding rate base and cost of service on behalf of the Louisiana Public Service Commission Staff.

Provided technical analysis and support on behalf of the Louisiana Public Service Commission Staff relating to CLECO Power LLC Rate Stabilization Plan.

Provided technical analysis and support on behalf of the Louisiana Public Service Commission Staff relating to CLECO Power LLC post-Katrina power purchases.

Provided technical analysis and support on behalf of the Louisiana Public Service Commission Staff relating to Entergy Louisiana LLC recovery of storm damage costs.

Westar Energy, Inc. (Westar Energy) and Kansas Gas and Electric Company (KGE), (Kansas State Corporation Commission, Docket No. 17-WSEE-147-RTS). Technical analysis regarding rate base and cost of service on behalf of the Federal Executive Agencies.

Westar Energy, Inc. (Westar Energy) and Kansas Gas and Electric Company (KGE), (Kansas State Corporation Commission, Docket No. 17-WSEE-147-RTS). Technical analysis regarding rate base and cost of service on behalf of the Federal Executive Agencies.

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

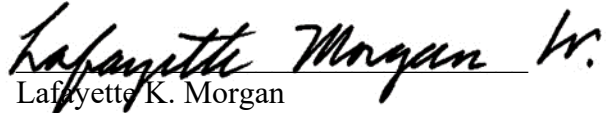
Re: Pennsylvania Public Utility Commission :  
 :  
 v. : Docket No. R-2021-3026682  
 :  
 City of Lancaster – Water Department :

VERIFICATION

I, Lafayette K. Morgan, hereby state that the facts above set forth in my Direct Testimony, OCA Statement 1, are true and correct and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: December 23, 2021  
\*321170

Signature:

  
Lafayette K. Morgan

Consultant Address: Exeter Associates, Inc.  
10480 Little Patuxent Parkway  
Suite 300  
Columbia, MD 21044-3575

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	
	:	
v.	:	Docket No. R-2021-3026682
	:	
City of Lancaster – Water Department	:	

Direct Testimony of  
**Morgan N. DeAngelo**

On Behalf of  
Pennsylvania Office of Consumer Advocate

December 23, 2021

## **Table of Contents**

Introduction.....	1
Purpose of Direct Testimony.....	1-2
The Pandemic’s Impact on People in Pennsylvania.....	2-5
The Pennsylvania State Coincident Index.....	6-7
Impact on Low-Income Customers.....	7-9
Provisions to Section 8.4.....	10-11
Rate Case Normalization.....	11-12
Cash Working Capital.....	12-13
Conclusion.....	13

Appendix A: Background and Qualifications of Morgan N. DeAngelo



1 **Introduction**

2 **Q. Please state your name, business address and occupation.**

3 A. My name is Morgan N. DeAngelo. My business address is 555 Walnut Street, 5<sup>th</sup> Floor,  
4 Forum Place, Harrisburg, Pennsylvania 17101. I am currently employed as a Regulatory  
5 Analyst by the Pennsylvania Office of Consumer Advocate (“OCA”).

6

7 **Q. Please describe your educational background and qualifications to provide testimony**  
8 **in this case.**

9 A. I have a Master’s degree in Business Administration and a Bachelor of Business  
10 Administration Degree, with a concentration in Finance and a minor in Accounting from  
11 Wilkes University. My educational background and qualifications are described in  
12 Appendix A.

13

14 **Q. On whose behalf are you testifying in this proceeding?**

15 A. I am testifying on behalf of the OCA.

16

17 **Purpose of Direct Testimony**

18 **Q. Please describe the purpose of your Direct Testimony.**

19 A. The purpose of my Direct Testimony is to address impacts the COVID-19 Pandemic has  
20 had on Pennsylvania and the impact of the proposed increase on low-income customers.  
21 In addition, I address the provision to Section 8.4 brought forth in Supplement No. 46 to  
22 Water Tariff No. 6 by the City of Lancaster (“The City”). Finally, I discuss Rate Case  
23 Normalization and Cash Working Capital. The Pennsylvania Public Utility Commission

1 (“Commission”) should consider the specific facts described in my testimony below, when  
2 considering the issues raised by the OCA and other parties in this proceeding.

3  
4 **The Pandemic’s Impact on People in Pennsylvania**

5 **Q. What is the current unemployment rate in Pennsylvania?**

6 **A.** Due to the COVID-19 Pandemic, the unemployment rate across Pennsylvania reached  
7 16.2% in April 2020. Although that number has since decreased, the current  
8 unemployment rate remains much higher than before the Pandemic,<sup>1</sup> at a preliminary 5.7%  
9 as of November 2021. This rate has remained relatively steady since September 2020.<sup>2</sup>

10  
11 **Q. How does the unemployment rate in Pennsylvania compare to that of the United  
12 States?**

13 **A.** Pennsylvania’s unemployment rate of 5.7% remains higher than the United States’  
14 unemployment rate of 4.2%, as of November 2021.<sup>3</sup>

15  
16 **Q. What is the unemployment rate in the City’s service territory?**

17 **A.** The City currently serves all of the City, Lancaster Township, Manheim Township,  
18 Millersville Borough, West Lampeter Township, Pequea and portions of Manor, West  
19 Hempfield and East Hempfield Townships and East Lampeter. Specific data is not  
20 available for all of the Townships and Boroughs. However, as of October 2021,  
21 Lancaster County had an unemployment rate of 4.3%.<sup>4</sup>

---

1 The pre-pandemic unemployment rate in January 2020 was 4.8%.

2 <https://www.bls.gov/eag/eag.pa.htm>

3 <https://www.bls.gov/news.release/pdf/empsit.pdf>

4 <https://www.workstats.dli.pa.gov/Documents/County%20Profiles/Lancaster%20County.pdf>

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22

**Q. Are there other sources of data, in addition to unemployment rates, which attempt to quantify the effects of COVID-19 on Pennsylvania citizens?**

**A.** Yes, the Household Pulse Survey (“Pulse Survey”) is another tool that has been used to gather data and measure these impacts.

**Q. What is the Pulse Survey?**

**A.** The Pulse Survey is organized by the United States Census Bureau. It is an experimental project in which data is collected to discover the impacts of the COVID-19 Pandemic. The data is then organized by state to display how people are affected through different categories. The categories include employment status, food security, housing, educational disruption, among others. The data has been organized into different phases beginning in April 2020, until the present time.

**Q. Does the Pulse Survey show data for specific locations throughout Pennsylvania, i.e., the City’s service territory?**

**A.** No, the data found in the Pulse Survey is collected from residents in Pennsylvania as a whole. However, we do know the unemployment rates for Lancaster County, and it is reasonable to expect that City customers are experiencing some of the Pandemic-related hardships reflected in the Survey.

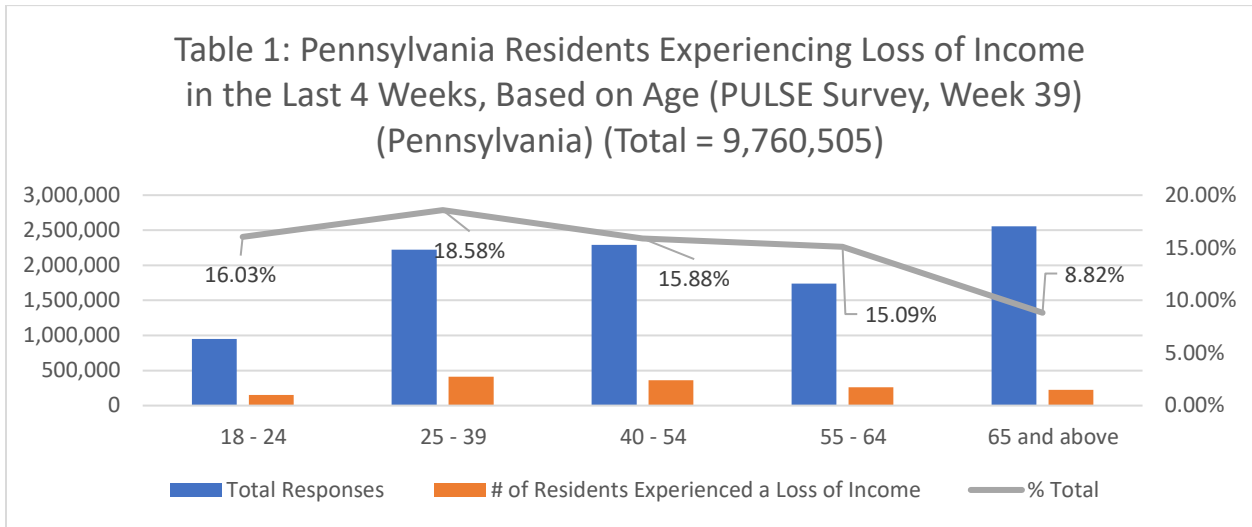
**Q. From which phase of the Pulse Survey was the data that you discuss below taken?**

1 A. The following data is taken from Phase 3.2, Week 39 of the Pulse Survey from September  
 2 29, 2021, through October 11, 2021.<sup>5</sup> The data extrapolates trends using survey responses  
 3 collected from a portion of Pennsylvania residents, 18 years of age and older.<sup>6</sup>

4  
 5 **Q. From this data, who is experiencing the greatest impact from the COVID-19**  
 6 **Pandemic?**

7 A. The data shows people ages 25-39, and those who identify as Hispanic, or Latino are  
 8 experiencing the greatest impact, which can be seen in Tables 1 and 2. Similarly, the lower  
 9 a household's income, the greater the impact the Pandemic has on income loss, seen in  
 10 Table 3. However, the COVID-19 Pandemic impacts are not limited to these groups, and  
 11 the effects can be felt throughout each of the other categories of customers.

12



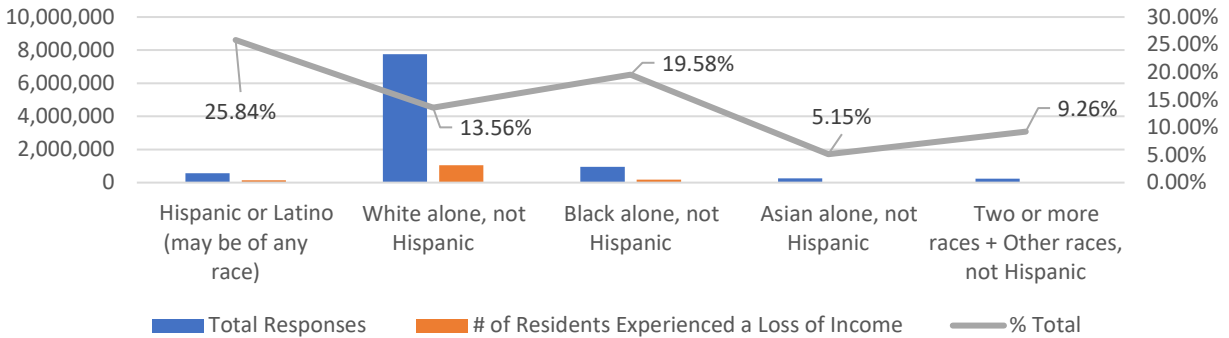
13

14

<sup>5</sup> <https://www.census.gov/data/tables/2021/demo/hhp/hhp39.html>

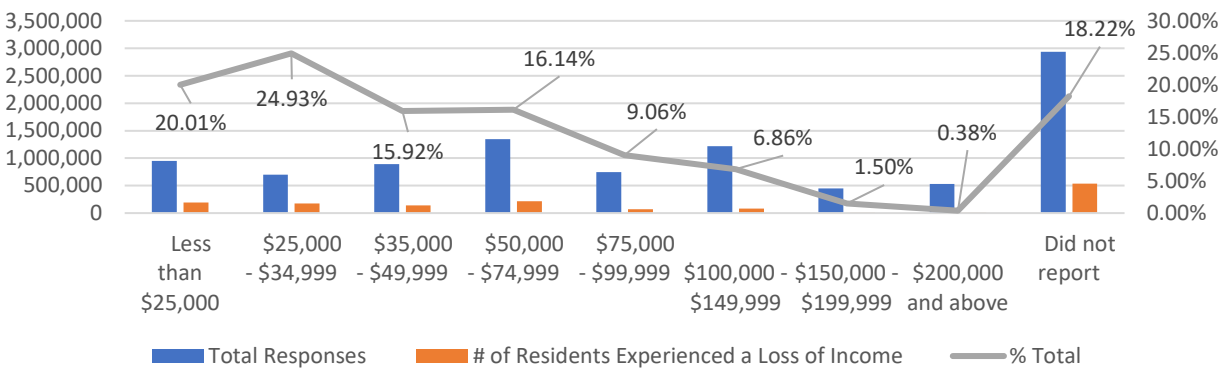
<sup>6</sup> Number of those reporting = 9,760,505

**Table 2: Pennsylvania Residents Experiencing Loss of Income in the Last 4 Weeks, Based on Race (PULSE Survey, Week 39) (Pennsylvania) (Total = 9,760,505)**



1

**Table 3: Pennsylvania Residents Experiencing Loss of Income in the Last 4 Weeks, Based on Household Income (PULSE Survey, Week 30) (Pennsylvania) (Total = 9,760,505)**



2

3

4 **Q. What can you conclude about the Pandemic’s impact on Pennsylvania?**

5 **A.** Over the last nearly two years, Pennsylvania, along with the rest of the world, has faced  
 6 many hardships due to the COVID-19 Pandemic. The impacts continue to affect  
 7 Pennsylvania residents, as we can see in the Household Pulse Surveys. Numbers remain  
 8 significantly higher than before the Pandemic, causing impacts that will be faced in the  
 9 coming months and long-term.

10

1 **The Pennsylvania State Coincident Index**

2 **Q. What is the State Coincident Index?**

3 **A.** The State Coincident Index is published monthly by the Federal Reserve Bank of  
4 Philadelphia. “The Coincident Indexes combine four state-level indicators to summarize  
5 current economic conditions in a single statistic, such as (1) nonfarm payroll  
6 employment, (2) average hours worked in manufacturing by production workers, (3) the  
7 unemployment rate and (4) wage and salary disbursements deflated by the consumer  
8 price index (U.S. city average). The trend for each state’s index is set to the trend of its  
9 gross domestic product (GDP), so long-term growth in the state’s index matches long-  
10 term growth in its GDP.”<sup>7</sup> The index is set so that the level of economic activity in 2007  
11 is equal to 100. A rise in the index shows economic activity is expanding and a decline  
12 indicates a contraction in economic activity.

13

14 **Q. What does the latest data from the Pennsylvania State Coincident Index show?**

15 **A.** The Pennsylvania State Coincident Index for October 2021 was released November 24,  
16 2021. Since July 2021, the coincident index for Pennsylvania rose 1.7% to 119.7.

17

18 **Q. What can you conclude about this information?**

19 **A.** The Coincident Index for both Pennsylvania (119.7) and the United States (130.7)  
20 continues to slowly recover from the plunge it took in April 2020 to 89.5. Although the  
21 level of payroll employment increased over the past three months, numbers remain lower  
22 than pre-Pandemic, February 2020.<sup>8</sup> This outcome will continue to affect Pennsylvania

---

<sup>7</sup> <https://www.philadelphiafed.org/surveys-and-data/regional-economic-analysis/state-coincident-indexes>

<sup>8</sup> February 2020; Pennsylvania’s Coincident Index = 122.76, United States’ Coincident Index = 130.81

1 in the months to come, therefore, it is important for the Commission to consider all the  
2 data when considering the issues raised by the OCA and other parties in this proceeding.

3  
4 **Impact on Low-Income Customers**

5 **Q. How has the City proposed to change rates?**

6 **A.** The City is proposing a water rate increase for customers residing outside of the City. If  
7 the request of \$4,024,593 is approved; the total bill for a residential customer using  
8 13,600 gallons per quarter with a 5/8-inch meter would increase from \$77.70 to \$94.14  
9 per quarter (or 21.3%), for a commercial customer using 68,000 gallons per month with a  
10 2-inch meter would increase from \$312.86 to \$356.78 per month (or 14%) and for an  
11 industrial customer using 430,000 gallons per month with a 2-inch meter would increase  
12 from \$1,697.15 to \$1,826.86 (or 7.6%).<sup>9</sup>

13  
14 **Q. Does the City offer any assistance programs for low-income customers?**

15 **A.** The City is in the process of completing the “Vendor Agreement” for the “Low-Income  
16 Household Drinking Water and Wastewater Emergency Assistance Program”  
17 (LIHWAP). This program will have defined eligibility limits based on household  
18 incomes, but it will not start until January 2022. The City does not have an estimate for  
19 how much funding will be available to pay all or a portion of customer account balances.  
20 The City is actively assisting and advising customers of their ability to potentially obtain  
21 relief from the federally funded assistance program.<sup>10</sup>

22  

---

<sup>9</sup> City of Lancaster. Exhibit SC-1.

<sup>10</sup> I.d. OCA-VI-4.

1 **Q. Do you have concerns regarding the level of affordability of the proposed rate**  
2 **increase on low-income customers?**

3 **A.** Yes. Even when the “Low-Income Household Drinking Water and Wastewater  
4 Emergency Assistance Program” goes into effect, eligibility limits will only allow a  
5 portion of customers to receive assistance, and at this time, the program is also only a  
6 temporary one-year program that will not extend beyond 2022. With limited eligibility  
7 for assistance, the amount of arrears will increase, imposing additional utility costs on  
8 low-income households. Additionally, the number of delinquent accounts eligible for  
9 disconnection for nonpayment will increase because of this. Although the City has not  
10 completed any delinquent service terminations since November 2019, due to the COVID-  
11 19 Pandemic, at some point in the future, the City will begin to terminate customers and  
12 low-income customers will experience the full impact of the proposed rate increase and  
13 the impact of accumulated arrears.

14  
15 **Q. Is there any data stating the number of utility customers in debt?**

16 **A.** Yes, the 2020 BCS Universal Service Report shows that there are a total of 543,559  
17 Residential, Electric customers in debt, as well as 300,625 Residential, Natural Gas  
18 customers in debt in Pennsylvania. Out of those numbers, 179,898 Electric customers  
19 and 80,561 Natural Gas customers are considered low-income in 2020.<sup>11</sup> In addition,  
20 45.2% of Electric customers and 36.1% of Natural Gas customers are enrolled in  
21 Customer Assistance Programs.<sup>12</sup>

22

---

<sup>11</sup> <https://www.puc.pa.gov/media/1709/2020-universal-service-report-final.pdf>, p. 23-24.

<sup>12</sup> <https://www.puc.pa.gov/media/1709/2020-universal-service-report-final.pdf>, p. 57-58.



1 **Q. What can you conclude from this data?**

2 **A.** Although it is not data specific to the City’s service territory, we can conclude that a  
3 number of the Electric and Natural Gas customers in debt, are also experiencing debt  
4 from their Water Utility, i.e. the City’s customers. Furthermore, the percentage of  
5 customers enrolled in assistance programs puts an emphasis on the importance of having  
6 these programs available.

7  
8 **Q. Is there any data specific to Lancaster County?**

9 **A.** Pathways PA is a residential program that produces data for all the counties in  
10 Pennsylvania. Data relevant to my testimony is the Self-Sufficiency Standard. This  
11 determines the amount of income required for working families to meet basic needs at a  
12 minimally adequate level.

13  
14 **Q. What does the 2020 Self-Sufficiency Standard say about Lancaster County?**

15 **A.** The 2020 Self-Sufficiency Standard shows that 6% of households in the county are below  
16 poverty level, and 28% are below the Standard Budget.<sup>13</sup>

17  
18 **Q. What is the Standard Budget?**

19 **A.** Pathways PA defines the Standard Budget as: “The ‘bare-bones,’ covering the cost of  
20 basic need – housing, food, childcare, health care, transportation, miscellaneous, plus  
21 taxes and tax credits – at a minimally adequate level, but without help from public  
22 subsidies (such as Medicaid) of private assistance (shared housing, free childcare).”<sup>14</sup>

---

<sup>13</sup> <https://pathwayspa.org/2020standard/overlooked/>

<sup>14</sup> <https://pathwayspa.org/2020standard/overlooked/>

1 **Revision to Tariff Section 8.4; Reconnection Fee**

2 **Q. What has the City proposed related to the proposed modification to the**  
3 **reconnection fee?**

4 **A.** As stated in the City’s Statement No. 2, p. 12-13, “The City has not updated its tariff  
5 since 2015, the City believed it important to revisit the tariff and to examine the terms  
6 and conditions to see whether any warranted change. Specifically, the City is trying to  
7 bring old provisions up to date to reflect changes in processes or procedures and also to  
8 make the tariff more user friendly.” Specific to this portion of my testimony, “the City is  
9 requesting to increase the current fee for reconnection of service, following  
10 disconnection, in Section 8.C. (Supplement No. 41 to Tariff Water – PA PUC No. 6, 4th  
11 Revised Page No. 18) from its current level of \$83.00 to an unspecified amount. The City  
12 is currently engaged with a firm to conduct a City fee study to document the City’s costs  
13 incurred to perform certain specialized services for which it charges fees. The aim of the  
14 fee study is to determine the full cost of each service so the City can modify its fee  
15 schedule to set fees for full recovery of the associated cost of each specialized service  
16 provided. Among the fees being studied is the water service reconnection fee. While the  
17 final study is not yet complete, it will be completed during the course of this rate  
18 proceeding and the City will provide relevant documentation of its costs related to water  
19 service reconnections as soon as they are available.” (City Statement No. 1, p. 10-11)

20  
21 **Q. What is the current reconnection fee?**

22 **A.** The current reconnection fee is \$83.00.<sup>15</sup>

---

<sup>15</sup> I.d. OCA-VII-2.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22

**Q. What is the City proposing to increase the reconnection fee to?**

A. The City is currently working on updated cost estimates. Their third-party fee study consultant has not provided preliminary cost estimates related to delinquent account service termination/reconnection.<sup>16</sup>

**Q. Has the City provided relevant documentation of its costs related to water service reconnections, as stated they would when available, in City of Lancaster Statement No. 1. P.11 at 3-6?**

A. No. Updated documentation has not been submitted.

**Q. At this point, should the proposed tariff revision to section 8.4 be approved?**

A. No. The proposed tariff revision to section 8.4 regarding the reconnection fee should not be approved. Without any supporting documentation or a basis for the increase, at this point it is not reasonable.

**Rate Case Normalization**

**Q. What has the City proposed?**

A. The City has proposed to normalize its \$468,000 estimated rate case expense over 36 months.<sup>17</sup>

**Q. Do you agree with The City’s proposal?**

---

<sup>16</sup> I.d. OCA-VII-2.  
<sup>17</sup> City Exhibit GRH-1, Schedule 6, p. 4.

1 A. No, I do not. The City’s historical filing frequency between the last two rate cases and  
2 between the last rate case and this current case were 48 months and 84 months,  
3 respectively. Therefore, I am recommending that the normalization period be 66 months  
4 based on the average length of time between rate case filings. If the City recognizes the  
5 entirety of its projected rate case expenses, \$468,000, the three-year normalization period  
6 would result in an annual expense of \$156,000, compared to \$85,091 over a five and a  
7 half-year period. By changing the normalization period, I am recommending an  
8 adjustment of \$70,909. The calculation of this adjustment is reflected on Schedule  
9 MND-1 and is reflected in OCA witness Lafayette Morgan’s Schedule LMK-3, page 2.  
10 As shown in that adjustment, I utilized the full projected rate case expense. However, the  
11 final rate case expense normalized over five and a half years should be equivalent to the  
12 actual expenses incurred. In its rejoinder testimony, Lancaster should provide an update  
13 of its actual rate case expense plus its estimate of rate case expense to complete the rate  
14 case.

15

16 **Cash Working Capital**

17 **Q. Please explain your adjustment to The City’s claim for cash working capital.**

18 A. The City calculated its cash working capital based upon a 12.5%, or one-eighth, of the  
19 operations and maintenance (“O&M”) expense.<sup>18</sup> Based on that methodology the City  
20 has a cash working capital claim of \$1,296,913. I have adopted this methodology, except  
21 that as shown on Schedule MND-2, I have adjusted the cash working capital to  
22 \$1,223,729 to reflect OCA witness Lafayette Morgan’s adjustments as shown in OCA

---

<sup>18</sup> City of Lancaster. Statement No.3. p. 8 at 10-12.

1 Statement 1. My adjusted amount of \$1,223,729 should be modified to reflect the total  
2 adjustments to O&M, as shown on Schedule LMK-3, page 2, accepted by the  
3 Commission.

4

5 **Conclusion**

6 **Q. Does this conclude your direct testimony?**

7 **A.** Yes, it does. However, I reserve the right to modify or supplement my testimony as  
8 necessary.

9

**QUALIFICATIONS OF  
MORGAN N. DEANGELO**

**Education:**

2020 M.B.A., Wilkes University

2018 B.B.A. concentration in Finance, minor in Accounting, Wilkes University

**Positions:**

June 2020 – Present Regulatory Analyst, Pennsylvania Office of Consumer Advocate

2018 – 2020 Graduate Assistant, Office of Student Development,  
Wilkes University

**Experience:**

I am currently employed by the Pennsylvania Office of Attorney General, Office of Consumer Advocate (OCA) as a Regulatory Analyst. In this position, my responsibilities of reviewing utility company filings with the Pennsylvania Public Utility Commission (Commission) and analyzing the financial, economic, rate of return, and policy issues that are relevant to the filings. Additionally, I am tasked with preparing recommendations for the OCA's involvement in utility filings with the PA PUC, writing testimony and presenting oral testimony on behalf of the OCA.

**Relevant Training:**

IPU Regulatory Studies - Intermediate Course, August 2020

IPU Accounting and Ratemaking Course, February 2021

**Previous Cases where testimony was submitted:**

Petition of Twin Lakes Utilities, Inc., P-2020-3020914

Application of Pennsylvania American Water Company, A-2020-3019634

PaPUC v. UGI Utilities, Inc. – Electric Division, R-2021-3023618

PaPUC v. Pittsburgh Water and Sewer Authority, R-2021-3024773, R-2021,3024774,  
R-2021-3024779

PaPUC v. Aqua Pennsylvania, Inc. Aqua Pennsylvania Wastewater, Inc., R-2021-  
3027385, R-2021-3027386

The City of Lancaster

Adjustment of Rate Case Expense  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.		
1	Rate Case Expense	\$ 468,000
2	Months to Normalize*	66
3	Annual Normalized Expense	\$ 85,091
4		
5	The City's FTY Expense	156,000
6	OCA Adjustment	\$ (70,909)

\*This number is calculated using the average number of months between the last two rate cases, 48 and 84 months, respectively.  $(48+84)/2=66$  months.

The City of Lancaster

Adjustment of Cash Working Capital  
For the Fully Projected Future Test Year Ending December 31, 2022

Line No.

1	The City's Projected O&M	\$ 10,375,302
2	Less: OCA Adjustments to O&M	<u>\$ (585,473)</u>
3	OCA Adjusted O&M	\$ 9,789,829
4	CWC Percentage	<u>12.50%</u>
5	Total Cash Working Capital	<u><u>\$ 1,223,729</u></u>
6		
7	The City's Cash Working Capital Expense	<u>\$ 1,296,913</u>
8	OCA Adjustment	<u><u>\$ (73,184)</u></u>



BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Re: Pennsylvania Public Utility Commission :  
 :  
 v. : Docket No. R-2021-3026682  
 :  
 City of Lancaster – Water Department :

VERIFICATION

I, Morgan N. DeAngelo, hereby state that the facts set forth in my Direct Testimony, OCA Statement 2, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: December 23, 2021  
\*321171

Signature: Morgan N. DeAngelo  
Morgan N. DeAngelo

Consultant Address: Office of Consumer Advocate  
555 Walnut Street  
5<sup>th</sup> Floor, Forum Place  
Harrisburg, PA 17101-1923

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

RE: Pennsylvania Public Utility Commission :  
 :  
 v. : Docket No. R-2021-3026682  
 :  
 City of Lancaster – Water Department :  
 :

**DIRECT TESTIMONY**

**OF**

**DAVID J. GARRETT**

**ON BEHALF OF**

**THE PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE**

**December 23, 2021**

## TABLE OF CONTENTS

I.	INTRODUCTION .....	1
II.	EXECUTIVE SUMMARY .....	2
	A. Overview and Background .....	4
	B. Response to the City’s Testimony .....	5
III.	LEGAL STANDARDS AND THE AWARDED RETURN.....	6
IV.	GENERAL CONCEPTS AND METHODOLOGY.....	16
V.	RISK AND RETURN CONCEPTS .....	17
VI.	DCF ANALYSIS .....	25
	A. Stock Price .....	26
	B. Dividend.....	27
	C. Growth Rate .....	28
	D. Response to Mr. Walker’s DCF Model .....	34
VII.	CAPM ANALYSIS .....	38
	A. The Risk-Free Rate .....	39
	B. The Beta Coefficient.....	40
	C. The ERP .....	41
	D. Response to Mr. Walker’s CAPM Analysis .....	49
VIII.	CAPITAL STRUCTURE .....	52

## **APPENDICES**

Appendix A: Discounted Cash Flow Model Theory

Appendix B: Capital Asset Pricing Model Theory

## **LIST OF EXHIBITS**

Exhibit DJG-1	Curriculum Vitae of David J. Garrett
Exhibit DJG-2	Proxy Group Summary
Exhibit DJG-3	DCF Stock and Index Prices
Exhibit DJG-4	DCF Dividend Yields
Exhibit DJG-5	DCF Terminal Growth Rate Determinants
Exhibit DJG-6	DCF Final Results
Exhibit DJG-7	CAPM Risk-Free Rate
Exhibit DJG-8	CAPM Beta Results
Exhibit DJG-9	CAPM Implied Equity Risk Premium Calculation
Exhibit DJG-10	CAPM Equity Risk Premium Results
Exhibit DJG-11	CAPM Final Results
Exhibit DJG-12	Cost of Equity Summary
Exhibit DJG-13	Market Cost of Equity vs. Awarded Returns
Exhibit DJG-14	Proxy Company Debt Ratios
Exhibit DJG-15	Competitive Industry Debt Ratios
Exhibit DJG-16	Weighted Average Rate of Return Proposal
Exhibit DJG-17	Hamada Model

## I. INTRODUCTION

1 **Q. Please state your name and business address.**

2 A. My name is David J. Garrett. My business address is 101 Park Avenue, Suite 1125,  
3 Oklahoma Borough, Oklahoma 73102.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am the managing member of Resolve Utility Consulting, PLLC. I am an independent  
6 consultant specializing in public utility regulation.

7 **Q. Please summarize your educational background and professional experience.**

8 A. I received a B.B.A. degree with a major in Finance, an M.B.A. degree, and a J.D. degree  
9 from the University of Oklahoma. I worked in private legal practice for several years  
10 before working as assistant general counsel at the Oklahoma Corporation Commission in  
11 2011. At the commission, I worked in the Office of General Counsel in regulatory  
12 proceedings. In 2012, I worked for the Public Utility Division as a regulatory analyst  
13 providing testimony in regulatory proceedings. After leaving the Oklahoma commission I  
14 formed Resolve Utility Consulting PLLC, where I have represented numerous consumer  
15 groups and state agencies in utility regulatory proceedings, primarily in the areas of cost of  
16 capital and depreciation. I am a Certified Depreciation Professional with the Society of  
17 Depreciation Professionals. I am also a Certified Rate of Return Analyst with the Society  
18 of Utility and Regulatory Financial Analysts. A more complete description of my  
19 qualifications and regulatory experience is included in my curriculum vitae.<sup>1</sup>

---

<sup>1</sup> Exhibit DJG-1.

1 **Q. On whose behalf are you testifying in this proceeding?**

2 A. I am testifying on behalf of the Pennsylvania Office of Consumer Advocate ("OCA").

3 **Q. Describe the purpose and scope of your testimony in this proceeding.**

4 A. The primary purpose of my testimony is to provide my opinion on the estimated cost of  
5 capital and awarded rate of return recommendation for the City of Lancaster ("Lancaster"  
6 or the "City"). I am responding to the direct testimony of Lancaster witness Harold Walker,  
7 III.

8 **Q. Please describe the organization of your testimony.**

9 A. In the executive summary below, I provide an overview of cost of capital issues, my  
10 recommendations, and my response to the City's testimony on these issues. In the sections  
11 that follow, I discuss the legal standards governing the awarded return issue as well as the  
12 general concepts involved in estimating the cost of equity. I provide detailed analysis of  
13 the Discounted Cash Flow ("DCF") Model, the Capital Asset Pricing Model ("CAPM"),  
14 including my results for these models and my responses to Mr. Walker's results. I also  
15 address capital structure, which is a key component to the cost of capital.

## **II. EXECUTIVE SUMMARY**

16 **Q. Please summarize your recommendation to the Commission.**

17 A. My testimony can be distilled to the following recommendations:

- 1           • The Commission should reject the City’s proposed return on equity  
2 (“ROE”) of 10.45% as excessive and unsupported. An objective cost of  
3 equity analysis shows that Lancaster’s cost of equity is about 8.0%. This  
4 estimate is the average result of the two well-established cost of equity  
5 models I used in this case, the DCF Model and CAPM. Using reasonable  
6 and objective inputs, the DCF Model indicates a cost of equity of 8.2% and  
7 the CAPM indicates a cost of equity of 7.8%. Based on these findings, I  
8 recommend the Commission adopt an awarded return on equity of 8.2% for  
9 Lancaster. Although 8.2% is very likely higher than Lancaster’s market-  
10 based cost of equity when the CAPM results are considered, an awarded  
11 ROE of 8.2% would be reasonable, and it would represent a meaningful  
12 move towards market-based cost of equity.
- 13           • I recommend the Commission reject Lancaster’s proposed capital structure  
14 consisting of 49% debt and 51% equity. The average debt ratio of the proxy  
15 group is 50%. Thus, I recommend an imputed capital structure consisting  
16 of 50% debt and 50% equity.
- 17           • I do not recommend an adjustment to the City’s proposed cost of debt of  
18 4.06%. Likewise, I do not propose an adjustment to Mr. Walker’s 13% tax  
19 adjustment to the cost of equity. Thus, my adjustments to the City’s  
20 proposed ROE and capital structure equate to an overall weighted average  
21 rate of return of 5.6%.

22 My proposed adjustments are illustrated in the table below.<sup>2</sup>

**Figure 1:  
Weighted Average Rate of Return Proposal**

Capital Component	Proposed Ratio	Cost Rate	13% Tax Adjusted	Weighted Cost
Debt	50.0%	4.06%		2.03%
Equity	50.0%	8.20%	7.13%	3.57%
Total	100.0%			5.60%

23 The details supporting my proposed adjustments are discussed further in my testimony.

---

<sup>2</sup> See also Exhibit DJG-16.

## **A. Overview and Background**

1 **Q. Please explain the concept and significance of the Cost of Capital.**

2 A. The term cost of capital is also referred to as a WACC,<sup>3</sup> which is shorthand for the weighted  
3 average cost of the components within a company's capital structure, including the costs  
4 of both debt and equity. The three primary components of a company's WACC include  
5 the following:

- 6 1. Cost of Debt
- 7 2. Cost of Equity
- 8 3. Capital Structure

9 Determining the cost of debt is relatively straight-forward. Interest payments on bonds are  
10 contractual, embedded costs that are generally calculated by dividing total interest  
11 payments by the book value of outstanding debt. Determining the cost of equity, on the  
12 other hand, is more complex. Unlike the known, contractual and embedded cost of debt,  
13 there is not any explicitly quantifiable "cost" of equity. Instead, the cost of equity must be  
14 estimated through various financial models. The capital structure of the utility examines  
15 the relative percentages or levels of debt to equity. Cost of capital is then expressed as a  
16 weighted average based upon a company's particular capital structure of that company.  
17 The basic WACC equation used in regulatory proceedings is presented as follows:

---

<sup>3</sup> The terms cost of capital and WACC are synonymous and used interchangeably throughout this testimony.



**Equation 1:  
Weighted Average Cost of Capital**

1 
$$WACC = \left( \frac{D}{D + E} \right) C_D + \left( \frac{E}{D + E} \right) C_E$$

where:  $WACC$  = *weighted average cost of capital*  
 $D$  = *book value of debt*  
 $C_D$  = *embedded cost of debt capital*  
 $E$  = *book value of equity*  
 $C_E$  = *market-based cost of equity capital*

2 Companies in the competitive market often use their WACC as the discount rate to  
3 determine the value of capital projects, so it is important that this figure be estimated  
4 accurately.

5 **Q. How do experts and regulators typically assess the ROEs awarded to utilities and the**  
6 **corresponding opportunity for shareholders?**

7 A. Investors, company managers, and academics around the world have used models, such as  
8 the CAPM and DCF to closely estimate cost of equity for many years, and weigh the results  
9 achieved against the results from proxy groups. Each of these concepts will be discussed  
10 in more detail later in my testimony.

**B. Response to the City's Testimony**

11 **Q. Please provide an overview of the problems you have identified with the City's**  
12 **testimony regarding cost of equity, capital structure, and the resulting awarded ROE.**

13 A. Mr. Walker proposes a return on equity of 10.45%.<sup>4</sup> Mr. Walker's recommendation is  
14 based on the CAPM, DCF Model, and other risk premium models. However, several of  
15 his key assumptions and inputs to these models deviate from fundamental, widely accepted  
16 tenets in finance and valuation. I find several aspects of Mr. Walker's approach and

---

<sup>4</sup> Direct Testimony of Harold Walker, III p. 6, lines 3-4.

1 resulting recommendations to be problematic, including the leverage adjustment used in  
2 his DCF Model and CAPM. In addition, Mr. Walker’s own risk premium model  
3 overestimates the market risk premium. These issues are further discussed in my  
4 testimony.

### III. LEGAL STANDARDS AND THE AWARDED RETURN

5 **Q. Discuss the legal standards governing the awarded rate of return on capital**  
6 **investments for regulated utilities.**

7 A. In *Wilcox v. Consolidated Gas Co. of New York*, the U.S. Supreme Court first addressed  
8 the meaning of a fair rate of return for public utilities.<sup>5</sup> The Court found that “the amount  
9 of risk in the business is a most important factor” in determining the appropriate allowed  
10 rate of return.<sup>6</sup> As referenced earlier, in two subsequent landmark cases, the Court set forth  
11 the standards by which public utilities are allowed to earn a return on capital investments.  
12 First, in *Bluefield Water Works & Improvement Co. v. Public Service Commission of West*  
13 *Virginia*, the Court held:

14 A public utility is entitled to such rates as will permit it to earn a return on  
15 the value of the property which it employs for the convenience of the public.  
16 . . . but it has no constitutional right to profits such as are realized or  
17 anticipated in highly profitable enterprises or speculative ventures. The  
18 return should be reasonably sufficient to assure confidence in the financial  
19 soundness of the utility and should be adequate, under efficient and  
20 economical management, to maintain and support its credit and enable it to  
21 raise the money necessary for the proper discharge of its public duties.<sup>7</sup>

---

<sup>5</sup> *Wilcox v. Consolidated Gas Co. of New York*, 212 U.S. 19 (1909).

<sup>6</sup> *Id.* at 48.

<sup>7</sup> *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679, 692–93 (1923).

1 Then, in *Federal Power Commission v. Hope Natural Gas Company*, the Court expanded  
2 on the guidelines set forth in *Bluefield* and stated:

3 From the investor or company point of view it is important that there be  
4 enough revenue not only for operating expenses but also for the capital costs  
5 of the business. These include service on the debt and dividends on the  
6 stock. By that standard the return to the equity owner should be  
7 commensurate with returns on investments in other enterprises having  
8 corresponding risks. That return, moreover, should be sufficient to assure  
9 confidence in the financial integrity of the enterprise, so as to maintain its  
10 credit and to attract capital.<sup>8</sup>

11 The cost of capital models I have employed in this case are designed to be in accordance  
12 with the foregoing legal standards.

13 **Q. Is it important that the awarded rate of return be based on the City's actual cost of**  
14 **capital?**

15 A. Yes. The U.S. Supreme Court in *Hope* makes it clear that the allowed return should be  
16 based on the actual cost of capital. Moreover, the awarded return must also be fair, just,  
17 and reasonable under the circumstances of each case. Among the circumstances that must  
18 be considered in each case are the broad economic and financial impacts to the cost of  
19 equity and awarded return caused by market forces and other factors. Scholars agree that  
20 the actual cost of capital must be considered:

---

<sup>8</sup> *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944) (emphasis added) (internal citations omitted).

1           Since by definition the cost of capital of a regulated firm represents  
2           precisely the expected return that investors could anticipate from other  
3           investments while bearing no more or less risk, and since investors will not  
4           provide capital unless the investment is expected to yield its opportunity  
5           cost of capital, the correspondence of the definition of the cost of capital  
6           with the court's definition of legally required earnings appears clear.<sup>9</sup>

7           The models I have employed in this case closely estimate the City's true cost of equity.

8           The rate of return that I calculated more closely aligns with the U.S. Supreme Court's  
9           standards, will allow the City to maintain its financial integrity, and achieve reasonable  
10          returns for its investors. On the other hand, if the Commission sets the allowed rate of  
11          return much higher than the true cost of capital, as requested by Lancaster, it will result in  
12          an inappropriate transfer of wealth from ratepayers to the City.<sup>10</sup>

13 **Q.    What does this legal standard mean for determining the awarded return and the cost**  
14 **of capital?**

15 A.    The awarded return and the cost of capital are different but related concepts. On the one  
16          hand, the legal and technical standards encompassing this issue require that the awarded  
17          return reflect the true cost of capital. Yet on the other hand, the two concepts differ in that  
18          the legal standards do not mandate that awarded returns exactly match the cost of capital.  
19          Instead, awarded returns are set through the regulatory process and may be influenced by  
20          various factors other than objective market drivers. By contrast, the cost of capital should  
21          be evaluated objectively and be closely tied to economic realities, such as stock prices,  
22          dividends, growth rates, and, most importantly, risk. The cost of capital can be estimated

---

<sup>9</sup> A Lawrence Kolbe, James A. Read, Jr. & George R. Hall, *The Cost of Capital: Estimating the Rate of Return for Public Utilities* 21 (The MIT Press 1984).

<sup>10</sup> Roger A. Morin, *New Regulatory Finance* 23–24 (Public Utilities Reports, Inc. 2006) (1994) (“[I]f the allowed rate of return is greater than the cost of capital, capital investments are undertaken and investors’ opportunity costs are more than achieved. Any excess earnings over and above those required to service debt capital accrue to the equity holders, and the stock price increases. In this case, the wealth transfer occurs from ratepayers to shareholders.”).

1 by financial models used by firms, investors, and academics around the world for decades.  
2 The problem is, with respect to regulated utilities, there has been a trend in which awarded  
3 returns fail to closely track with market-based cost of capital, as further discussed below.  
4 To the extent this occurs, the results are detrimental to ratepayers and the state's economy.

5 **Q. Describe the economic impact that occurs when the awarded return deviate**  
6 **significantly from the U.S. Supreme Court's applicable cost of equity standards.**

7 A. When the awarded ROE is divorced from the cost of equity, it runs the risk of violating the  
8 U.S. Supreme Court's standards. Ratepayers pay too much to support the utilities essential  
9 operations with the net effect of diverting dollars from ratepayers for their internal or  
10 business uses that would otherwise support the local or state economy. Moreover,  
11 establishing an awarded return that far exceeds true cost of capital effectively prevents the  
12 awarded returns from changing along with economic conditions. This is especially true  
13 given that regulators may be influenced by the awarded returns in other jurisdictions,  
14 regardless of the various unknown factors influencing those awarded returns. If regulators  
15 rely too heavily on the awarded returns from other jurisdictions, they can create a self-  
16 perpetuating cycle over time that bears little relation to the market-based cost of equity. In  
17 fact, this is exactly what we have observed since 1990. This is yet another reason why it  
18 is crucial for regulators to put more emphasis on the target utility's actual cost of equity  
19 than on the awarded returns from other jurisdictions. Awarded returns may be influenced  
20 by settlements and other political factors not based on true market conditions. In contrast,  
21 the true cost of equity as estimated through objective models is not influenced by these  
22 factors but is instead driven by market-based factors.

1 **Q. Can you illustrate and provide a comparison of the relationship between awarded**  
2 **utility returns and market cost of equity since 1990?**

3 A. Yes. As shown in the figure below, awarded returns for electric and gas utilities have been  
4 above the average required market return since 1990.<sup>11</sup> Because utility stocks are  
5 consistently far less risky than the average stock in the marketplace, the cost of equity for  
6 utility companies is less than the market cost of equity.

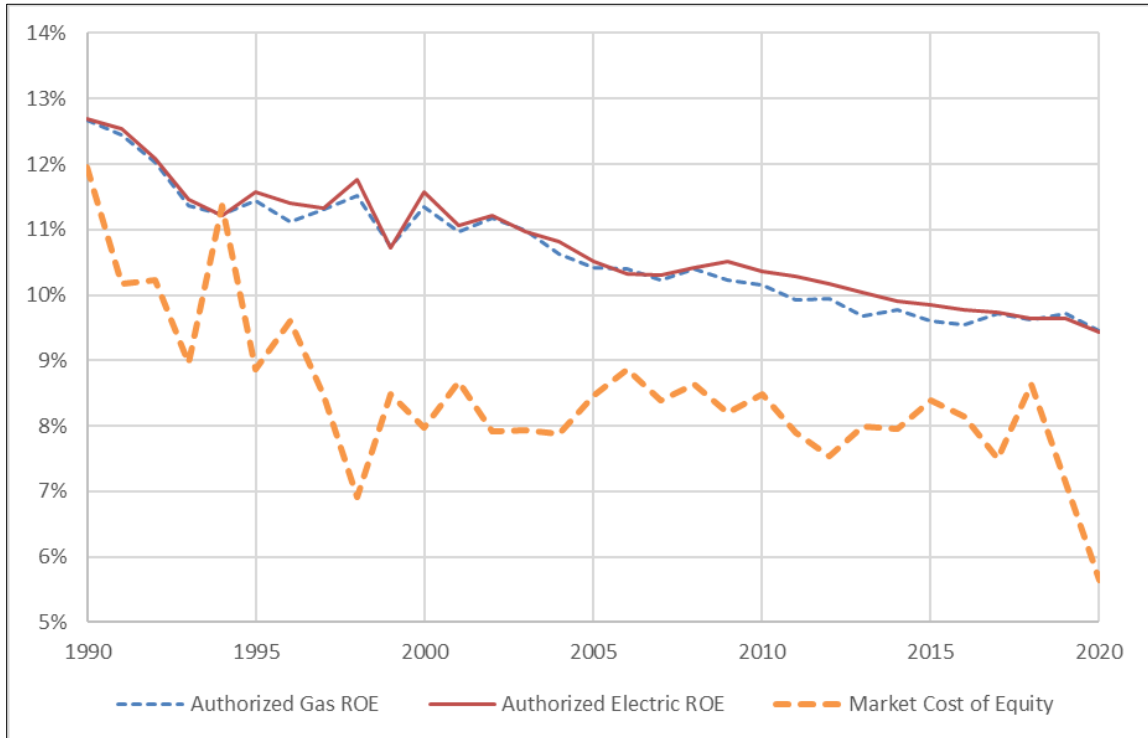
7 To illustrate this fact, the graph in the figure below shows three trend lines. The  
8 top two lines are the average annual awarded returns since 1990 for U.S. regulated electric  
9 and gas utilities. The bottom line is the required market return over the same period. As  
10 discussed in more detail later in my testimony, the required market return is essentially the  
11 return that investors would require if they invested in the entire market and, as such, the  
12 required market return is essentially the cost of equity of the entire market. Since it is  
13 undisputed that utility stocks are less risky than the average stock in the market, then the  
14 utilities' cost of equity must be less than the market cost of equity.<sup>12</sup> Thus, awarded returns  
15 (the solid line) should generally be below the market cost of equity, since awarded returns  
16 are supposed to be based on true cost of equity.

---

<sup>11</sup> Exhibit DJG-14.

<sup>12</sup> This fact can be objectively measured through a term called "beta," as discussed later in the testimony. Utility betas are less than one, which means utility stocks are less risky than the "average" stock in the market.

**Figure 2:  
Awarded ROEs vs. Market Cost of Equity**



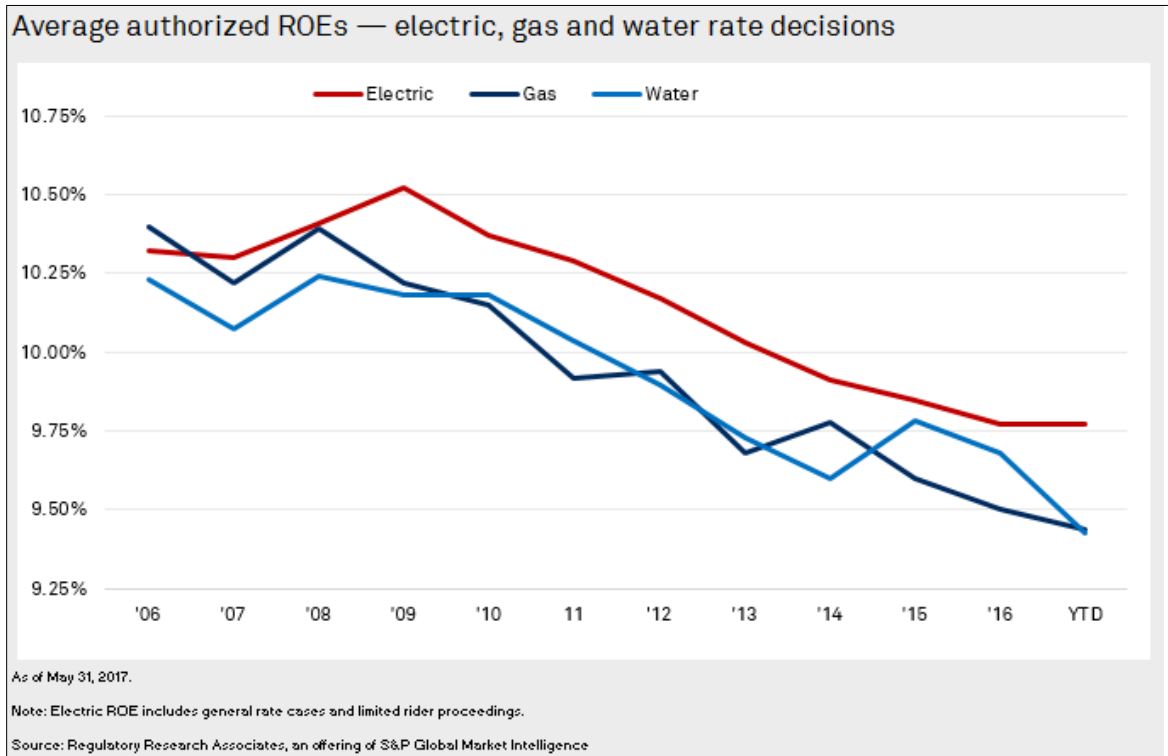
1 Notwithstanding the data in this graph, awarded ROEs have been consistently above the  
2 market cost of equity for many years. Also as shown in this graph, since 1990, there was  
3 only one year in which the average awarded ROE was below the market cost of equity. In  
4 1994, regulators awarded ROEs that were the closest to utilities' market-based cost of  
5 equity. In my opinion, when awarded ROEs for utilities are below the market cost of  
6 equity, regulators more closely conform to the standards set forth by *Hope* and *Bluefield*  
7 and minimize the excess wealth transfer from ratepayers to shareholders.

8 **Q. Does this concept also apply to regulated water utilities?**

9 A. Yes. Like regulated electric and gas utilities, water utilities are also less risky than the  
10 average stock in the market portfolio. We can objectively measure this fact through water

1 utility betas.<sup>13</sup> As shown in the graph below, the average authorized ROEs for water  
2 utilities have generally tracked with those of gas utilities.

**Figure 3:  
Awarded ROEs vs. Market Cost of Equity**



3 Comparing this figure with Figure 2 above, we can see that authorized ROEs for water  
4 utilities have also exceeded the market cost of equity. Again, the cost of equity for a  
5 regulated utility, including water utilities, should be below the market cost of equity. In

---

<sup>13</sup> See Exhibit DJG-8. The concept of beta will be discussed further in my testimony; however, since the average beta of the proxy group is less than 1.0, we have an objective way to determine that if the City were publicly traded, the return required by its equity investors would be less than the return required on the market portfolio.



1 2017, the average authorized ROE for water utilities was about 9.4%.<sup>14</sup> As demonstrated  
2 in my testimony, the highest reasonable estimate for the City's cost of equity is about 8.2%.

3 **Q. Have other analysts commented on this national phenomenon of awarded ROEs**  
4 **exceeding market-based cost equity for utilities?**

5 A. Yes. In his article published in Public Utilities Fortnightly in 2016, Steve Huntoon  
6 observed that even though utility stocks are less risky than the stocks of competitive  
7 industries, utility stocks have nonetheless outperformed the broader market.<sup>15</sup> Specifically,  
8 Mr. Huntoon notes the following three points which lead to a problematic conclusion:

- 9 1. Jack Bogle, the founder of Vanguard Group, provides rigorous  
10 analysis that the long-term total return for the broader market will  
11 be around 7 percent going forward. Professor Burton Malkiel,  
12 corroborates that 7 percent in the latest edition of his seminal work,  
13 *A Random Walk Down Wall Street*.
- 14 2. Institutions like pension funds are validating the first point by piling  
15 on risky investments to try and get to a 7.5 percent total return, as  
16 reported by the Wall Street Journal.
- 17 3. Utilities are being granted returns on equity around 10 percent.<sup>16</sup>

18 Other scholars have also observed that awarded ROEs have not appropriately  
19 tracked with declining interest rates over the years, and that excessive awarded ROEs have  
20 negative economic impacts. In a white paper issued in 2017, Charles S. Griffey stated:

---

<sup>14</sup> S&P Global Market Intelligence, *Water Rate Case Activity: How It Ebbs and Flows*, June 23, 2017.  
<https://www.spglobal.com/marketintelligence/en/news-insights/research/water-rate-case-activity-how-it-ebbs-and-flows>

<sup>15</sup> Steve Huntoon, "Nice Work If You Can Get It," Public Utilities Fortnightly (Aug. 2016).

<sup>16</sup> *Id.*

1 The “risk premium” being granted to utility shareholders is now higher than  
2 it has ever been over the last 35 years. Excessive utility ROEs are  
3 detrimental to utility customers and the economy as a whole. From a societal  
4 standpoint, granting ROEs that are higher than necessary to attract  
5 investment creates an inefficient allocation of capital, diverting available  
6 funds away from more efficient investments. From the utility customer  
7 perspective, if a utility’s awarded and/or achieved ROE is higher than  
8 necessary to attract capital, customers pay higher rates without receiving  
9 any corresponding benefit.<sup>17</sup>

10 Both Mr. Huntoon and Mr. Griffey acknowledge the fact that awarded ROEs have declined  
11 at a much slower rate than interest rates and other economic factors resulting in a decline  
12 in capital costs and expected returns on the market. It is not hard to see why this  
13 phenomenon of “sticky” ROEs has occurred. Because awarded ROEs are often based  
14 primarily on a comparison with other awarded ROEs around the country, the average  
15 awarded returns effectively fail to adapt to true market conditions, and regulators seem  
16 reluctant to deviate from the average. Once utilities and regulatory commissions become  
17 accustomed to awarding rates of return higher than market conditions actually require, this  
18 trend becomes difficult to reverse. The fact is, utility stocks are less risky than the average  
19 stock in the market, and thus, awarded ROEs should be less than the expected return on the  
20 market. However, that is rarely the case. My proposal assists the Commission in “see[ing]  
21 the gap between allowed returns and cost of capital,”<sup>18</sup> and reconciling this issue in an  
22 equitable manner.<sup>19</sup>

---

<sup>17</sup> Charles S. Griffey, “When ‘What Goes Up’ Does Not Come Down: Recent Trends in Utility Returns,” White Paper (February 2017).

<sup>18</sup> Leonard Hyman & William Tilles, “Don’t Cry for Utility Shareholders, America,” Public Utilities Fortnightly (October 2016).

<sup>19</sup> Although the articles cited in this section were not specifically discussing water utilities, as demonstrated in the figures and discussion preceding this section, the authorized ROEs for water utilities have also exceeded the cost of equity for the market portfolio.

1 **Q. Summarize the legal standards governing the awarded ROE issue.**

2 A. The Commission should strive to move the awarded return to a level more closely aligned  
3 with the City's actual, market-derived cost of capital while keeping in mind the following  
4 two legal principles outlined below.

5 **1. Risk is the most important factor when determining the awarded return. The**  
6 **awarded return should be commensurate with those returns on investments of**  
7 **corresponding risk.**

8 The legal standards articulated in *Hope* and *Bluefield* demonstrate that the U.S. Supreme  
9 Court understands one of the most basic, fundamental concepts in financial theory: the  
10 more (or less) risk an investor assumes, the more (or less) return the investor requires.  
11 Since utility stocks are low risk, the return required by equity investors should be relatively  
12 low. I have used financial models to closely estimate the City's cost of equity, and these  
13 financial models account for risk. The cost of equity models confirm the industry  
14 experiences relatively low levels of risk by producing relatively low cost of equity results.  
15 In turn, the awarded ROE in this case should reflect Lancaster's relatively low market risk.

16 **2. The awarded return should be sufficient to assure financial soundness and**  
17 **integrity under efficient management.**

18 Because awarded returns in the regulatory environment have not closely tracked market-  
19 based trends and commensurate risk, utility companies have been able to remain more than  
20 financially sound, perhaps despite management inefficiencies. In fact, the transfer of  
21 wealth from ratepayers to utilities has been so far removed from actual cost-based drivers  
22 that a utility could remain financially sound even under relatively inefficient management.  
23 Therefore, regulatory commissions should strive to set utilities' returns based on actual  
24 market conditions to promote prudent and efficient management and minimize economic  
25 waste.

#### **IV. GENERAL CONCEPTS AND METHODOLOGY**

1 **Q. Discuss your approach to estimating the cost of equity in this case.**

2 A. While a competitive firm must estimate its own cost of capital to assess the profitability of  
3 competing capital projects, regulators determine a utility's cost of capital to establish a fair  
4 rate of return. The legal standards set forth above do not include specific guidelines  
5 regarding the models that must be used to estimate the cost of equity for utilities. Over the  
6 years, however, regulatory commissions have consistently relied on several models. The  
7 models I have employed in this case have been the two most widely used and accepted in  
8 regulatory proceedings for many years. The specific inputs and calculations for these  
9 models are described in more detail below.

10 **Q. Please explain why you used multiple models to estimate the cost of equity.**

11 A. These models attempt to measure the return on equity required by investors by estimating  
12 several different inputs. It is preferable to use multiple models because the results of any  
13 one model may contain a degree of imprecision, especially depending on the reliability of  
14 the inputs used at the time of conducting the model. By using multiple models, the analyst  
15 can compare the results of the models and look for outlying results and inconsistencies.  
16 Likewise, if multiple models produce a similar result, it may indicate a narrower range for  
17 the cost of equity estimate. For the results of any cost of equity model to be considered  
18 reasonable, it is necessary to use reasonable inputs and apply the models properly.

19 **Q. Please discuss the benefits of choosing a proxy group of companies in conducting cost  
20 of capital analyses.**

21 A. The cost of equity models in this case can be used to estimate the cost of capital of any  
22 individual, publicly traded company. There are advantages, however, to conducting cost

1 of capital analysis on a proxy group of companies that are comparable to the target  
2 company. First, it is better to assess the financial soundness of a utility by comparing it to  
3 a group of other financially sound utilities. Second, using a proxy group provides more  
4 reliability and confidence in the overall results because there is a larger sample size.  
5 Finally, the use of a proxy group is often a pure necessity when the target company is a  
6 subsidiary that is not publicly traded. This is because the financial models used to estimate  
7 the cost of equity require information from publicly traded firms, such as stock prices and  
8 dividends.

9 **Q. Describe the proxy group you selected in this case.**

10 A. In this case, I chose to use the same proxy group used by Mr. Walker. There could be  
11 reasonable arguments made for the inclusion or exclusion of a particular company in a  
12 proxy group; however, the cost of equity results are influenced far more by the underlying  
13 assumptions and inputs to the various financial models than the composition of the proxy  
14 group.<sup>20</sup> By using the same proxy group, we can remove a relatively insignificant variable  
15 from the equation and focus on the primary factors driving Lancaster's cost of equity  
16 estimate.

## V. RISK AND RETURN CONCEPTS

17 **Q. Discuss the general relationship between risk and return.**

18 A. Risk is among the most important factors for the Commission to consider when  
19 determining the allowed return. Thus, it is necessary to understand the relationship

---

<sup>20</sup> Exhibit DJG-2.

1 between risk and return. There is a direct relationship between risk and return: the more  
2 (or less) risk an investor assumes, the larger (or smaller) return the investor will demand.  
3 There are two primary types of risk: firm-specific risk and market risk. Firm-specific risk  
4 affects individual companies, while market risk affects all companies in the market to  
5 varying degrees.

6 **Q. Discuss the differences between firm-specific risk and market risk.**

7 A. Firm-specific risk affects individual companies, rather than the entire market. For example,  
8 a competitive firm might overestimate customer demand for a new product, resulting in  
9 reduced sales revenue. This is an example of a firm-specific risk called “project risk.”<sup>21</sup>  
10 There are several other types of firm-specific risks, including: (1) “financial risk” – the risk  
11 that equity investors of leveraged firms face as residual claimants on earnings; (2) “default  
12 risk” – the risk that a firm will default on its debt securities; and (3) “business risk” – which  
13 encompasses all other operating and managerial factors that may result in investors  
14 realizing less than their expected return in that particular company. While firm-specific  
15 risk affects individual companies, market risk affects all companies in the market to  
16 varying degrees. Examples of market risk include interest rate risk, inflation risk, and the  
17 risk of major socio-economic events. When there are changes in these risk factors, they  
18 affect all firms in the market to some extent.<sup>22</sup>

19 Analysis of the U.S. market in 2001 provides a good example for contrasting firm-  
20 specific risk and market risk. During that year, Enron Corp.’s stock fell from \$80 per share

---

<sup>21</sup> Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 62–63 (3rd ed., John Wiley & Sons, Inc. 2012).

<sup>22</sup> See Zvi Bodie, Alex Kane & Alan J. Marcus, *Essentials of Investments* 149 (9th ed., McGraw-Hill/Irwin 2013).

1 to its low when the company filed bankruptcy at the end of the year. If an investor's  
2 portfolio had held only Enron stock at the beginning of 2001, this irrational investor would  
3 have lost the entire investment by the end of the year due to assuming the full exposure of  
4 Enron's firm-specific risk (in that case, imprudent management). On the other hand, a  
5 rational, diversified investor who invested the same amount of capital in a portfolio holding  
6 every stock in the S&P 500 would have had a much different result that year. The rational  
7 investor would have been relatively unaffected by the fall of Enron because his or her  
8 portfolio included about 499 other stocks. Each of those stocks, however, would have been  
9 affected by various market risk factors that occurred that year. Thus, the rational investor  
10 would have incurred a relatively minor loss due to market risk factors, while the irrational  
11 investor would have lost everything due to firm-specific risk factors.

12 **Q. Can equity investors reasonably minimize firm-specific risk?**

13 A. Yes. A fundamental concept in finance is that firm-specific risk can be eliminated through  
14 diversification.<sup>23</sup> If someone irrationally invested all his or her funds in one firm, he or she  
15 would be exposed to all the firm-specific risk and the market risk inherent in that single  
16 firm. Rational investors, however, are risk-averse and seek to eliminate risk they can  
17 control. Investors can eliminate firm-specific risk by adding more stocks to their portfolio  
18 through a process called "diversification." There are two reasons why diversification  
19 eliminates firm-specific risk.

---

<sup>23</sup> See John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 179–80 (3rd ed., South Western Cengage Learning 2010).

1 First, each stock in a diversified portfolio represents a much smaller percentage of  
2 the overall portfolio than it would in a portfolio of just one or a few stocks. Thus, any firm-  
3 specific action that changes the stock price of one stock in the diversified portfolio will  
4 have only a small impact on the entire portfolio.<sup>24</sup>

5 The second reason why diversification eliminates firm-specific risk is that the  
6 effects of firm-specific actions on stock prices can be either positive or negative for each  
7 stock. Thus, in large diversified portfolios, the net effect of these positive and negative  
8 firm-specific risk factors will be essentially zero and will not affect the value of the overall  
9 portfolio.<sup>25</sup> Firm-specific risk is also called “diversifiable risk” because it can be easily  
10 eliminated through diversification.

11 **Q. Is it well-known and accepted that, because firm-specific risk can be easily eliminated**  
12 **through diversification, the market does not reward such risk through higher**  
13 **returns?**

14 A. Yes. Because investors eliminate firm-specific risk through diversification, they know they  
15 cannot expect a higher return for assuming the firm-specific risk in any one company.  
16 Thus, the risks associated with an individual firm’s operations are not rewarded by the  
17 market. In fact, firm-specific risk is also called “unrewarded” risk for this reason. Market  
18 risk, on the other hand, cannot be eliminated through diversification and as such investors  
19 expect a return for assuming this type of risk. Market risk is also called “systematic risk.”

---

<sup>24</sup> See Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 64 (3rd ed., John Wiley & Sons, Inc. 2012).

<sup>25</sup> See Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 64 (3rd ed., John Wiley & Sons, Inc. 2012).

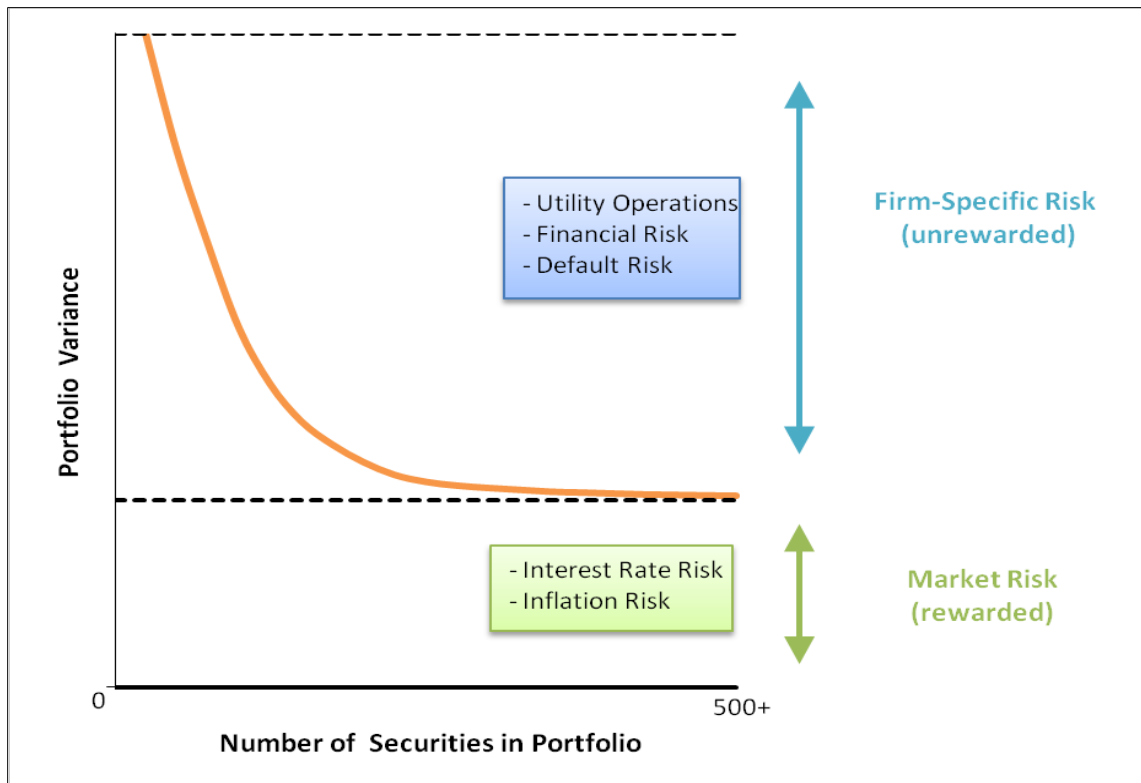


1 Scholars recognize the fact that market risk, or systematic risk, is the only type of risk for  
2 which investors expect a return for bearing:

3 If investors can cheaply eliminate some risks through diversification, then  
4 we should not expect a security to earn higher returns for risks that can be  
5 eliminated through diversification. Investors can expect compensation only  
6 for bearing systematic risk (i.e., risk that cannot be diversified away).<sup>26</sup>

7  
8 These important concepts are illustrated in the figure below. Some form of this figure is  
9 found in many financial textbooks.

**Figure 4:  
Effects of Portfolio Diversification**



---

<sup>26</sup> See John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 180 (3rd ed., South Western Cengage Learning 2010) (emphasis added).

1 This figure shows that as stocks are added to a portfolio, the amount of firm-specific risk  
2 is reduced until it is essentially eliminated. No matter how many stocks are added,  
3 however, there remains a certain level of fixed market risk. The level of market risk will  
4 vary from firm to firm. Market risk is the only type of risk that is rewarded by the market  
5 and is thus the primary type of risk the Commission should consider when determining the  
6 allowed return.

7 **Q. Describe how market risk is measured.**

8 A. Investors who want to eliminate firm-specific risk must hold a fully diversified portfolio.  
9 To determine the amount of risk that a single stock adds to the overall market portfolio,  
10 investors measure the covariance between a single stock and the market portfolio. The  
11 result of this calculation is called “beta.”<sup>27</sup> Beta represents the sensitivity of a given  
12 security to the market as a whole. The market portfolio of all stocks has a beta equal to  
13 one. Stocks with betas greater than 1.0 are relatively more sensitive to market risk than the  
14 average stock. For example, if the market increases (or decreases) by 1.0%, a stock with a  
15 beta of 1.5 will, on average, increase (or decrease) by 1.5%. In contrast, stocks with betas  
16 of less than 1.0 are less sensitive to market risk, such that if the market increases (or  
17 decreases) by 1.0%, a stock with a beta of 0.5 will, on average, only increase (or decrease)  
18 by 0.5%. Thus, stocks with low betas are relatively insulated from market conditions. The

---

<sup>27</sup> See John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 180–81 (3rd ed., South Western Cengage Learning 2010).

1 beta term is used in the CAPM to estimate the cost of equity, which is discussed in more  
2 detail later.<sup>28</sup>

3 **Q. Are public utilities characterized as defensive firms that have low betas, have low**  
4 **market risk, and are relatively insulated from overall market conditions?**

5 A. Yes. Although market risk affects all firms in the market, it affects different firms to  
6 varying degrees. Firms with high betas are affected more than firms with low betas, which  
7 is why firms with high betas are riskier. Stocks with betas greater than one are generally  
8 known as “cyclical stocks.” Firms in cyclical industries are sensitive to recurring patterns  
9 of recession and recovery known as the “business cycle.”<sup>29</sup> Thus, cyclical firms are  
10 exposed to a greater level of market risk. Securities with betas less than one, on the other  
11 hand, are known as “defensive stocks.” Companies in defensive industries, such as public  
12 utility companies, “will have low betas and performance that is comparatively unaffected  
13 by overall market conditions.”<sup>30</sup> In fact, financial textbooks often use utility companies as  
14 prime examples of low-risk, defensive firms.<sup>31</sup> The figure below compares the betas of  
15 several industries and illustrates that the utility industry is one of the least risky industries  
16 in the U.S. market.<sup>32</sup>

---

<sup>28</sup> Though it will be discussed in more detail later, Exhibit DJG-8 shows that the average beta of the proxy group was less than 1.0. This confirms the well-known concept that utilities are relatively low-risk firms.

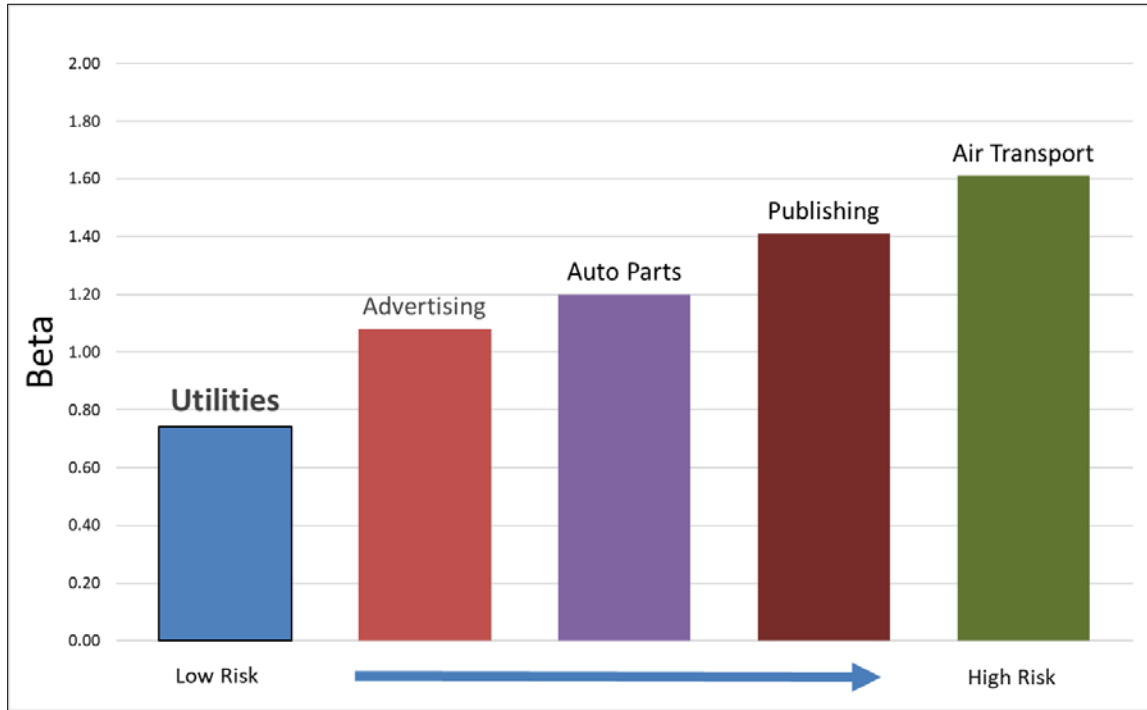
<sup>29</sup> See Zvi Bodie, Alex Kane & Alan J. Marcus, *Essentials of Investments* 382 (9th ed., McGraw-Hill/Irwin 2013).

<sup>30</sup> Zvi Bodie, Alex Kane & Alan J. Marcus, *Essentials of Investments* 383 (9th ed., McGraw-Hill/Irwin 2013).

<sup>31</sup> See e.g., Zvi Bodie, Alex Kane & Alan J. Marcus, *Essentials of Investments* 382 (9th ed., McGraw-Hill/Irwin 2013); see also Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 196 (3rd ed., John Wiley & Sons, Inc. 2012).

<sup>32</sup> See Betas by Sector (US) at <http://pages.stern.nyu.edu/~adamodar/>. The exact beta calculations are not as important as illustrating the well-known fact that utilities are low-risk companies. The fact that the utility industry is one of the lowest risk industries in the country should not change from year to year.

**Figure 5:  
Beta by Industry**



1           The fact that utilities are defensive firms that are exposed to little market risk is  
2           beneficial to society. When the business cycle enters a recession, consumers can be assured  
3           that their utility companies will be able to maintain normal business operations and provide  
4           safe and reliable service under prudent management. Likewise, utility investors can be  
5           confident that utility stock prices will not fluctuate widely. So, while it is preferable for  
6           utilities to be defensive firms that experience little market risk and relatively insulated from  
7           market conditions, this should also be appropriately reflected in Lancaster’s awarded  
8           return.

## VI. DCF ANALYSIS

1 **Q. Describe the DCF Model.**

2 A. The DCF Model is based on a fundamental financial model called the “dividend discount  
3 model,” which maintains that the value of a security is equal to the present value of the  
4 future cash flows it generates. Cash flows from common stock are paid to investors in the  
5 form of dividends. There are several variations of the DCF Model. These versions, along  
6 with other formulas and theories related to the DCF Model are discussed in more detail in  
7 Appendix A. For this case, I chose to use the Quarterly Approximation DCF Model  
8 because it accounts for the quarterly growth of dividends (as opposed to annual growth). I  
9 also used this variation of the DCF Model in the interest of reasonableness, as it produces  
10 the highest cost of equity estimates compared with the other DCF Model variations.

11 **Q. Describe the inputs to the DCF Model.**

12 A. There are three primary inputs in the DCF Model: (1) stock price; (2) dividend; and (3) the  
13 long-term growth rate. The stock prices and dividends are known inputs based on recorded  
14 data, while the growth rate projection must be estimated. The formula is presented as  
15 follows:

**Equation 2:  
Quarterly Approximation Discounted Cash Flow Model**

16 
$$K = \left[ \frac{d_0(1+g)^{1/4}}{P_0} + (1+g)^{1/4} \right]^4 - 1$$

17 *where:*  $K$  = discount rate / required return  
 $d_0$  = current quarterly dividend per share  
 $P_0$  = stock price  
 $g$  = expected growth rate of future dividends

18 I discuss each of these inputs separately below.

1 **A. Stock Price**

2 **Q. How did you determine the stock price input of the DCF Model?**

3 A. For the stock price ( $P_0$ ), I used a 30-day average of stock prices for each company in the  
4 proxy group.<sup>33</sup> Analysts sometimes rely on average stock prices for longer periods (e.g.,  
5 60, 90, or 180 days). According to the efficient market hypothesis, however, markets  
6 reflect all relevant information available at a particular time, and prices adjust  
7 instantaneously to the arrival of new information.<sup>34</sup> Past stock prices, in essence, reflect  
8 outdated information. The DCF Model used in utility rate cases is a derivation of the  
9 dividend discount model, which is used to determine the current value of an asset. Thus,  
10 according to the dividend discount model and the efficient market hypothesis, the value for  
11 the “ $P_0$ ” term in the DCF Model should technically be the current stock price, rather than  
12 an average.

13 **Q. Why did you use a 30-day average for the current stock price input?**

14 A. Using a short-term average of stock prices for the current stock price input adheres to  
15 market efficiency principles while avoiding any irregularities that may arise from using a  
16 single current stock price. In the context of a utility rate proceeding there is a significant  
17 length of time from when an application is filed until testimony is due. Choosing a current  
18 stock price for one particular day could raise a separate issue concerning which day was  
19 chosen to be used in the analysis. In addition, a single stock price on a particular day may  
20 be unusually high or low. It is arguably ill-advised to use a single stock price in a model

---

<sup>33</sup> Exhibit DJG-3.

<sup>34</sup> See Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, Vol. 25, No. 2 The Journal of Finance 383 (1970).

1 that is ultimately used to set rates for several years, especially if a stock is experiencing  
2 some volatility. Thus, it is preferable to use a short-term average of stock prices, which  
3 represents a good balance between adhering to well-established principles of market  
4 efficiency while avoiding any unnecessary contentions that may arise from using a single  
5 stock price on a given day. The stock prices I used in my DCF analysis are based on 30-  
6 day averages of adjusted closing stock prices for each company in the proxy group.<sup>35</sup>

## 7 **B. Dividend**

### 8 **Q. Describe how you determined the dividend input of the DCF Model.**

9 A. The dividend term in the Quarterly Approximation DCF Model is the current quarterly  
10 dividend per share ( $d_0$ ). I obtained the most recent quarterly dividend paid for each proxy  
11 company.<sup>36</sup> The Quarterly Approximation DCF Model assumes that the company  
12 increases its dividend payments each quarter. Thus, the model assumes that each quarterly  
13 dividend is greater than the previous one by  $(1 + g)^{0.25}$ . This expression could be described  
14 as the dividend quarterly growth rate, where the term “g” is the growth rate and the  
15 exponential term “0.25” signifies one quarter of the year.

### 16 **Q. Does the Quarterly Approximation DCF Model result in the highest cost of equity in 17 this case relative to other DCF Models, all else held constant?**

18 A. Yes. The Quarterly Approximation DCF Model I employed in this case results in a higher  
19 DCF cost of equity estimate than the annual or semi-annual DCF Models due to the

---

<sup>35</sup> Exhibit DJG-3. Adjusted closing prices, rather than actual closing prices, are ideal for analyzing historical stock prices. The adjusted price provides an accurate representation of the firm’s equity value beyond the mere market price because it accounts for stock splits and dividends.

<sup>36</sup> Exhibit DJG-4. Nasdaq Dividend History, <http://www.nasdaq.com/quotes/dividend-history.aspx>.

1 quarterly compounding of dividends inherent in the model. In essence, the Quarterly  
2 Approximation DCF Model I used results in the highest cost of equity estimate, all else  
3 held constant.

4 **Q. Are the stock price and dividend inputs for each proxy company a significant issue in**  
5 **this case?**

6 A. No. Although my stock price and dividend inputs are more recent than those used by Mr.  
7 Walker, there is not a statistically significant difference between them because utility stock  
8 prices and dividends are generally quite stable. This is another reason that cost of capital  
9 models such as the CAPM and the DCF Model are well-suited to be used for utilities. The  
10 differences between my DCF Model and Mr. Walker's DCF Model are primarily driven  
11 by differences in our growth rate estimates, which are further discussed below.

### 12 **C. Growth Rate**

13 **Q. Summarize the growth rate input in the DCF Model.**

14 A. The most critical input in the DCF Model is the growth rate. Unlike the stock price and  
15 dividend inputs, the growth rate input (g) must be estimated. As a result, the growth rate  
16 is often the most contentious DCF input in utility rate cases. The DCF model used in this  
17 case is based on the constant growth valuation model. Under this model, a stock is valued  
18 by the present value of its future cash flows in the form of dividends. Before future cash  
19 flows are discounted by the cost of equity, however, they must be "grown" into the future  
20 by a long-term growth rate. As stated above, one of the inherent assumptions of this model  
21 is that these cash flows in the form of dividends grow at a constant rate forever. Thus, the  
22 growth rate term in the constant growth DCF model is often called the "constant," "stable,"  
23 or "terminal" growth rate. For young, high-growth firms, estimating the growth rate to be



1 used in the model can be especially difficult, and may require the use of multi-stage growth  
2 models. For mature, low-growth firms such as utilities, however, estimating the terminal  
3 growth rate is more transparent. The growth term of the DCF Model is one of the most  
4 important, yet apparently most misunderstood, aspects of cost of equity estimations in  
5 utility regulatory proceedings. Therefore, I have devoted a more detailed explanation of  
6 this issue in the following sections, which are organized as follows:

- 7 (1) The Various Determinants of Growth
- 8 (2) Reasonable Estimates for Long-Term Growth
- 9 (3) Quantitative vs. Qualitative Determinants of Utility Growth:  
10 Circular References, “Flatworm” Growth, and the Problem with  
11 Analysts’ Growth Rates
- 12 (4) Growth Rate Recommendation

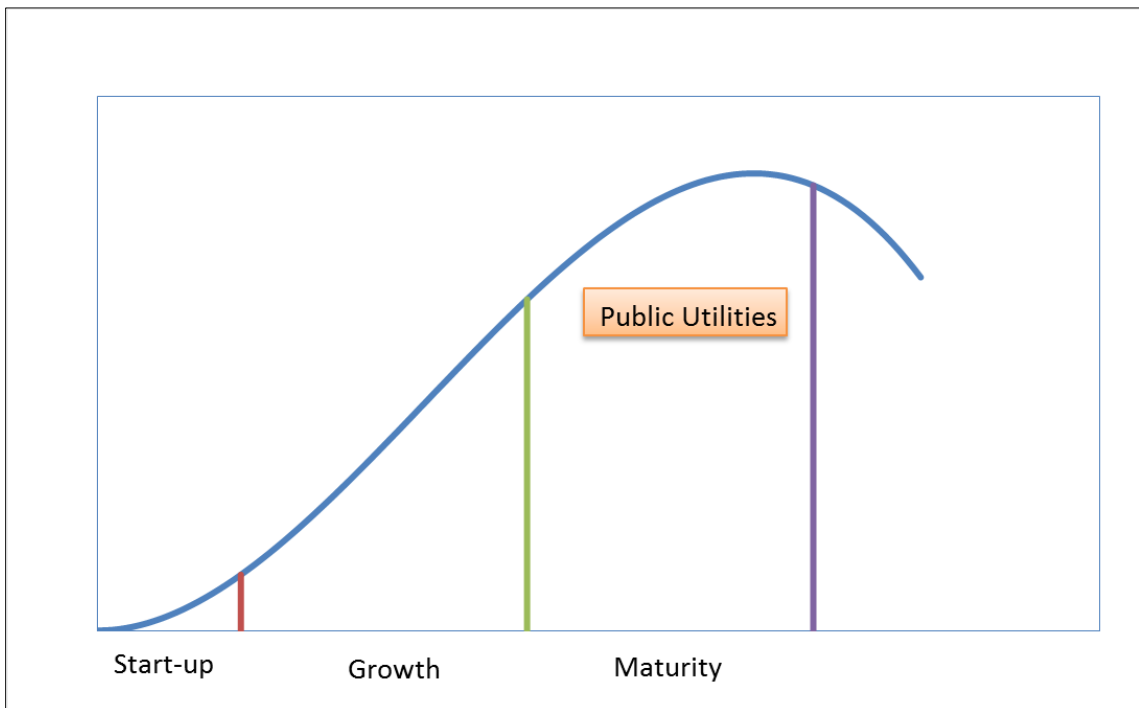
13 **Q. Describe the various determinants of growth that might be considered for the**  
14 **terminal growth rate input in the DCF Model.**

15 A. Although the DCF Model directly considers the growth of dividends, there are a variety of  
16 growth determinants that should be considered when estimating growth rates. It should be  
17 noted that these various growth determinants are used primarily to determine the short-  
18 term growth rates in multi-stage DCF models. For utility companies, it is necessary to  
19 focus primarily on long-term growth rates, which are discussed in the following section.  
20 That is not to say that these growth determinants cannot be considered when estimating  
21 long-term growth; however, as discussed below, long-term growth must be constrained  
22 much more than short-term growth, especially for young firms with high growth  
23 opportunities.

1 **Q. Describe what is meant by long-term growth.**

2 A. In order to make the DCF Model a viable, practical model, an infinite stream of future cash  
3 flows must be estimated and then discounted back to the present. Otherwise, each annual  
4 cash flow would have to be estimated separately. Some analysts use “multi-stage” DCF  
5 Models to estimate the value of high-growth firms through two or more stages of growth,  
6 with the final stage of growth being constant. However, it is not necessary to use multi-  
7 stage DCF Models to analyze the cost of equity of regulated utility companies. This is  
8 because regulated utilities are already in their “terminal,” low growth stage. Unlike most  
9 competitive firms, the growth of regulated utilities is constrained by physical service  
10 territories and limited primarily by ratepayer and load growth within those territories. The  
11 figure below illustrates the well-known business/industry life-cycle pattern.

**Figure 6:  
Industry Life Cycle**



1 In an industry's early stages, there are ample opportunities for growth and profitable  
2 reinvestment. In the maturity stage however, growth opportunities diminish, and firms  
3 choose to pay out a larger portion of their earnings in the form of dividends instead of  
4 reinvesting them in operations to pursue further growth opportunities. Once a firm is in  
5 the maturity stage, it is not necessary to consider higher short-term growth metrics in multi-  
6 stage DCF Models; rather, it is sufficient to analyze the cost of equity using a stable growth  
7 DCF Model with one terminal, long-term growth rate.

8 **Q. Is it true that the aggregate growth rate of the economy could be seen as a limiting**  
9 **factor for the terminal growth rate in the DCF Model?**

10 A. Yes. A fundamental concept in finance is that no firm can grow forever at a rate higher  
11 than the growth rate of the economy in which it operates.<sup>37</sup> Thus, the terminal growth rate  
12 used in the DCF Model should not exceed the aggregate economic growth rate. This is  
13 especially true when the DCF Model is conducted on public utilities because these firms  
14 have defined service territories. As stated by Dr. Damodaran: “[i]f a firm is a purely  
15 domestic company, either because of internal constraints . . . or external constraints (such  
16 as those imposed by a government), the growth rate in the domestic economy will be the  
17 limiting value.”<sup>38</sup>

18 In fact, it is reasonable to assume that a regulated utility would grow at a rate that  
19 is less than the U.S. economic growth rate. Unlike competitive firms, which might increase  
20 their growth by launching a new product line, franchising, or expanding into new and

---

<sup>37</sup> See Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 306 (3rd ed., John Wiley & Sons, Inc. 2012).

<sup>38</sup> Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 306 (3rd ed., John Wiley & Sons, Inc. 2012).

1 developing markets, utility operating companies with defined service territories cannot do  
2 any of these things to grow. Gross Domestic Product (“GDP”) is one of the most widely  
3 used measures of economic production and is used to measure aggregate economic growth.  
4 According to the Congressional Budget Office’s Budget Outlook, the long-term forecast  
5 for nominal U.S. GDP growth is about 4%, which includes an inflation rate of 2%.<sup>39</sup> For  
6 mature companies in mature industries, such as utility companies, the terminal growth rate  
7 will likely fall between the expected rate of inflation and the expected rate of nominal GDP  
8 growth.

9 **Q. Do water utilities have unique growth opportunities that most electric and gas utilities**  
10 **do not have?**

11 A. Yes. Water utilities are in a unique position to adopt growth strategies which include the  
12 potential acquisition of many smaller water and wastewater systems from various  
13 municipalities and other localized government entities. My analysis of the dividend yields  
14 of the proxy group shows that these companies are likely retaining more capital in order to  
15 pursue these types of growth strategies.

16 **Q. Given these unique growth opportunities, did you consider some of the projected**  
17 **growth rates outlined in Mr. Walker’s testimony when determining the growth rate**  
18 **to use in your DCF Model?**

19 A. Yes. In this case, I considered some of the historical and projected growth rates outlined  
20 in Mr. Walker’s testimony. While these growth rates are higher than what should typically  
21 be used for the terminal growth rate in the DCF Model, I considered them in this case given  
22 the water proxy group’s unique growth opportunities relative to electric and gas utilities.

---

<sup>39</sup> Congressional Budget Office Long-Term Budget Outlook, <https://www.cbo.gov/publication/51580>.

1 **Q. Describe the growth rate input used in your DCF Model.**

2 A. I considered various qualitative determinants of growth for Lancaster, along with the  
3 maximum allowed growth rate under basic principles of finance and economics. The  
4 following chart in the figure below shows three of the long-term growth determinants  
5 discussed in this section.<sup>40</sup>

**Figure 7:  
Terminal Growth Rate Determinants**

<b>Terminal Growth Determinants</b>	<b>Rate</b>
Nominal GDP	3.8%
Real GDP	1.8%
Inflation	2.0%
Projected Growth Rates	6.6%
<b>Highest</b>	<b>6.6%</b>

6 For the long-term growth rate in my DCF model, I selected the maximum, reasonable long-  
7 term growth rate of 6.6%, which means my model assumes that Lancaster’s qualitative  
8 growth in earnings will exceed the nominal growth rate of the entire U.S. economy over  
9 the long run – a very charitable assumption. This growth rate is the average of all projected  
10 growth rates cited in Mr. Walker’s schedules.<sup>41</sup>

---

<sup>40</sup> Exhibit DJG-5.

<sup>41</sup> See Direct Testimony of Harold Walker, III, Sch. 13.

1 **Q. Please describe the final results of your DCF Model.**

2 A. I used the Quarterly Approximation DCF Model discussed above to estimate Lancaster's  
3 cost of equity capital. I obtained an average of reported dividends and stock prices from  
4 the proxy group, and I used a reasonable terminal growth rate estimate for Lancaster. My  
5 DCF Model cost of equity estimate for Lancaster is 8.2%.<sup>42</sup> This result is at the higher end  
6 of a cost of equity range that could be considered reasonable, given the fact that it  
7 incorporates terminal growth rates that are notably higher than U.S. GDP growth. It is also  
8 relatively higher than the results of the market-based CAPM, which is further discussed  
9 below. Nonetheless, an awarded ROE of 8.2% based on the results of my DCF Model  
10 would be reasonable in this case.

11 **D. Response to Mr. Walker's DCF Model**

12 **Q. Mr. Walker's DCF Model yielded a notably higher result. Did you find any problems**  
13 **with his analysis?**

14 A. Yes. Mr. Walker's DCF Model produced a result of 9.9%, which is notably higher than  
15 my DCF cost of equity estimate. The primary problem with Mr. Walker's DCF Model is  
16 his use of a leverage adjustment based on the Hamada formula.

17 **Q. Do you agree with Mr. Walker's application of the DCF Model?**

18 A. No. In this case, the most problematic part of Mr. Walker's DCF Model is his use of the  
19 Hamada formula to develop a 1.2% premium added to his DCF results.<sup>43</sup>

---

<sup>42</sup> Exhibit DJG-6.

<sup>43</sup> Direct Testimony of Harold Walker, III, p. 49, lines 7-10.

1 **Q. What is the premise of the Hamada formula??**

2 A. The Hamada formula can be used to analyze changes in a firm’s cost of capital as it adds  
3 or reduces financial leverage, or debt, in its capital structure by starting with an “unlevered”  
4 beta and then “relevering” the beta at different debt ratios. As leverage increases, equity  
5 investors bear increasing amounts of risk, leading to higher betas. Before the effects of  
6 financial leverage can be accounted for, however, the effects of leverage must first be  
7 removed, which is accomplished through the Hamada formula. The Hamada formula for  
8 unlevering beta is stated as follows:<sup>44</sup>

**Equation 3:  
Hamada Formula**

$$\beta_U = \frac{\beta_L}{\left[1 + (1 - T_c) \left(\frac{D}{E}\right)\right]}$$

where:  $\beta_U$  = unlevered beta (or “asset” beta)  
 $\beta_L$  = average levered beta of proxy group  
 $T_c$  = corporate tax rate  
 $D$  = book value of debt  
 $E$  = book value of equity

9 Using this equation, the beta for the firm can be unlevered, and then “relevered” based on  
10 various debt ratios (by rearranging this equation to solve for  $\beta_L$ ).

11 **Q. Did Mr. Walker apply the Hamada formula correctly?**

12 A. No. Mr. Walker’s application of the Hamada formula is incorrect. I conducted the Hamada  
13 Model and present my results in my exhibits.<sup>45</sup> Using the Company’s proposed capital  
14 structure and a tax rate of 29% (the same used by Mr. Walker), I calculate an unlevered

---

<sup>44</sup> Damodaran *supra* n. 18, at 197. This formula was originally developed by Hamada in 1972.

<sup>45</sup> Exhibit DJG-17.

1 beta of 0.48. When that beta is relevered to my proposed debt ratio of 50%, I calculate a  
 2 cost of equity of 7.9%, which is very close to my CAPM result of 7.8%.<sup>46</sup> My Hamada  
 3 calculation is illustrated in the following figure.

**Figure 8:  
Terminal Growth Rate Determinants**

<b>Unlevering Beta</b>			
Proposed Debt Ratio	49%	[1]	
Proposed Equity Ratio	51%	[2]	
Debt / Equity Ratio	96%	[3]	
Tax Rate	29%	[4]	
Equity Risk Premium	7.3%	[5]	
Risk-free Rate	1.9%	[6]	
Proxy Group Beta	0.80	[7]	
Unlevered Beta	0.48	[8]	
[9]	[10]	[11]	[12]
<b>Relevered Betas and Cost of Equity Estimates</b>			
Debt Ratio	D/E Ratio	Levered Beta	Cost of Equity
0%	0%	0.475	5.4%
20%	25%	0.560	6.0%
30%	43%	0.620	6.5%
40%	67%	0.701	7.1%
50%	100%	0.813	7.9%
55%	122%	0.888	8.4%
60%	150%	0.982	9.1%

4 While the Hamada formula can be a valuable exercise in certain applications, it does not  
 5 have any meaningful impact on a fair awarded ROE in this case, especially since both I

---

<sup>46</sup> See *id.*



1 and Mr. Walker are recommending capital structures for the City that are substantially  
2 similar to those of the proxy group.

3 **Q. How does your result compare to Mr. Walker's application of the Hamada formula?**

4 A. As demonstrated above, the Hamada formula should have no significant impact in this case  
5 if the proposed capital structure is somewhat reflective of the City's actual capital structure.  
6 In this case, since the City does not raise its own capital, both Mr. Walker and I are  
7 proposing imputed capital structures based on the capital structures of the proxy group,  
8 consistent with 66 Pa. C.S. § 1301(b). Mr. Walker proposes a debt ratio of 49%, while I  
9 propose a debt ratio of 50%. However, Mr. Walker's Hamada formula is based on a debt  
10 ratio of only 23%, which effectively skews the results higher.<sup>47</sup> It is unclear whether this  
11 is a mathematical error or an intentional decision on the part of Mr. Walker. Either way, it  
12 causes the results to be inaccurate. If Mr. Walker had used the correct debt ratio, he should  
13 have calculated an indicated cost of equity of about 8%, not 10%. Mr. Walker ultimately  
14 uses the Hamada formula to conclude that more than 100 basis points should be added to  
15 his base DCF Model results. The Commission should reject Mr. Walker's application of  
16 the Hamada formula and its increasing effect on his cost of equity results. Not only does  
17 Mr. Walker's Hamada formula use the incorrect debt ratio, but he also inappropriately uses  
18 the model to inexplicably add more than 100 basis points to the DCF results.

---

<sup>47</sup> Direct Testimony of Harold Walker, III, Sch. 16.

## VII. CAPM ANALYSIS

1 **Q. Describe the CAPM.**

2 A. The CAPM is a market-based model founded on the principle that investors expect higher  
3 returns for incurring additional risk.<sup>48</sup> The CAPM estimates this expected return. The  
4 various assumptions, theories, and equations involved in the CAPM are discussed further  
5 in Appendix B. Using the CAPM to estimate the cost of equity of a regulated utility is  
6 consistent with the legal standards governing the fair rate of return. The U.S. Supreme  
7 Court has recognized that “the amount of risk in the business is a most important factor”  
8 in determining the allowed rate of return,<sup>49</sup> and that “the return to the equity owner should  
9 be commensurate with returns on investments in other enterprises having corresponding  
10 risks.”<sup>50</sup> The CAPM is a useful model because it directly considers the amount of risk  
11 inherent in a business. It is arguably the strongest of the models usually presented in rate  
12 cases because, unlike the DCF Model, the CAPM directly measures the most important  
13 component of a fair rate of return analysis – risk.

14 **Q. Describe the inputs for the CAPM.**

15 A. The basic CAPM equation requires only three inputs to estimate the cost of equity: (1) the  
16 risk-free rate; (2) the beta coefficient; and (3) the equity risk premium. Here is the CAPM  
17 formula:

---

<sup>48</sup> William F. Sharpe, *A Simplified Model for Portfolio Analysis* 277–93 (Management Science IX 1963).

<sup>49</sup> *Wilcox*, 212 U.S. at 48.

<sup>50</sup> *Hope Natural Gas Co.*, 320 U.S. at 603.

**Equation 4:  
Basic CAPM**

1                    **Cost of Equity = Risk-free Rate + (Beta × Equity Risk Premium)**

2                    Each input is discussed separately below.

3                    **A. The Risk-Free Rate**

4                    **Q. Explain the risk-free rate.**

5                    A. The first term in the CAPM is the risk-free rate ( $R_F$ ). The risk-free rate is simply the level  
6                    of return investors can achieve without assuming any risk. The risk-free rate represents the  
7                    bare minimum return that any investor would require on a risky asset. Even though no  
8                    investment is technically void of risk, investors often use U.S. Treasury securities to  
9                    represent the risk-free rate because they accept that those securities essentially contain no  
10                    default risk. The Treasury issues securities with different maturities, including short-term  
11                    Treasury Bills, intermediate-term Treasury Notes, and long-term Treasury Bonds.

12                    **Q. Is it preferable to use the yield on long-term Treasury bonds for the risk-free rate in  
13                    the CAPM?**

14                    A. Yes. In valuing an asset, investors estimate cash flows over long periods of time. Common  
15                    stock is viewed as a long-term investment, and the cash flows from dividends are assumed  
16                    to last indefinitely. Thus, short-term Treasury Bill yields are rarely used in the CAPM to  
17                    represent the risk-free rate. Short-term rates are subject to greater volatility and thus can  
18                    lead to unreliable estimates. Instead, long-term Treasury Bonds are usually used to  
19                    represent the risk-free rate in the CAPM. I considered a 30-day average of daily Treasury

1 yield curve rates on 30-year Treasury Bonds in my risk-free rate estimate, which resulted  
2 in a risk-free rate of 1.94%.<sup>51</sup>

### 3 **B. The Beta Coefficient**

#### 4 **Q. How is the beta coefficient used in this model?**

5 A. As discussed above, beta represents the sensitivity of a given security to movements in the  
6 overall market. The CAPM states that in efficient capital markets, the expected risk  
7 premium on each investment is proportional to its beta. Recall that a security with a beta  
8 greater (or less) than one is more (or less) risky than the market portfolio. An index such  
9 as the S&P 500 Index is used as a proxy for the market portfolio. The historical betas for  
10 publicly traded firms are published by various institutional analysts. Beta may also be  
11 calculated through a linear regression analysis, which provides additional statistical  
12 information about the relationship between a single stock and the market portfolio. As  
13 discussed above, beta also represents the sensitivity of a given security to the market as a  
14 whole. The market portfolio of all stocks has a beta equal to one. Stocks with betas greater  
15 than 1.0 are relatively more sensitive to market risk than the average stock. For example,  
16 if the market increases (or decreases) by 1.0%, a stock with a beta of 1.5 will, on average,  
17 increase (or decrease) by 1.5%. In contrast, stocks with betas of less than 1.0 are less  
18 sensitive to market risk. For example, if the market increases (or decreases) by 1.0%, a  
19 stock with a beta of 0.5 will, on average, only increase (or decrease) by 0.5%.

---

<sup>51</sup> Exhibit DJG-7.

1 **Q. Describe the source for the betas you used in your CAPM analysis.**

2 A. I used betas recently published by Value Line Investment Survey. The beta for each proxy  
3 company used in Mr. Walker’s proxy group is less than 1.0. Thus, we have an objective  
4 measure to prove the well-known concept that utility stocks are less risky than the average  
5 stock in the market. While there is evidence suggesting that betas published by sources  
6 such as Value Line may actually overestimate the risk of utilities (and thus overestimate  
7 the CAPM), I used the betas published by Value Line to be conservative.<sup>52</sup>

8 **C. The ERP**

9 **Q. Describe the Equity Risk Premium (“ERP”).**

10 A. The final term of the CAPM is the ERP, which is the required return on the market portfolio  
11 less the risk-free rate ( $R_M - R_F$ ). In other words, the ERP is the level of return investors  
12 expect above the risk-free rate in exchange for investing in risky securities. Many experts  
13 would agree that “the single most important variable for making investment decisions is  
14 the equity risk premium.”<sup>53</sup> Likewise, the ERP is arguably the single most important factor  
15 in estimating the cost of capital in this matter. There are three basic methods that can be  
16 used to estimate the ERP: (1) calculating a historical average; (2) taking a survey of experts;  
17 and (3) calculating the implied ERP. I will discuss each method in turn, noting advantages  
18 and disadvantages of these methods.

---

<sup>52</sup> Exhibit DJG-8; *see also* Appendix B for a more detailed discussion of raw beta calculations and adjustments.

<sup>53</sup> Elroy Dimson, Paul Marsh & Mike Staunton, *Triumph of the Optimists: 101 Years of Global Investment Returns* 4 (Princeton University Press 2002).

## 1. Historical Average

1 **Q. Describe the historical ERP.**

2 A. The historical ERP may be calculated by simply taking the difference between returns on  
3 stocks and returns on government bonds over a certain period of time. Many practitioners  
4 rely on the historical ERP as an estimate for the forward-looking ERP because it is easy to  
5 obtain. However, there are disadvantages to relying on the historical ERP.

6 **Q. What are the limitations of relying solely on a historical average to estimate the**  
7 **current or forward-looking ERP?**

8 A. Many investors use the historic ERP because it is convenient and easy to calculate. What  
9 matters in the CAPM model, however, is not the actual risk premium from the past, but  
10 rather the current and forward-looking risk premium.<sup>54</sup> Some investors may think that a  
11 historic ERP provides some indication of the prospective risk premium; however, there is  
12 empirical evidence to suggest the prospective, forward-looking ERP is actually lower than  
13 the historical ERP. In a landmark publication on risk premiums around the world, *Triumph*  
14 *of the Optimists*, the authors suggest through extensive empirical research that the  
15 prospective ERP is lower than the historical ERP.<sup>55</sup> This is due in large part to what is  
16 known as “survivorship bias” or “success bias” – a tendency for failed companies to be  
17 excluded from historical indices.<sup>56</sup> From their extensive analysis, the authors make the

---

<sup>54</sup> See John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 330 (3rd ed., South Western Cengage Learning 2010).

<sup>55</sup> See John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 194 (3rd ed., South Western Cengage Learning 2010).

<sup>56</sup> Elroy Dimson, Paul Marsh & Mike Staunton, *Triumph of the Optimists: 101 Years of Global Investment Returns* 34 (Princeton University Press 2002).

1 following conclusion regarding the prospective ERP: “[t]he result is a forward-looking,  
2 geometric mean risk premium for the United States . . . of around 2½ to 4 percent and an  
3 arithmetic mean risk premium . . . that falls within a range from a little below 4 to a little  
4 above 5 percent.”<sup>57</sup> Indeed, these results are lower than many reported historical risk  
5 premiums. Other noted experts agree:

6 The historical risk premium obtained by looking at U.S. data is biased  
7 upwards because of survivor bias. . . . The true premium, it is argued, is  
8 much lower. This view is backed up by a study of large equity markets over  
9 the twentieth century (*Triumph of the Optimists*), which concluded that the  
10 historical risk premium is closer to 4%.<sup>58</sup>

11 Regardless of the variations in historic ERP estimates, many scholars and practitioners  
12 agree that simply relying on a historic ERP to estimate the risk premium going forward is  
13 not ideal. Fortunately, “a naïve reliance on long-run historical averages is not the only  
14 approach for estimating the expected risk premium.”<sup>59</sup>

15 **Q. Did you rely on the historical ERP as part of your CAPM analysis in this case?**

16 A. No. Due to the limitations of this approach, I relied on the ERP reported in expert surveys  
17 and the implied ERP method discussed below.

---

<sup>57</sup> Elroy Dimson, Paul Marsh & Mike Staunton, *Triumph of the Optimists: 101 Years of Global Investment Returns* 194 (Princeton University Press 2002).

<sup>58</sup> Aswath Damodaran, *Equity Risk Premiums: Determinants, Estimation and Implications – The 2015 Edition* 17 (New York University 2015).

<sup>59</sup> See John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 330 (3rd ed., South Western Cengage Learning 2010).

## 2. Expert Surveys

1 **Q. Describe the expert survey approach to estimating the ERP.**

2 A. As its name implies, the expert survey approach to estimating the ERP involves conducting  
3 a survey of experts including professors, analysts, chief financial officers, and other  
4 executives around the country and asking them what they think the ERP is. The IESE  
5 Business School conducts a periodic survey that asks experts around the country about  
6 their opinions on the ERP. Their 2021 expert survey reported an average ERP of 5.5%.<sup>60</sup>

## 3. Implied ERP

7 **Q. Describe the implied ERP approach.**

8 A. The implied ERP relies on the stable growth model proposed by Gordon, often called the  
9 “Gordon Growth Model,” which is a basic stock valuation model widely used in finance  
10 for many years.<sup>61</sup> This model is a mathematical derivation of the DCF Model. In fact, the  
11 underlying concept in both models is the same: the current value of an asset is equal to the  
12 present value of its future cash flows. Instead of using this model to determine the discount  
13 rate of one company, we can use it to determine the discount rate for the entire market by  
14 substituting the inputs of the model. Specifically, instead of using the current stock price  
15 ( $P_0$ ), we will use the current value of the S&P 500 ( $V_{500}$ ). Similarly, instead of using the  
16 dividends of a single firm, we will consider the dividends paid by the entire market.  
17 Additionally, we should consider potential dividends. In other words, stock buybacks

---

<sup>60</sup> Pablo Fernandez, *Survey: Market Risk Premium and Risk-Free Rate used for 88 countries in 2021*, copy available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3861152](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3861152). IESE Business School is the graduate business school of the University of Navarra. IESE offers Master of Business Administration (MBA), Executive MBA and Executive Education programs. IESE is consistently ranked among the leading business schools in the world.

<sup>61</sup> Myron J. Gordon and Eli Shapiro, *Capital Equipment Analysis: The Required Rate of Profit* 102–10 (Management Science Vol. 3, No. 1 Oct. 1956).



1 should be considered in addition to paid dividends, as stock buybacks represent another  
 2 way for the firm to transfer free cash flow to shareholders. Focusing on dividends alone  
 3 without considering stock buybacks could understate the cash flow component of the  
 4 model, and ultimately understate the implied ERP. The market dividend yield plus the  
 5 market buyback yield gives us the gross cash yield to use as our cash flow in the numerator  
 6 of the discount model. This gross cash yield is increased each year over the next five years  
 7 by the growth rate. These cash flows must be discounted to determine their present value.  
 8 The discount rate in each denominator is the risk-free rate ( $R_F$ ) plus the discount rate ( $K$ ).  
 9 The following formula shows how the implied return is calculated. Since the current value  
 10 of the S&P is known, we can solve for  $K$ : the implied market return.<sup>62</sup>

**Equation 5:  
 Implied Market Return**

11 
$$V_{500} = \frac{CY_1(1+g)^1}{(1+R_F+K)^1} + \frac{CY_2(1+g)^2}{(1+R_F+K)^2} + \dots + \frac{CY_5(1+g)^5 + TV}{(1+R_F+K)^5}$$

where:  $V_{500}$  = current value of index (S&P 500)  
 $CY_{1-5}$  = average cash yield over last five years (includes dividends and buybacks)  
 $g$  = compound growth rate in earnings over last five years  
 $R_F$  = risk-free rate  
 $K$  = implied market return (this is what we are solving for)  
 $TV$  = terminal value =  $CY_5 (1+R_F) / K$

12 The discount rate is called the “implied” return here because it is based on the current value  
 13 of the index as well as the value of free cash flow to investors projected over the next five  
 14 years. Thus, based on these inputs, the market is “implying” the expected return; or in  
 15 other words, based on the current value of all stocks (the index price), and the projected  
 16 value of future cash flows, the market is telling us the return expected by investors for

---

<sup>62</sup> See Exhibit DJG-9 for detailed calculation.

1 investing in the market portfolio. After solving for the implied market return (K), we  
2 simply subtract the risk-free rate from it to arrive at the implied ERP.

**Equation 6:  
Implied Equity Risk Premium**

$$3 \quad \textit{Implied Expected Market Return} - R_F = \textit{Implied ERP}$$

4 **Q. Discuss the results of your implied ERP calculation.**

5 A. After collecting data for the index value, operating earnings, dividends, and buybacks for  
6 the S&P 500 over the past six years, I calculated the dividend yield, buyback yield, and  
7 gross cash yield for each year. I also calculated the compound annual growth rate (g) from  
8 operating earnings. I used these inputs, along with the risk-free rate and current value of  
9 the index to calculate a current expected return on the entire market of 7.5%. I subtracted  
10 the risk-free rate to arrive at the implied equity risk premium of 5.0%.<sup>63</sup> Dr. Damodaran,  
11 one of the world's leading experts on the ERP, promotes the implied ERP method discussed  
12 above. He calculates monthly and annual implied ERPs with this method and publishes  
13 his results. Dr. Damodaran's highest ERP estimate for October 2020 using several implied  
14 ERP variations was 4.8%.<sup>64</sup>

15 **Q. What are the results of your final ERP estimate?**

16 A. For the final ERP estimate I used in my CAPM analysis, I considered the results of the  
17 ERP surveys along with the implied ERP calculations and the ERP reported by Duff &  
18 Phelps.<sup>65</sup> The results are presented in the following figure:

---

<sup>63</sup> Exhibit DJG-9.

<sup>64</sup> Aswath Damodaran, *Implied Equity Risk Premium Update*, DAMODARAN ONLINE (last visited Nov. 2, 2020) <http://pages.stern.nyu.edu/~adamodar/>.

<sup>65</sup> Exhibit DJG-10.

**Figure 9:  
Equity Risk Premium Results**

IESE Business School Survey	5.6%
Duff & Phelps Report	5.5%
Damodaran (average)	4.8%
Walker	7.3%
Garrett	5.0%
<b>Average</b>	<b>5.6%</b>
<b>Highest</b>	<b>7.3%</b>

1 Also shown in this table is an ERP result considered in Mr. Walker’s testimony. While an  
 2 ERP of 7.3% is notably high given the other results shown in this table, I used an ERP of  
 3 7.3% in my CAPM. All else held constant, a higher ERP used in the CAPM will result in  
 4 a higher cost of equity estimate. I also selected this ERP to show that when we consider  
 5 betas published by Value Line (a respected and unbiased source for betas), the yield on 30-  
 6 year Treasury bonds for the risk free rate (the highest yield of all Treasury securities), and  
 7 Mr. Walker’s notably high ERP estimate of 7.3%, we still arrive at a CAPM result that is  
 8 much lower than the Mr. Walker’s ultimate cost of equity estimate, as further discussed  
 9 below.

10 **Q. Please explain the final results of your CAPM analysis.**

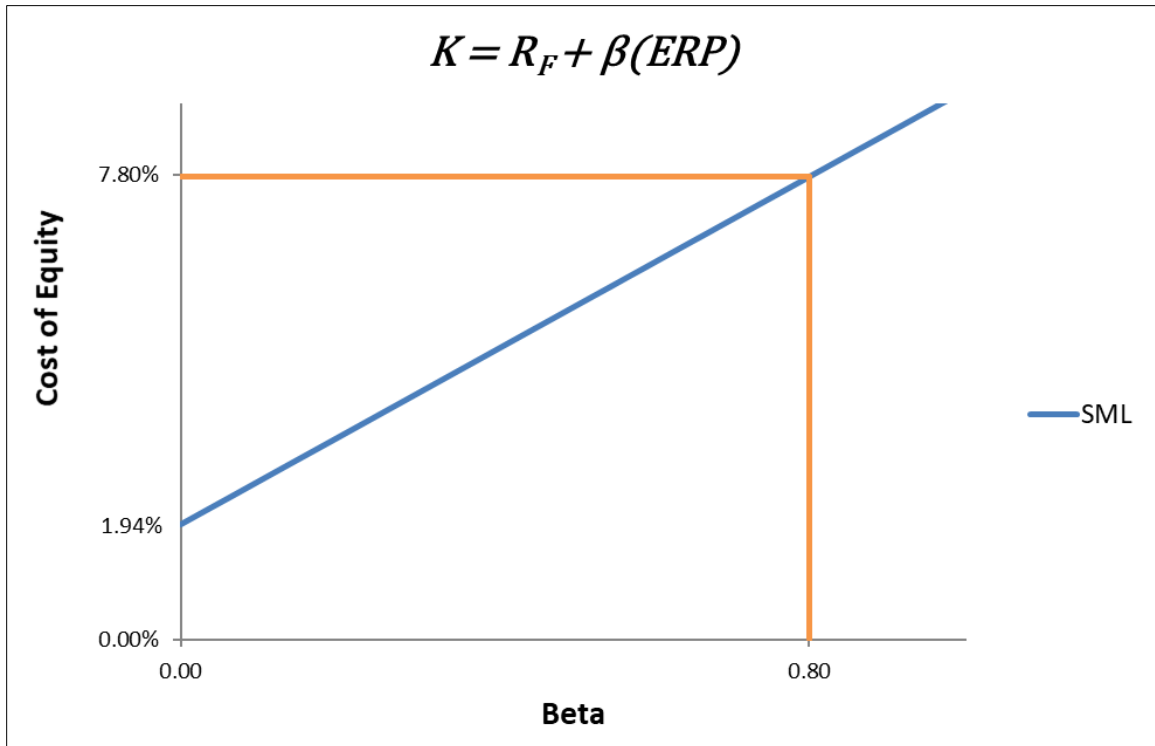
11 A. Using the inputs for the risk-free rate, beta coefficient, and ERP discussed above, I estimate  
 12 that Lancaster’s CAPM cost of equity is 7.8%.<sup>66</sup> The CAPM may be displayed graphically

---

<sup>66</sup> Exhibit DJG-11.

1 through what is known as the Security Market Line (“SML”). The following figure shows  
2 the expected return (cost of equity) on the y-axis, and the average beta for the proxy group  
3 on the x-axis. The SML intercepts the y-axis at the level of the risk-free rate. The slope  
4 of the SML is the equity risk premium.

**Figure 10:  
CAPM Graph**



5 The SML provides the rate of return that will compensate investors for the beta risk of that  
6 investment. Thus, at an average beta of 0.80 for the proxy group, the estimated CAPM  
7 cost of equity for Lancaster is 7.8%.

1 **D. Response to Mr. Walker’s CAPM Analysis**

2 **Q. Mr. Walker’s CAPM analysis yields notably higher results. Did you find specific**  
3 **problems with Mr. Walker’s CAPM assumptions and inputs?**

4 A. Yes, I did. Mr. Walker’s base CAPM cost of equity result is 9.8%, which is considerably  
5 higher than my estimate. Mr. Walker also adds the same 1.2% he did for the DCF Model  
6 to account for the same Hamada adjustment.<sup>67</sup> The primary problems with Mr. Walker’s  
7 CAPM cost of equity result stems from his estimate for the risk-free rate and the Hamada  
8 adjustment. I discussed my disagreements with Mr. Walker’s Hamada adjustment above,  
9 and those same disagreements apply here. In addition, Mr. Walker adds a size premium  
10 adjustment of 80 basis points to his CAPM.<sup>68</sup> He also adds a COVID-19 default adjustment  
11 of 17 basis points to his CAPM.<sup>69</sup> I discuss both of these issues below.

12 **Q. Do you agree with Mr. Walker’s size premium adjustment to the CAPM?**

13 A. No. The “size effect” phenomenon arose from a 1981 study conducted by Banz, which  
14 found that “in the 1936 – 1975 period, the common stock of small firms had, on average,  
15 higher risk-adjusted returns than the common stock of large firms.”<sup>70</sup> According to  
16 Ibbotson, Banz’s size effect study was “[o]ne of the most remarkable discoveries of modern  
17 finance.”<sup>71</sup> Perhaps there was some merit to this idea at the time, but the size effect  
18 phenomenon was short lived. Banz’s 1981 publication generated much interest in the size

---

<sup>67</sup> Direct Testimony of Harold Walker, III, p. 53, lines 1-9.

<sup>68</sup> *Id.* at Sch. 17.

<sup>69</sup> *Id.*

<sup>70</sup> Rolf W. Banz, *The Relationship Between Return and Market Value of Common Stocks* 3-18 (Journal of Financial Economics 9 (1981)).

<sup>71</sup> 2015 Ibbotson Stocks, Bonds, Bills, and Inflation Classic Yearbook 99 (Morningstar 2015).

1 effect and spurred the launch of significant new small cap investment funds. However,  
2 this “honeymoon period lasted for approximately two years. . . .”<sup>72</sup> After 1983, U.S. small-  
3 cap stocks actually underperformed relative to large cap stocks. In other words, the size  
4 effect essentially reversed. In *Triumph of the Optimists*, the authors conducted an extensive  
5 empirical study of the size effect phenomenon around the world. They found that after the  
6 size effect phenomenon was discovered in 1981, it disappeared within a few years:

7 It is clear . . . that there was a global reversal of the size effect in virtually  
8 every country, with the size premium not just disappearing but going into  
9 reverse. Researchers around the world universally fell victim to Murphy’s  
10 Law, with the very effect they were documenting – and inventing  
11 explanations for – promptly reversing itself shortly after their studies were  
12 published.<sup>73</sup>

13 In other words, the authors assert that the very discovery of the size effect phenomenon  
14 likely caused its own demise. The authors ultimately concluded that it is “inappropriate to  
15 use the term ‘size effect’ to imply that we should automatically expect there to be a small-  
16 cap premium,” yet, this is exactly what utility witnesses often do. The effect is an artificial  
17 inflation of the cost of equity with a size premium that bears no relation to reality. Other  
18 prominent sources have agreed that the size premium is a dead phenomenon. According  
19 to Ibbotson:

---

<sup>72</sup> Elroy Dimson, Paul Marsh & Mike Staunton, *Triumph of the Optimists: 101 Years of Global Investment Returns* 131 (Princeton University Press 2002).

<sup>73</sup> *Id.* at 133.

1 The unpredictability of small-cap returns has given rise to another argument  
2 against the existence of a size premium: that markets have changed so that  
3 the size premium no longer exists. As evidence, one might observe the last  
4 20 years of market data to see that the performance of large-cap stocks was  
5 basically equal to that of small cap stocks. In fact, large-cap stocks have  
6 outperformed small-cap stocks in five of the last 10 years.<sup>74</sup>

7 In addition to the studies discussed above, other scholars have concluded similar results.

8 According to Kalesnik and Beck:

9 Today, more than 30 years after the initial publication of Banz's paper, the  
10 empirical evidence is extremely weak even before adjusting for possible  
11 biases. . . . The U.S. long-term size premium is driven by the extreme  
12 outliers, which occurred three-quarters of a century ago. . . . Finally,  
13 adjusting for biases . . . makes the size premium vanish. If the size premium  
14 were discovered today, rather than in the 1980s, it would be challenging to  
15 even publish a paper documenting that small stocks outperform large  
16 ones.<sup>75</sup>

17 For all of these reasons, the Commission should reject the notion that a utility's size should  
18 have an increasing effect on its cost of equity estimate and reject Mr. Walker's 80 basis  
19 point size premium.

20 **Q. Do you agree with Mr. Walker's decision to add a COVID-19 default premium to the**  
21 **CAPM results?**

22 **A.** No. I have never even seen an adjustment to a cost of equity model like Mr. Walker's  
23 COVID-19 default adjustment. The capital markets have had nearly two years to react to  
24 the COVID-19 pandemic. The effects of the pandemic are thoroughly embedded in the  
25 inputs analysts use for the CAPM and DCF Model. For example, according to the efficient  
26 market hypothesis, stock prices (a key input to the DCF Model), incorporate all past and

---

<sup>74</sup> 2015 Ibbotson Stocks, Bonds, Bills, and Inflation Classic Yearbook 112 (Morningstar 2015) (emphasis added).

<sup>75</sup> Vitali Kalesnik and Noah Beck, *Busting the Myth About Size* (Research Affiliates 2014), available at [https://www.researchaffiliates.com/Our%20Ideas/Insights/Fundamentals/Pages/284\\_Busting\\_the\\_Myth\\_About\\_Size.aspx](https://www.researchaffiliates.com/Our%20Ideas/Insights/Fundamentals/Pages/284_Busting_the_Myth_About_Size.aspx) (emphasis added).

1 present information. Similarly, the beta and ERP inputs to the CAPM use historical data  
2 (ideally dating back only a few years) in their calculations. In other words, the effects of  
3 the pandemic have already been accounted for thoroughly in both the CAPM and DCF  
4 models. There is no need for the type of separate adjustment of 17 basis points Mr. Walker  
5 is suggesting for the CAPM to account for COVID-19.

### **VIII. CAPITAL STRUCTURE**

6 **Q. Describe in general the concept of a company's capital structure.**

7 A. "Capital structure" refers to the way a company finances its overall operations through  
8 external financing. The primary sources of long-term, external financing are debt capital  
9 and equity capital. Debt capital usually comes in the form of contractual bond issues that  
10 require the firm to make payments, while equity capital represents an ownership interest in  
11 the form of stock. Because a firm cannot pay dividends on common stock until it satisfies  
12 its debt obligations to bondholders, stockholders are referred to as "residual claimants."  
13 The fact that stockholders have a lower priority to claims on company assets increases their  
14 risk and the required return relative to bondholders. Thus, equity capital has a higher cost  
15 than debt capital. Firms can reduce their WACC by recapitalizing and increasing their debt  
16 financing. In addition, because interest expense is deductible, increasing debt also adds  
17 value to the firm by reducing the firm's tax obligation.

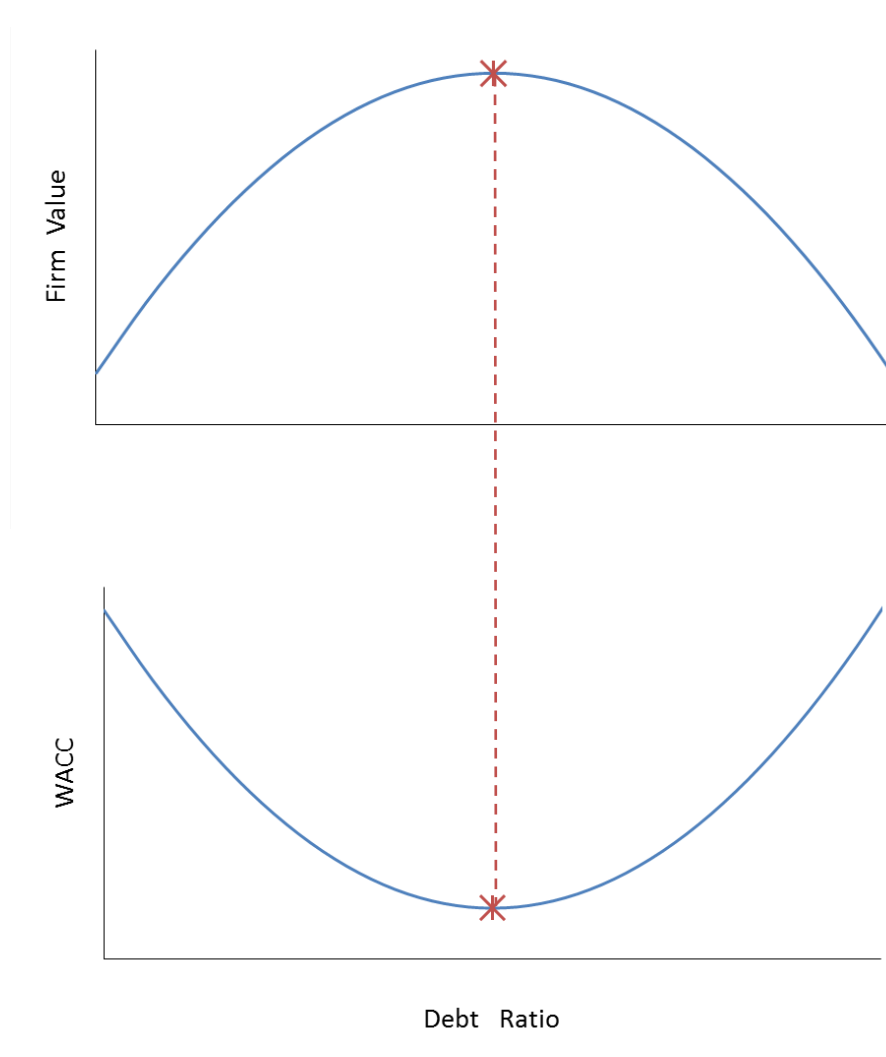
18 **Q. Is it true that, by increasing debt, competitive firms can add value and reduce their**  
19 **WACC?**

20 A. Yes, it is. A competitive firm can add value by increasing debt. After a certain point,  
21 however, the marginal cost of additional debt outweighs its marginal benefit. This is  
22 because the more debt the firm uses, the higher interest expense it must pay, and the



1 likelihood of loss increases. This also increases the risk of non-recovery for both  
2 bondholders and shareholders, causing both groups of investors to demand a greater return  
3 on their investment. Thus, if debt financing is too high, the firm's WACC will increase  
4 instead of decrease. The following figure illustrates these concepts.

**Figure 11:  
Optimal Debt Ratio**



5 As shown in this figure, a competitive firm's value is maximized when the WACC is  
6 minimized. In both graphs, the debt ratio is shown on the x-axis. By increasing its debt  
7 ratio, a competitive firm can minimize its WACC and maximize its value. At a certain

1 point, however, the benefits of increasing debt do not outweigh the costs of the additional  
2 risks to both bondholders and shareholders, as each type of investor will demand higher  
3 returns for the additional risk they have assumed.<sup>76</sup>

4 **Q. Does the rate base rate of return model effectively incentivize utilities to operate at**  
5 **the optimal capital structure?**

6 A. No. While it is true that competitive firms maximize their value by minimizing their  
7 WACC, this is not the case for regulated utilities. Under the rate base rate of return model,  
8 a higher WACC results in higher rates, all else held constant. The basic revenue  
9 requirement equation is as follows:

**Equation 7:  
Revenue Requirement for Regulated Utilities**

$$RR = O + d + T + r(A - D)$$

10  
*where:*  $RR$  = revenue requirement  
 $O$  = operating expenses  
 $d$  = depreciation expense  
 $T$  = corporate tax  
 $r$  = **weighted average cost of capital (WACC)**  
 $A$  = plant investments  
 $D$  = accumulated depreciation

11 As shown in this equation, utilities can increase their revenue requirement by increasing  
12 their WACC, not by minimizing it. Thus, because there is no incentive for a regulated  
13 utility to minimize its WACC, a commission standing in the place of competition must  
14 ensure that the regulated utility is operating at the lowest reasonable WACC.

---

<sup>76</sup> See John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 440-41 (3rd ed., South Western Cengage Learning 2010).

1 **Q. Can utilities generally afford to have higher debt levels than other industries?**

2 A. Yes. Because regulated utilities have large amounts of fixed assets, stable earnings, and  
3 low risk relative to other industries, they can afford to have relatively higher debt ratios (or  
4 “leverage”). As aptly stated by Dr. Damodaran:

5 Since financial leverage multiplies the underlying business risk, it stands to  
6 reason that firms that have high business risk should be reluctant to take on  
7 financial leverage. It also stands to reason that firms that operate in stable  
8 businesses should be much more willing to take on financial leverage.  
9 Utilities, for instance, have historically had high debt ratios but have not  
10 had high betas, mostly because their underlying businesses have been stable  
11 and fairly predictable.<sup>77</sup>

12 Note that the author explicitly contrasts utilities with firms that have high underlying  
13 business risk. Because utilities have low levels of risk and operate a stable business, they  
14 should generally operate with relatively high levels of debt to achieve their optimal capital  
15 structure.

16 **Q. Are the capital structures of the proxy group a source that can be used to assess a**  
17 **prudent capital structure?**

18 A. Yes. However, while the capital structures of the proxy group might provide some  
19 indication of an appropriate capital structure for the utility being studied, it is preferable to  
20 also consider additional types of analyses. The average debt ratios of a utility proxy group  
21 will likely be lower than what would be observed in a pure competitive environment. As  
22 I explain above, this is because utilities do not have a financial incentive to operate at the  
23 optimal capital structure.

---

<sup>77</sup> Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 196 (3rd ed., John Wiley & Sons, Inc. 2012).

1 **Q. Does Pennsylvania law also provide further guidance on determining an imputed**  
2 **capital structure for the City?**

3 A. Yes, I believe it does. According to 66 Pa. C.S. § 1301(b), for municipal corporations such  
4 as Lancaster, the Commission shall use an imputed capital structure of comparable public  
5 utilities providing water or wastewater service.

6 **Q. What capital structure does Mr. Walker propose for the City?**

7 A. Mr. Walker proposes a capital structure consisting of 49% debt and 51% equity.<sup>78</sup>

8 **Q. Do you agree with Mr. Walker's proposed imputed capital structure?**

9 A. No. My analysis of the 2021 projected capital structures of the proxy group shows that the  
10 average debt ratio of the proxy group is 50%.<sup>79</sup>

11 **Q. What is your recommended equity ratio?**

12 A. I recommend that the Commission impute a capital structure consisting of 50% debt and  
13 50% equity, which is reflective of the capital structures of the proxy group.

14 **Q. Does this conclude your testimony?**

15 A. Yes. To the extent I have not addressed an issue or proposal raised by the City in this  
16 proceeding, it should not be construed that I agree with the same.

---

<sup>78</sup> Direct Testimony of Harold Walker, III, p. 13, lines 1-4.

<sup>79</sup> Exhibit DJG-14; based on Value Line Investment Survey, Oct. 8, 2021.

## APPENDIX A:

### DISCOUNTED CASH FLOW MODEL THEORY

The Discounted Cash Flow (“DCF”) Model is based on a fundamental financial model called the “dividend discount model,” which maintains that the value of a security is equal to the present value of the future cash flows it generates. Cash flows from common stock are paid to investors in the form of dividends. There are several variations of the DCF Model. In its most general form, the DCF Model is expressed as follows:<sup>80</sup>

**Equation 8:  
General Discounted Cash Flow Model**

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \dots + \frac{D_n}{(1+k)^n}$$

where:

$P_0$	=	current stock price
$D_1 \dots D_n$	=	expected future dividends
$k$	=	discount rate / required return

The General DCF Model would require an estimation of an infinite stream of dividends. Because this would be impractical, analysts use more feasible variations of the General DCF Model, which are discussed further below.

The DCF Models rely on the following four assumptions:<sup>81</sup>

1. Investors evaluate common stocks in the classical valuation framework; that is, they trade securities rationally at prices reflecting their perceptions of value;
2. Investors discount the expected cash flows at the same rate (K) in every future period;

---

<sup>80</sup> See Zvi Bodie, Alex Kane & Alan J. Marcus, *Essentials of Investments* 410 (9th ed., McGraw-Hill/Irwin 2013).

<sup>81</sup> See Roger A. Morin, *New Regulatory Finance* 252 (Public Utilities Reports, Inc. 2006) (1994).

3. The  $K$  obtained from the DCF equation corresponds to that specific stream of future cash flows alone; and
4. Dividends, rather than earnings, constitute the source of value.

The General DCF can be rearranged to make it more practical for estimating the cost of equity. Regulators typically rely on some variation of the Constant Growth DCF Model, which is expressed as follows:

**Equation 9:  
Constant Growth Discounted Cash Flow Model**

$$K = \frac{D_1}{P_0} + g$$

*where:*

$K$	=	<i>discount rate / required return on equity</i>
$D_1$	=	<i>expected dividend per share one year from now</i>
$P_0$	=	<i>current stock price</i>
$g$	=	<i>expected growth rate of future dividends</i>

Unlike the General DCF Model, the Constant Growth DCF Model solves for the required return ( $K$ ) directly. In addition, by assuming that dividends grow at a constant rate, the dividend stream from the General DCF Model may be substituted with a term representing the expected constant growth rate of future dividends ( $g$ ). The Constant Growth DCF Model may be considered in two parts. The first part is the dividend yield ( $D_1/P_0$ ), and the second part is the growth rate ( $g$ ). In other words, the required return in the DCF Model is equivalent to the dividend yield plus the growth rate.

In addition to the four assumptions listed above, the Constant Growth DCF Model relies on the following four additional assumptions:<sup>82</sup>

---

<sup>82</sup> See Roger A. Morin, *New Regulatory Finance* 254–56 (Public Utilities Reports, Inc. 2006) (1994).

1. The discount rate ( $K$ ) must exceed the growth rate ( $g$ );
2. The dividend growth rate ( $g$ ) is constant in every year to infinity;
3. Investors require the same return ( $K$ ) in every year; and
4. There is no external financing; that is, growth is provided only by the retention of earnings.

Because the growth rate in this model is assumed to be constant, it is important not to use growth rates that are unreasonably high. In fact, the constant growth rate estimate for a regulated utility with a defined service territory should not exceed the growth rate for the economy in which it operates.

The basic form of the Constant Growth DCF Model described above is sometimes referred to as the “Annual” DCF Model. This is because the model assumes an annual dividend payment to be paid at the end of every year, as well as an increase in dividends once each year. In reality, however, most utilities pay dividends on a quarterly basis. The Constant Growth DCF equation may be modified to reflect the assumption that investors receive successive quarterly dividends and reinvest them throughout the year at the discount rate. This variation is called the Quarterly Approximation DCF Model.<sup>83</sup>

**Equation 10:**  
**Quarterly Approximation Discounted Cash Flow Model**

$$K = \left[ \frac{d_0(1+g)^{1/4}}{P_0} + (1+g)^{1/4} \right]^4 - 1$$

where:  $K$  = discount rate / required return  
 $d_0$  = current quarterly dividend per share  
 $P_0$  = stock price  
 $g$  = expected growth rate of future dividends

---

<sup>83</sup> See Roger A. Morin, *New Regulatory Finance* 348 (Public Utilities Reports, Inc. 2006) (1994).

The Quarterly Approximation DCF Model assumes that dividends are paid quarterly, and that each dividend is constant for four consecutive quarters. All else held constant, this model results in the highest cost of equity estimate for the utility in comparison to other DCF Models because it accounts for the quarterly compounding of dividends. There are several other variations of the Constant Growth (or Annual) DCF Model, including a Semi-Annual DCF Model, which is used by the Federal Energy Regulatory Commission (“FERC”). These models, along with the Quarterly Approximation DCF Model, have been accepted in regulatory proceedings as useful tools for estimating the cost of equity.



**APPENDIX B:**  
**CAPITAL ASSET PRICING MODEL THEORY**

The Capital Asset Pricing Model (“CAPM”) is a market-based model founded on the principle that investors demand higher returns for incurring additional risk.<sup>84</sup> The CAPM estimates this required return. The CAPM relies on the following assumptions:

1. Investors are rational, risk-adverse, and strive to maximize profit and terminal wealth;
2. Investors make choices based on risk and return. Return is measured by the mean returns expected from a portfolio of assets; risk is measured by the variance of these portfolio returns;
3. Investors have homogenous expectations of risk and return;
4. Investors have identical time horizons;
5. Information is freely and simultaneously available to investors;
6. There is a risk-free asset, and investors can borrow and lend unlimited amounts at the risk-free rate;
7. There are no taxes, transaction costs, restrictions on selling short, or other market imperfections; and
8. Total asset quality is fixed, and all assets are marketable and divisible.<sup>85</sup>

While some of these assumptions may appear to be restrictive, they do not outweigh the inherent value of the model. The CAPM has been widely used by firms, analysts, and regulators for decades to estimate the cost of equity capital.

The basic CAPM equation is expressed as follows:

---

<sup>84</sup> William F. Sharpe, *A Simplified Model for Portfolio Analysis* 277-93 (Management Science IX 1963).

<sup>85</sup> *Id.*

**Equation 11:  
Capital Asset Pricing Model**

$$K = R_F + \beta_i(R_M - R_F)$$

where:  $K$  = required return  
 $R_F$  = risk-free rate  
 $\beta$  = beta coefficient of asset  $i$   
 $R_M$  = required return on the overall market

There are essentially three terms within the CAPM equation that are required to calculate the required return ( $K$ ): (1) the risk-free rate ( $R_F$ ); (2) the beta coefficient ( $\beta$ ); and (3) the equity risk premium ( $R_M - R_F$ ), which is the required return on the overall market less the risk-free rate.

Raw Beta Calculations and Adjustments.

A stock's beta equals the covariance of the asset's returns with the returns on a market portfolio, divided by the portfolio's variance, as expressed in the following formula:<sup>86</sup>

**Equation 12:  
Beta**

$$\beta_i = \frac{\sigma_{im}}{\sigma_m^2}$$

where:  $\beta_i$  = beta of asset  $i$   
 $\sigma_{im}$  = covariance of asset  $i$  returns with market portfolio returns  
 $\sigma_m^2$  = variance of market portfolio

Betas that are published by various research firms are typically calculated through a regression analysis that considers the movements in price of an individual stock and movements in the price of the overall market portfolio. The betas produced by this regression analysis are considered "raw" betas. There is empirical evidence that raw betas should be adjusted to account

---

<sup>86</sup> See John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 180–81 (3rd ed., South Western Cengage Learning 2010).

for beta's natural tendency to revert to an underlying mean.<sup>87</sup> Some analysts use an adjustment method proposed by Blume, which adjusts raw betas toward the market mean of one.<sup>88</sup> While the Blume adjustment method is popular due to its simplicity, it is arguably arbitrary, and some would say not useful at all. According to Dr. Damodaran: "While we agree with the notion that betas move toward 1.0 over time, the [Blume adjustment] strikes us as arbitrary and not particularly useful."<sup>89</sup> The Blume adjustment method is especially arbitrary when applied to industries with consistently low betas, such as the utility industry. For industries with consistently low betas, it is better to employ an adjustment method that adjusts raw betas toward an industry average, rather than the market average. Vasicek proposed such a method, which is preferable to the Blume adjustment method because it allows raw betas to be adjusted toward an industry average, and also accounts for the statistical accuracy of the raw beta calculation.<sup>90</sup> In other words, "[t]he Vasicek adjustment seeks to overcome one weakness of the Blume model by not applying the same adjustment to every security; rather, a security-specific adjustment is made depending on the statistical quality of the regression."<sup>91</sup> The Vasicek beta adjustment equation is expressed as follows:

---

<sup>87</sup> See Michael J. Gombola and Douglas R. Kahl, *Time-Series Processes of Utility Betas: Implications for Forecasting Systematic Risk* 84–92 (Financial Management Autumn 1990).

<sup>88</sup> See Marshall Blume, *On the Assessment of Risk*, Vol. 26, No. 1 The Journal of Finance 1 (1971).

<sup>89</sup> See Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 187 (3rd ed., John Wiley & Sons, Inc. 2012).

<sup>90</sup> Oldrich A. Vasicek, *A Note on Using Cross-Sectional Information in Bayesian Estimation of Security Betas* 1233–1239 (Journal of Finance, Vol. 28, No. 5, December 1973).

<sup>91</sup> 2012 Ibbotson Stocks, Bonds, Bills, and Inflation Valuation Yearbook 77–78 (Morningstar 2012).

**Equation 13:  
Vasicek Beta Adjustment**

$$\beta_{i1} = \frac{\sigma_{\beta_{i0}}^2}{\sigma_{\beta_0}^2 + \sigma_{\beta_{i0}}^2} \beta_0 + \frac{\sigma_{\beta_0}^2}{\sigma_{\beta_0}^2 + \sigma_{\beta_{i0}}^2} \beta_{i0}$$

where:

$\beta_{i1}$	=	<i>Vasicek adjusted beta for security i</i>
$\beta_{i0}$	=	<i>historical beta for security i</i>
$\beta_0$	=	<i>beta of industry or proxy group</i>
$\sigma_{\beta_0}^2$	=	<i>variance of betas in the industry or proxy group</i>
$\sigma_{\beta_{i0}}^2$	=	<i>square of standard error of the historical beta for security i</i>

The Vasicek beta adjustment is an improvement on the Blume model because the Vasicek model does not apply the same adjustment to every security. A higher standard error produced by the regression analysis indicates a lower statistical significance of the beta estimate. Thus, a beta with a high standard error should receive a greater adjustment than a beta with a low standard error. As stated in Ibbotson:

While the Vasicek formula looks intimidating, it is really quite simple. The adjusted beta for a company is a weighted average of the company's historical beta and the beta of the market, industry, or peer group. How much weight is given to the company and historical beta depends on the statistical significance of the company beta statistic. If a company beta has a low standard error, then it will have a higher weighting in the Vasicek formula. If a company beta has a high standard error, then it will have lower weighting in the Vasicek formula. An advantage of this adjustment methodology is that it does not force an adjustment to the market as a whole. Instead, the adjustment can be toward an industry or some other peer group. This is most useful in looking at companies in industries that on average have high or low betas.<sup>92</sup>

Thus, the Vasicek adjustment method is statistically more accurate and is the preferred method to use when analyzing companies in an industry that has inherently low betas, such as the utility industry. The Vasicek method was also confirmed by Gombola, who conducted a study

---

<sup>92</sup> 2012 Ibbotson Stocks, Bonds, Bills, and Inflation Valuation Yearbook 78 (Morningstar 2012).

specifically related to utility companies. Gombola concluded that “[t]he strong evidence of autoregressive tendencies in utility betas lends support to the application of adjustment procedures such as the . . . adjustment procedure presented by Vasicek.”<sup>93</sup> Gombola also concluded that adjusting raw betas toward the market mean of 1.0 is too high, and that “[i]nstead, they should be adjusted toward a value that is less than one.”<sup>94</sup> In conducting the Vasicek adjustment on betas in previous cases, it reveals that utility betas are even lower than those published by Value Line.<sup>95</sup> Gombola’s findings are particularly important here, because his study was conducted specifically on utility companies. This evidence indicates that using Value Line’s betas in a CAPM cost of equity estimate for a utility company may lead to overestimated results. Regardless, adjusting betas to a level that is higher than Value Line’s betas is not reasonable, and it would produce CAPM cost of equity results that are too high.

---

<sup>93</sup> Michael J. Gombola and Douglas R. Kahl, *Time-Series Processes of Utility Betas: Implications for Forecasting Systematic Risk* 92 (Financial Management Autumn 1990) (emphasis added).

<sup>94</sup> Michael J. Gombola and Douglas R. Kahl, *Time-Series Processes of Utility Betas: Implications for Forecasting Systematic Risk* 91–92 (Financial Management Autumn 1990) (emphasis added).

<sup>95</sup> See e.g. Responsive Testimony of David J. Garrett, filed March 21, 2016 in Cause No. PUD 201500273 before the Corporation Commission of Oklahoma (OG&E’s 2015 rate case), at pp. 56–59.

101 Park Avenue, Suite 1125  
Oklahoma City, OK 73102

**DAVID J. GARRETT**

405.249.1050  
dgarrett@resolveuc.com

---

## **EDUCATION**

University of Oklahoma <b>Master of Business Administration</b> Areas of Concentration: Finance, Energy	Norman, OK 2014
University of Oklahoma College of Law <b>Juris Doctor</b> Member, American Indian Law Review	Norman, OK 2007
University of Oklahoma <b>Bachelor of Business Administration</b> Major: Finance	Norman, OK 2003

## **PROFESSIONAL DESIGNATIONS**

Society of Depreciation Professionals  
**Certified Depreciation Professional (CDP)**

Society of Utility and Regulatory Financial Analysts  
**Certified Rate of Return Analyst (CRRA)**

The Mediation Institute  
**Certified Civil / Commercial & Employment Mediator**

## **WORK EXPERIENCE**

Resolve Utility Consulting PLLC <b><u>Managing Member</u></b> Provide expert analysis and testimony specializing in depreciation and cost of capital issues for clients in utility regulatory proceedings.	Oklahoma City, OK 2016 – Present
Oklahoma Corporation Commission <b><u>Public Utility Regulatory Analyst</u></b> <b><u>Assistant General Counsel</u></b> Represented commission staff in utility regulatory proceedings and provided legal opinions to commissioners. Provided expert analysis and testimony in depreciation, cost of capital, incentive compensation, payroll and other issues.	Oklahoma City, OK 2012 – 2016 2011 – 2012

Perebus Counsel, PLLC

**Managing Member**

Represented clients in the areas of family law, estate planning, debt negotiations, business organization, and utility regulation.

Oklahoma City, OK  
2009 – 2011

Moricoli & Schovanec, P.C.

**Associate Attorney**

Represented clients in the areas of contracts, oil and gas, business structures and estate administration.

Oklahoma City, OK  
2007 – 2009

**TEACHING EXPERIENCE**

**University of Oklahoma**

Adjunct Instructor – “Conflict Resolution”

Adjunct Instructor – “Ethics in Leadership”

Norman, OK  
2014 – 2020

**Rose State College**

Adjunct Instructor – “Legal Research”

Adjunct Instructor – “Oil & Gas Law”

Midwest City, OK  
2013 – 2015

**PUBLICATIONS**

**American Indian Law Review**

“Vine of the Dead: Reviving Equal Protection Rites for Religious Drug Use”  
(31 Am. Indian L. Rev. 143)

Norman, OK  
2006

**PROFESSIONAL ASSOCIATIONS**

**Oklahoma Bar Association**

2007 – Present

**Society of Depreciation Professionals**

**Board Member – President**

Participate in management of operations, attend meetings, review performance, organize presentation agenda.

2014 – Present  
2017

**Society of Utility Regulatory Financial Analysts**

2014 – Present

## Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Pennsylvania Public Utility Commission	PECO Energy Company	R-2021-3024601	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
New Mexico Public Regulation Commission	Southwestern Public Service Company	20-00238-UT	Cost of capital and authorized rate of return	The New Mexico Large Customer Group; Occidental Permian
Pennsylvania Public Utility Commission	Duquesne Light Company	R-2021-3024750	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Maryland Public Service Commission	Columbia Gas of Maryland	9664	Cost of capital and authorized rate of return	Maryland Office of People's Counsel
Indiana Utility Regulatory Commission	Southern Indiana Gas Company, d/b/a Vectren Energy Delivery of Indiana, Inc.	45447	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Public Utility Commission of Texas	Southwestern Public Service Company	PUC 51415	Depreciation rates, service lives, net salvage	Cities Advocating Reasonable Deregulation
New Mexico Public Regulatory Commission	Avangrid, Inc., Avangrid Networks, Inc., NM Green Holdings, Inc., PNM, and PNM Resources	20-00222-UT	Ring fencing and capital structure	The Albuquerque Bernalillo County Water Utility Authority
Indiana Utility Regulatory Commission	Indiana Gas Company, d/b/a Vectren Energy Delivery of Indiana, Inc.	45468	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Public Utilities Commission of Nevada	Nevada Power Company and Sierra Pacific Power Company, d/b/a NV Energy	20-07023	Construction work in progress	MGM Resorts International, Caesars Enterprise Services, LLC, and the Southern Nevada Water Authority
Massachusetts Department of Public Utilities	Boston Gas Company, d/b/a National Grid	D.P.U. 20-120	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Public Service Commission of the State of Montana	ABACO Energy Services, LLC	D2020.07.082	Cost of capital and authorized rate of return	Montana Consumer Counsel
Maryland Public Service Commission	Washington Gas Light Company	9651	Cost of capital and authorized rate of return	Maryland Office of People's Counsel
Florida Public Service Commission	Utilities, Inc. of Florida	20200139-WS	Cost of capital and authorized rate of return	Florida Office of Public Counsel
New Mexico Public Regulatory Commission	El Paso Electric Company	20-00104-UT	Cost of capital, depreciation rates, net salvage	City of Las Cruces and Doña Ana County



## Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Public Utilities Commission of Nevada	Nevada Power Company	20-06003	Cost of capital, awarded rate of return, capital structure, earnings sharing	MGM Resorts International, Caesars Enterprise Services, LLC, Wynn Las Vegas, LLC, Smart Energy Alliance, and Circus Circus Las Vegas, LLC
Wyoming Public Service Commission	Rocky Mountain Power	20000-578-ER-20	Cost of capital and authorized rate of return	Wyoming Industrial Energy Consumers
Florida Public Service Commission	Peoples Gas System	20200051-GU 20200166-GU	Cost of capital, depreciation rates, net salvage	Florida Office of Public Counsel
Wyoming Public Service Commission	Rocky Mountain Power	20000-539-EA-18	Depreciation rates, service lives, net salvage	Wyoming Industrial Energy Consumers
Public Service Commission of South Carolina	Dominion Energy South Carolina	2020-125-E	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Pennsylvania Public Utility Commission	The City of Bethlehem	2020-3020256	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Railroad Commission of Texas	Texas Gas Services Company	GUD 10928	Depreciation rates, service lives, net salvage	Gulf Coast Service Area Steering Committee
Public Utilities Commission of the State of California	Southern California Edison	A.19-08-013	Depreciation rates, service lives, net salvage	The Utility Reform Network
Massachusetts Department of Public Utilities	NSTAR Gas Company	D.P.U. 19-120	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Georgia Public Service Commission	Liberty Utilities (Peach State Natural Gas)	42959	Depreciation rates, service lives, net salvage	Public Interest Advocacy Staff
Florida Public Service Commission	Florida Public Utilities Company	20190155-EI 20190156-EI 20190174-EI	Depreciation rates, service lives, net salvage	Florida Office of Public Counsel
Illinois Commerce Commission	Commonwealth Edison Company	20-0393	Depreciation rates, service lives, net salvage	The Office of the Illinois Attorney General
Public Utility Commission of Texas	Southwestern Public Service Company	PUC 49831	Depreciation rates, service lives, net salvage	Alliance of Xcel Municipalities
Public Service Commission of South Carolina	Blue Granite Water Company	2019-290-WS	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff

## Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Railroad Commission of Texas	CenterPoint Energy Resources	GUD 10920	Depreciation rates and grouping procedure	Alliance of CenterPoint Municipalities
Pennsylvania Public Utility Commission	Aqua Pennsylvania Wastewater	A-2019-3009052	Fair market value estimates for wastewater assets	Pennsylvania Office of Consumer Advocate
New Mexico Public Regulation Commission	Southwestern Public Service Company	19-00170-UT	Cost of capital and authorized rate of return	The New Mexico Large Customer Group; Occidental Permian
Indiana Utility Regulatory Commission	Duke Energy Indiana	45253	Cost of capital, depreciation rates, net salvage	Indiana Office of Utility Consumer Counselor
Maryland Public Service Commission	Columbia Gas of Maryland	9609	Depreciation rates, service lives, net salvage	Maryland Office of People's Counsel
Washington Utilities & Transportation Commission	Avista Corporation	UE-190334	Cost of capital, awarded rate of return, capital structure	Washington Office of Attorney General
Indiana Utility Regulatory Commission	Indiana Michigan Power Company	45235	Cost of capital, depreciation rates, net salvage	Indiana Office of Utility Consumer Counselor
Public Utilities Commission of the State of California	Pacific Gas & Electric Company	18-12-009	Depreciation rates, service lives, net salvage	The Utility Reform Network
Oklahoma Corporation Commission	The Empire District Electric Company	PUD 201800133	Cost of capital, authorized ROE, depreciation rates	Oklahoma Industrial Energy Consumers and Oklahoma Energy Results
Arkansas Public Service Commission	Southwestern Electric Power Company	19-008-U	Cost of capital, depreciation rates, net salvage	Western Arkansas Large Energy Consumers
Public Utility Commission of Texas	CenterPoint Energy Houston Electric	PUC 49421	Depreciation rates, service lives, net salvage	Texas Coast Utilities Coalition
Massachusetts Department of Public Utilities	Massachusetts Electric Company and Nantucket Electric Company	D.P.U. 18-150	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Oklahoma Corporation Commission	Oklahoma Gas & Electric Company	PUD 201800140	Cost of capital, authorized ROE, depreciation rates	Oklahoma Industrial Energy Consumers and Oklahoma Energy Results
Public Service Commission of the State of Montana	Montana-Dakota Utilities Company	D2018.9.60	Depreciation rates, service lives, net salvage	Montana Consumer Counsel and Denbury Onshore

## Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Indiana Utility Regulatory Commission	Northern Indiana Public Service Company	45159	Depreciation rates, grouping procedure, demolition costs	Indiana Office of Utility Consumer Counselor
Public Service Commission of the State of Montana	NorthWestern Energy	D2018.2.12	Depreciation rates, service lives, net salvage	Montana Consumer Counselor
Oklahoma Corporation Commission	Public Service Company of Oklahoma	PUD 201800097	Depreciation rates, service lives, net salvage	Oklahoma Industrial Energy Consumers and Wal-Mart
Nevada Public Utilities Commission	Southwest Gas Corporation	18-05031	Depreciation rates, service lives, net salvage	Nevada Bureau of Consumer Protection
Public Utility Commission of Texas	Texas-New Mexico Power Company	PUC 48401	Depreciation rates, service lives, net salvage	Alliance of Texas-New Mexico Power Municipalities
Oklahoma Corporation Commission	Oklahoma Gas & Electric Company	PUD 201700496	Depreciation rates, service lives, net salvage	Oklahoma Industrial Energy Consumers and Oklahoma Energy Results
Maryland Public Service Commission	Washington Gas Light Company	9481	Depreciation rates, service lives, net salvage	Maryland Office of People's Counsel
Indiana Utility Regulatory Commission	Citizens Energy Group	45039	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Public Utility Commission of Texas	Entergy Texas, Inc.	PUC 48371	Depreciation rates, decommissioning costs	Texas Municipal Group
Washington Utilities & Transportation Commission	Avista Corporation	UE-180167	Depreciation rates, service lives, net salvage	Washington Office of Attorney General
New Mexico Public Regulation Commission	Southwestern Public Service Company	17-00255-UT	Cost of capital and authorized rate of return	HollyFrontier Navajo Refining, Occidental Permian
Public Utility Commission of Texas	Southwestern Public Service Company	PUC 47527	Depreciation rates, plant service lives	Alliance of Xcel Municipalities
Public Service Commission of the State of Montana	Montana-Dakota Utilities Company	D2017.9.79	Depreciation rates, service lives, net salvage	Montana Consumer Counselor
Florida Public Service Commission	Florida City Gas	20170179-GU	Cost of capital, depreciation rates	Florida Office of Public Counsel

## Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Washington Utilities & Transportation Commission	Avista Corporation	UE-170485	Cost of capital and authorized rate of return	Washington Office of Attorney General
Wyoming Public Service Commission	Powder River Energy Corporation	10014-182-CA-17	Credit analysis, cost of capital	Private customer
Oklahoma Corporation Commission	Public Service Co. of Oklahoma	PUD 201700151	Depreciation, terminal salvage, risk analysis	Oklahoma Industrial Energy Consumers
Public Utility Commission of Texas	Oncor Electric Delivery Company	PUC 46957	Depreciation rates, simulated analysis	Alliance of Oncor Cities
Nevada Public Utilities Commission	Nevada Power Company	17-06004	Depreciation rates, service lives, net salvage	Nevada Bureau of Consumer Protection
Public Utility Commission of Texas	El Paso Electric Company	PUC 46831	Depreciation rates, interim retirements	City of El Paso
Idaho Public Utilities Commission	Idaho Power Company	IPC-E-16-24	Accelerated depreciation of North Valmy plant	Micron Technology, Inc.
Idaho Public Utilities Commission	Idaho Power Company	IPC-E-16-23	Depreciation rates, service lives, net salvage	Micron Technology, Inc.
Public Utility Commission of Texas	Southwestern Electric Power Company	PUC 46449	Depreciation rates, decommissioning costs	Cities Advocating Reasonable Deregulation
Massachusetts Department of Public Utilities	Eversource Energy	D.P.U. 17-05	Cost of capital, capital structure, and rate of return	Sunrun Inc.; Energy Freedom Coalition of America
Railroad Commission of Texas	Atmos Pipeline - Texas	GUD 10580	Depreciation rates, grouping procedure	City of Dallas
Public Utility Commission of Texas	Sharyland Utility Company	PUC 45414	Depreciation rates, simulated analysis	City of Mission
Oklahoma Corporation Commission	Empire District Electric Company	PUD 201600468	Cost of capital, depreciation rates	Oklahoma Industrial Energy Consumers
Railroad Commission of Texas	CenterPoint Energy Texas Gas	GUD 10567	Depreciation rates, simulated plant analysis	Texas Coast Utilities Coalition

## Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Arkansas Public Service Commission	Oklahoma Gas & Electric Company	160-159-GU	Cost of capital, depreciation rates, terminal salvage	Arkansas River Valley Energy Consumers; Wal-Mart
Florida Public Service Commission	Peoples Gas	160-159-GU	Depreciation rates, service lives, net salvage	Florida Office of Public Counsel
Arizona Corporation Commission	Arizona Public Service Company	E-01345A-16-0036	Cost of capital, depreciation rates, terminal salvage	Energy Freedom Coalition of America
Nevada Public Utilities Commission	Sierra Pacific Power Company	16-06008	Depreciation rates, net salvage, theoretical reserve	Northern Nevada Utility Customers
Oklahoma Corporation Commission	Oklahoma Gas & Electric Co.	PUD 201500273	Cost of capital, depreciation rates, terminal salvage	Public Utility Division
Oklahoma Corporation Commission	Public Service Co. of Oklahoma	PUD 201500208	Cost of capital, depreciation rates, terminal salvage	Public Utility Division
Oklahoma Corporation Commission	Oklahoma Natural Gas Company	PUD 201500213	Cost of capital, depreciation rates, net salvage	Public Utility Division

## Proxy Group Summary

Exhibit DJG-2

Company	Ticker	Market Cap. (\$ millions)	Market Category	Value Line Safety Rank	Financial Strength
American States Water Co	AWR	3,200	Mid Cap	2	A
American Water Works Co Inc	AWK	31,000	Large Cap	3	B++
California Water Service Gp	CWT	3,000	Mid Cap	3	B++
Essential Utilities, Inc.	WTRG	11,400	Large Cap	3	B+
Middlesex Water Co	MSEX	1,800	Small Cap	2	B++
SJW Corp	SJW	2,000	Mid Cap	3	B+
York Water Co	YORW	575	Small Cap	3	B+

Value Line Investment Survey

## DCF Stock and Index Prices

Ticker	^GSPC	AWR	AWK	CWT	WTRG	MSEX	SIW	YORW
30-day Average	4636	92.59	171.77	62.85	47.31	105.45	69.65	48.10
Standard Deviation	59.5	2.21	2.40	2.29	0.65	3.10	1.81	0.80
10/21/21	4550	89.12	172.93	58.87	46.35	106.30	68.08	47.74
10/22/21	4545	89.08	175.18	58.96	46.65	107.64	68.39	48.02
10/25/21	4566	90.21	174.23	59.74	46.75	108.39	69.01	48.83
10/26/21	4575	90.66	174.33	59.69	46.75	108.24	68.70	48.58
10/27/21	4552	89.56	172.60	59.21	46.34	106.39	67.83	47.60
10/28/21	4596	90.78	174.68	60.86	47.12	108.36	68.23	47.99
10/29/21	4605	90.48	173.56	60.66	46.80	109.51	65.60	47.92
11/01/21	4614	89.19	173.07	61.16	46.78	100.56	68.66	47.65
11/02/21	4631	90.38	176.17	62.02	47.00	100.18	70.20	47.46
11/03/21	4661	90.20	167.41	62.97	46.99	100.94	70.06	48.04
11/04/21	4680	91.88	168.17	62.37	46.73	101.09	70.14	48.21
11/05/21	4698	93.90	169.05	63.86	47.36	102.80	72.82	49.46
11/08/21	4702	92.95	168.41	62.93	47.17	102.22	72.52	48.90
11/09/21	4685	92.68	169.52	62.35	46.98	102.43	72.09	48.72
11/10/21	4647	93.27	172.00	62.52	47.35	105.25	72.73	49.29
11/11/21	4649	92.72	170.65	62.50	46.93	104.96	71.95	49.16
11/12/21	4683	92.60	170.74	62.75	47.13	105.33	71.15	48.93
11/15/21	4683	93.17	172.68	63.49	47.54	105.46	70.72	49.03
11/16/21	4701	92.24	170.74	63.34	47.29	106.33	70.06	48.49
11/17/21	4689	94.06	170.75	64.72	47.36	107.43	70.13	48.15
11/18/21	4705	94.38	171.49	65.71	47.57	107.38	70.38	48.10
11/19/21	4698	96.03	173.38	67.11	48.57	110.59	70.50	47.89
11/22/21	4683	96.01	174.57	67.12	48.74	111.09	70.94	48.36
11/23/21	4691	95.94	173.08	66.32	48.30	109.73	70.36	48.37
11/24/21	4701	94.68	173.41	65.04	48.01	106.75	68.96	47.93
11/26/21	4595	92.45	170.31	62.95	47.24	104.57	66.62	46.43
11/29/21	4655	94.92	173.32	64.33	48.44	105.61	69.07	46.87
11/30/21	4567	94.18	168.57	63.01	47.27	103.04	67.35	46.86
12/01/21	4513	94.10	167.80	63.70	47.22	101.31	67.75	46.32
12/02/21	4577	95.84	170.37	65.31	48.55	103.77	68.59	47.61

All prices are adjusted closing prices reported by Yahoo! Finance, <http://finance.yahoo.com>

## DCF Dividend Yields

Exhibit DJG-4

---

		[1]	[2]	[3]
Company	Ticker	Dividend	Stock Price	Dividend Yield
American States Water Co	AWR	0.365	92.59	0.39%
American Water Works Co Inc	AWK	0.603	171.77	0.35%
California Water Service Gp	CWT	0.230	62.85	0.37%
Essential Utilities, Inc.	WTRG	0.268	47.31	0.57%
Middlesex Water Co	MSEX	0.290	105.45	0.28%
SJW Corp	SJW	0.340	69.65	0.49%
York Water Co	YORW	0.195	48.10	0.41%
<b>Average</b>		<b>\$0.33</b>	<b>\$85.39</b>	<b>0.41%</b>

---

[1] 2021 Q4 reported quarterly dividends per share. Nasdaq.com

[2] Average stock price from Exhibit DJG-3

[3] = [1] / [2] (quarterly dividend yield)



**DCF Terminal Growth Rate Determinants**

---

<b>Terminal Growth Determinants</b>	<b>Rate</b>	
Nominal GDP	3.8%	[1]
Real GDP	1.8%	[2]
Inflation	2.0%	[3]
Projected Growth Rates	6.6%	[4]

---

<b>Highest</b>	<b>6.6%</b>
----------------	-------------

---

[1],[2] [3] CBO, The 2021 Long-Term Budget Outlook, p. 34

[4] See Testimony of Harold Walker, Sch. 13

## DCF Final Results

Exhibit DJG-6

---

[1]	[2]	[3]	[4]
Dividend ( $d_0$ )	Stock Price ( $P_0$ )	Growth Rate ( $g$ )	<b>DCF Result</b>
\$0.33	\$85.39	6.60%	<b>8.2%</b>

---

[1] Average proxy dividend from Exhibit DJG-4

[2] Average proxy stock price from Exhibit DJG-3

[3] Highest growth determinant from Exhibit DJG-5

[4] Quarterly DCF Approximation =  $[d_0(1 + g)^{0.25}/P_0 + (1 + g)^{0.25}]^4 - 1$

## CAPM Risk-Free Rate

Exhibit DJG-7

---

Date	Rate
10/21/21	2.13%
10/22/21	2.08%
10/25/21	2.09%
10/26/21	2.05%
10/27/21	1.95%
10/28/21	1.96%
10/29/21	1.93%
11/01/21	1.98%
11/02/21	1.96%
11/03/21	2.00%
11/04/21	1.96%
11/05/21	1.87%
11/08/21	1.89%
11/09/21	1.83%
11/10/21	1.92%
11/12/21	1.95%
11/15/21	2.01%
11/16/21	2.02%
11/17/21	2.00%
11/18/21	1.97%
11/19/21	1.91%
11/22/21	1.98%
11/23/21	2.02%
11/24/21	1.96%
11/26/21	1.83%
11/29/21	1.87%
11/30/21	1.78%
12/01/21	1.77%
12/02/21	1.76%
12/03/21	1.69%
<b>Average</b>	<b>1.94%</b>

---

\*Daily Treasury Yield Curve Rates on 30-year T-bonds, <http://www.treasury.gov/resources-center/data-chart-center/interest-rates/>

## CAPM Beta Coefficient

Exhibit DJG-8

---

Company	Ticker	Beta
American States Water Co	AWR	0.65
American Water Works Co Inc	AWK	0.90
California Water Service Gp	CWT	0.70
Essential Utilities, Inc.	WTRG	1.00
Middlesex Water Co	MSEX	0.70
SJW Corp	SJW	0.80
York Water Co	YORW	0.85
Average		0.80

---

Betas from Value Line Investment Survey

# CAPM Implied Equity Risk Premium Estimate

Year	[1] Market Value	[2] Operating Earnings	[3] Dividends	[4] Buybacks	[5] Earnings Yield	[6] Dividend Yield	[7] Buyback Yield	[8] Gross Cash Yield
2015	17,900	885	382	572	4.95%	2.14%	3.20%	5.33%
2016	19,268	920	397	536	4.77%	2.06%	2.78%	4.85%
2017	22,821	1,066	420	519	4.67%	1.84%	2.28%	4.12%
2018	21,027	1,282	456	806	6.10%	2.17%	3.84%	6.01%
2019	26,760	1,305	485	729	4.88%	1.81%	2.72%	4.54%
2020	31,659	1,019	480	520	3.22%	1.52%	1.64%	3.16%

Cash Yield	[9]
Growth Rate	[10]
Risk-free Rate	[11]
Current Index Value	[12]

Year	[13]	[14]	[15]	[16]	[17]
1	222	229	235	242	249
2	208	200	193	185	185
3					
4					
5					

Intrinsic Index Value	[18]
Required Return on Market	[19]
<b>Implied Equity Risk Premium</b>	<b>[20]</b>

[1-4] S&P Quarterly Press Releases, data found at [https://us.spindices.com/indices/equity/sp-500\\_Q4-2018](https://us.spindices.com/indices/equity/sp-500_Q4-2018)

[1] Market value of S&P 500

[5] = [2] / [1]

[6] = [3] / [1]

[7] = [4] / [1]

[8] = [6] + [7]

[9] = Average of [8]

[10] = Compound annual growth rate of [2] = (end value / beginning value)<sup>1/n</sup> - 1

[11] Risk-free rate from DJG-1-7

[12] 30-day average of closing index prices from DJG-1-3 (\*GSPC column)

[13-16] Expected dividends = [9] \* [12] \* (1 + [10])<sup>n</sup>; Present value = expected dividend / (1 + [11] + [19])<sup>n</sup>

[17] Expected terminal value = expected dividend \* (1 + [11]) / [19]; Present value = (expected dividend + expected terminal value) / (1 + [11] + [19])<sup>n</sup>

[18] = Sum([13-17]) / present values.

[19] = [20] + [11]

[20] Internal rate of return calculation setting [18] equal to [12] and solving for the discount rate

## CAPM Equity Risk Premium Results

Exhibit DJG-10

---

IESE Business School Survey	5.6%	[1]
Duff & Phelps Report	5.5%	[2]
Damodaran (average)	4.8%	[3]
Walker	7.3%	[4]
Garrett	5.0%	[5]
<b>Average</b>	<b>5.6%</b>	
<b>Highest</b>	<b>7.3%</b>	

---

## CAPM Final Result

Exhibit DJG-11

---

[1]	[2]	[3]	[4]
Risk-Free Rate	Proxy Beta	Risk Premium	<b>CAPM Result</b>
1.94%	0.800	7.3%	<b>7.8%</b>

---

[1] From DJG-7, risk-free rate exhibit

[2] From DJG-8, beta exhibit (avg. beta of proxy group)

[3] From DJG-10, equity risk premium exhibit

[4] = [1] + [2] \* [3]

**Cost of Equity Summary**

---

<b>Model</b>	<b>Cost of Equity</b>
Discounted Cash Flow Model	8.2%
Capital Asset Pricing Model	7.8%
<b>Average</b>	<b>8.0%</b>

---



## Market Cost of Equity vs. Awarded Returns

Attachment DJG-13

Year	[1]		[2]		[3]		[4]	[5]	[6]	[7]
	Electric Utilities		Gas Utilities		Total Utilities		S&P 500	T-Bond	Risk	Market
	ROE	#	ROE	#	ROE	#	Returns	Rate	Premium	COE
1990	12.70%	38	12.68%	33	12.69%	71	-3.06%	8.07%	3.89%	11.96%
1991	12.54%	42	12.45%	31	12.50%	73	30.23%	6.70%	3.48%	10.18%
1992	12.09%	45	12.02%	28	12.06%	73	7.49%	6.68%	3.55%	10.23%
1993	11.46%	28	11.37%	40	11.41%	68	9.97%	5.79%	3.17%	8.96%
1994	11.21%	28	11.24%	24	11.22%	52	1.33%	7.82%	3.55%	11.37%
1995	11.58%	28	11.44%	13	11.54%	41	37.20%	5.57%	3.29%	8.86%
1996	11.40%	18	11.12%	17	11.26%	35	22.68%	6.41%	3.20%	9.61%
1997	11.33%	10	11.30%	12	11.31%	22	33.10%	5.74%	2.73%	8.47%
1998	11.77%	10	11.51%	10	11.64%	20	28.34%	4.65%	2.26%	6.91%
1999	10.72%	6	10.74%	6	10.73%	12	20.89%	6.44%	2.05%	8.49%
2000	11.58%	9	11.34%	13	11.44%	22	-9.03%	5.11%	2.87%	7.98%
2001	11.07%	15	10.96%	5	11.04%	20	-11.85%	5.05%	3.62%	8.67%
2002	11.21%	14	11.17%	19	11.19%	33	-21.97%	3.81%	4.10%	7.91%
2003	10.96%	20	10.99%	25	10.98%	45	28.36%	4.25%	3.69%	7.94%
2004	10.81%	21	10.63%	22	10.72%	43	10.74%	4.22%	3.65%	7.87%
2005	10.51%	24	10.41%	26	10.46%	50	4.83%	4.39%	4.08%	8.47%
2006	10.32%	26	10.40%	15	10.35%	41	15.61%	4.70%	4.16%	8.86%
2007	10.30%	38	10.22%	35	10.26%	73	5.48%	4.02%	4.37%	8.39%
2008	10.41%	37	10.39%	32	10.40%	69	-36.55%	2.21%	6.43%	8.64%
2009	10.52%	40	10.22%	30	10.39%	70	25.94%	3.84%	4.36%	8.20%
2010	10.37%	61	10.15%	39	10.28%	100	14.82%	3.29%	5.20%	8.49%
2011	10.29%	42	9.92%	16	10.19%	58	2.10%	1.88%	6.01%	7.89%
2012	10.17%	58	9.94%	35	10.08%	93	15.89%	1.76%	5.78%	7.54%
2013	10.03%	49	9.68%	21	9.93%	70	32.15%	3.04%	4.96%	8.00%
2014	9.91%	38	9.78%	26	9.86%	64	13.52%	2.17%	5.78%	7.95%
2015	9.85%	30	9.60%	16	9.76%	46	1.38%	2.27%	6.12%	8.39%
2016	9.77%	42	9.54%	26	9.68%	68	11.77%	2.45%	5.69%	8.14%
2017	9.74%	53	9.72%	24	9.73%	77	21.61%	2.41%	5.08%	7.49%
2018	9.64%	37	9.62%	26	9.63%	63	-4.23%	2.68%	5.96%	8.64%
2019	9.64%	67	9.71%	32	9.66%	99	31.22%	1.92%	5.20%	7.12%
2020	9.43%	43	9.46%	34	9.44%	77	18.01%	0.93%	4.72%	5.65%

[1], [2], [3] Average annual authorized ROE for electric and gas utilities, RRA Regulatory Focus: Major Rate Case Decisions

[3] = [1] + [2]

[4], [5], [6] Annual S&P 500 return, 10-year T-bond Rate, and equity risk premium published by NYU Stern School of Business

[7] = [5] + [6] ; Market cost of equity represents the required return for investing in all stocks in the market for a given year

## Proxy Company Debt Ratios

Exhibit DJG-14

---

Company	Ticker	Debt Ratio
American States Water Co	AWR	46%
American Water Works Co Inc	AWK	59%
California Water Service Gp	CWT	50%
Essential Utilities, Inc.	WTRG	54%
Middlesex Water Co	MSEX	43%
SJW Corp	SJW	54%
York Water Co	YORW	45%
Average		50%

---

Debt ratios from Value Line Investment Survey

# Competitive Industry Debt Ratios

Exhibit DJG-15

Industry	# Firms	Debt Ratio
Financial Svcs. (Non-bank & Insurance)	235	95%
Retail (Building Supply)	15	88%
Hospitals/Healthcare Facilities	32	84%
Air Transport	17	84%
Advertising	61	81%
Hotel/Gaming	66	77%
Brokerage & Investment Banking	39	77%
Auto & Truck	19	75%
Retail (Automotive)	30	74%
Food Wholesalers	18	74%
Retail (Special Lines)	85	72%
Recreation	69	71%
Bank (Money Center)	7	68%
Retail (Grocery and Food)	14	68%
Transportation	21	68%
Computers/Peripherals	52	68%
Packaging & Container	26	67%
Broadcasting	29	65%
Rubber& Tires	3	64%
Beverage (Soft)	41	64%
Chemical (Basic)	48	62%
Oil/Gas Distribution	57	62%
Cable TV	13	61%
R.E.I.T.	238	61%
Apparel	51	61%
Trucking	35	61%
Computer Services	116	61%
Retail (Distributors)	85	60%
Telecom (Wireless)	16	60%
Power	55	60%
Farming/Agriculture	32	59%
Business & Consumer Services	169	59%
Aerospace/Defense	72	59%
Telecom. Services	58	59%
Retail (Online)	75	58%
Utility (General)	16	58%
Software (Internet)	36	57%
Household Products	140	57%
Construction Supplies	46	57%
Real Estate (Operations & Services)	61	56%
Building Materials	42	56%
Transportation (Railroads)	6	56%
Coal & Related Energy	29	56%
Chemical (Diversified)	5	56%
Office Equipment & Services	22	55%
Environmental & Waste Services	86	54%
Auto Parts	52	53%
Drugs (Biotechnology)	547	52%
Real Estate (Development)	25	52%
Publishing & Newspapers	29	52%
Green & Renewable Energy	25	52%
Retail (General)	17	52%
Shoe	11	50%
<b>Total / Average</b>	<b>3,194</b>	<b>64%</b>

# Weighted Average Rate of Return Proposal

Exhibit DJG-16

---

<u>Capital Component</u>	<u>Proposed Ratio</u>	<u>Cost Rate</u>	<u>13% Tax Adjusted</u>	<u>Weighted Cost</u>
Debt	50.0%	4.06%		2.03%
Equity	50.0%	8.20%	7.13%	3.57%
Total	100.0%			5.60%

## Unlevering Beta

Proposed Debt Ratio	49%	[1]
Proposed Equity Ratio	51%	[2]
Debt / Equity Ratio	96%	[3]
Tax Rate	29%	[4]
Equity Risk Premium	7.3%	[5]
Risk-free Rate	1.9%	[6]
Proxy Group Beta	0.80	[7]
Unlevered Beta	0.48	[8]

[9]                      [10]                      [11]                      [12]

## Relevered Betas and Cost of Equity Estimates

Debt Ratio	D/E Ratio	Levered Beta	Cost of Equity
0%	0%	0.475	5.4%
20%	25%	0.560	6.0%
30%	43%	0.620	6.5%
40%	67%	0.701	7.1%
50%	100%	0.813	7.9%
55%	122%	0.888	8.4%
60%	150%	0.982	9.1%

[1] Company debt ratio

[2] Company equity ratio

[3] = [1] / [2]

[4] Tax rate from Walker Sch. 16

[5] Equity risk premium from Exhibit DJG-11

[6] Risk-free rate from Exhibit DJG-11

[7] Average proxy beta from Exhibit DJG-11

[8] = [7] / (1 + (1 - [4]) \* [3])

[9] Various debt ratios for modeling

[10] = [9] / (1 - [9])

[11] = [8] \* (1 + (1 - [4]) \* [10])

[12] = [6] + [11] \* [5]

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

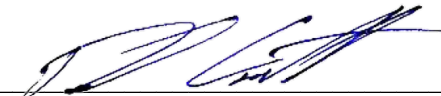
Re: Pennsylvania Public Utility Commission :  
 :  
 v. : Docket No. R-2021-3026682  
 :  
 City of Lancaster – Water Department :

VERIFICATION

I, David J. Garrett, hereby state that the facts set forth in my Direct Testimony, OCA Statement 3, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: December 23, 2021  
\*321172

Signature: \_\_\_\_\_

  
David J. Garrett

Consultant Address: Resolve Utility Consulting, PLLC  
101 Park Avenue  
Suite 1125  
Oklahoma City, OK 73102

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PENNSYLVANIA PUBLIC  
UTILITY COMMISSION**

**v.**

**CITY OF LANCASTER –  
BUREAU OF WATER**

)  
)  
)  
)  
)  
)  
)  
)

**DOCKET NO. R-2021-3026682**

**DIRECT TESTIMONY OF**

**JEROME D. MIERZWA**

**ON BEHALF OF THE**

**PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE**

**DECEMBER 23, 2021**

1 **I. INTRODUCTION**

2 Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS  
3 ADDRESS?

4 A. My name is Jerome D. Mierzwa. I am Vice President of and a Principal with Exeter  
5 Associates, Inc (“Exeter”). My business address is 10480 Little Patuxent Parkway,  
6 Suite 300, Columbia, Maryland 21044. Exeter specializes in providing public utility-  
7 related consulting services.

8 Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND  
9 EXPERIENCE.

10 A. I graduated from Canisius College in Buffalo, New York, in 1981 with a Bachelor of  
11 Science Degree in Marketing. In 1985, I received a Master’s Degree in Business  
12 Administration with a concentration in finance, also from Canisius College. In July  
13 1986, I joined National Fuel Gas Distribution Corporation (“NFG Distribution”) as a  
14 Management Trainee in the Research and Statistical Services Department (“RSS”).  
15 I was promoted to Supervisor RSS in January 1987. While employed with NFG  
16 Distribution, I conducted various financial and statistical analyses related to the  
17 Company’s market research activity and state regulatory affairs. In April 1987, as part  
18 of a corporate reorganization, I was transferred to National Fuel Gas Supply  
19 Corporation’s (“NFG Supply”) rate department where my responsibilities included  
20 utility cost of service and rate design analysis, expense and revenue requirement  
21 forecasting and activities related to federal regulation. I was also responsible for  
22 preparing NFG Supply’s Federal Energy Regulatory Commission (“FERC”) Purchase  
23 Gas Adjustment (“PGA”) filings and developing interstate pipeline and spot market  
24 supply gas price projections. These forecasts were utilized for internal planning



1 purposes as well as in NFG Distribution's Section 1307(f) purchased gas cost  
2 proceedings.

3 In April 1990, I accepted a position as a Utility Analyst with Exeter. In  
4 December 1992, I was promoted to Senior Regulatory Analyst. Effective April 1,  
5 1996, I became a Principal of Exeter. Since joining Exeter, my assignments have  
6 included water and wastewater utility class cost of service and rate design analysis,  
7 evaluating the gas purchasing practices and policies of natural gas utilities, sales and  
8 rate forecasting, performance-based incentive regulation, revenue requirement  
9 analysis, the unbundling of utility services and the evaluation of customer choice  
10 natural gas transportation programs.

11 Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY  
12 PROCEEDINGS ON UTILITY RATES?

13 A. Yes. I have provided testimony on over 400 occasions in proceedings before FERC,  
14 utility regulatory commissions in Arkansas, Delaware, Georgia, Illinois, Indiana,  
15 Louisiana, Maine, Maryland, Massachusetts, Montana, Nevada, New Hampshire,  
16 New Jersey, Ohio, Rhode Island, Texas, South Carolina, Utah, and Virginia, as well  
17 as before the Pennsylvania Public Utility Commission ("Commission").

18 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

19 A. On September 30, 2021, The City of Lancaster ("City") filed an application with the  
20 Commission to increase the rates for water utility service provided to the customers  
21 which it serves that are located outside the corporate limits of the City ("Outside City  
22 customers") by \$4.025 million, or 21.3 percent. The City also provides water service  
23 to customers that are located inside the City's corporate limits ("Inside City  
24 customers"). However, the rates of Inside City customers are not regulated by the  
25 Commission. Exeter was retained by the Pennsylvania Office of Consumer Advocate

1 (“OCA”) to review and analyze the revenue requirement claim, class cost of service  
2 study (“CCOSS”), and rate design proposals reflected in the City’s application to  
3 increase the rates of Outside City customers. My associate, Mr. Lafayette K. Morgan,  
4 Jr., addresses the City’s revenue requirement claim. My testimony addresses the  
5 City’s CCOSS and rate design proposals.

6 Q. HAVE YOU PREPARED EXHIBITS TO ACCOMPANY YOUR  
7 TESTIMONY?

8 A. Yes, I have. Schedule JDM-1 through JDM-4 are attached to my testimony.

9 Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS.

10 A. Although I find the City’s CCOSS generally to be reasonable and appropriate for  
11 determining cost responsibility for Outside City customers, several modifications to  
12 the CCOSS are appropriate. I incorporate these modifications in a revised CCOSS as  
13 discussed in my testimony. The distribution of the revenue increase authorized by the  
14 Commission in this proceeding, if any, should be based on the results of this revised  
15 CCOSS. My specific modifications to the City’s CCOSS are as follows:

- 16 • Water treatment operation and maintenance (“O&M”) salary expenses  
17 should be functionalized and allocated to each customer class based on  
18 average demands;
- 19 • Laboratory testing O&M salary expenses should also be functionalized  
20 and allocated to each customer class based on average demands; and
- 21 • Rental income should be allocated entirely to Outside City customers.

22 With respect to rate design, the City’s proposed 64% increase in customer  
23 charges should be rejected. In addition, consistent with the formal complaint filed in  
24 this proceeding by Mr. Frank D. Kitzmiller, customer charges should be assessed  
25 based on the size of a customer’s meter and not the size of a customer’s service line.

1 Finally, the City does not currently charge municipalities for the Public Fire  
2 protection service provided to those municipalities. The costs associated with  
3 providing Public Fire service are allocated to the City's retail customer classes in the  
4 City's CCOSS. I recommend that the Commission order the City in its next rate case  
5 to propose rates for Public Fire service that collect 25% of the Public Fire cost of  
6 service. The order also should specifically require the City to give notice to each  
7 affected municipality of the amount each municipality would be charged under those  
8 rates, so that the municipalities have an opportunity to budget for those charges.

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

10 A. Following this introductory section, my testimony is divided into four additional  
11 sections. The first additional section provides an overview of water utility cost of  
12 service methodologies. Next, I address the City's CCOSS. The third additional  
13 section discusses the distribution of the revenue increase authorized by the  
14 Commission, if any, to the Outside City customer classes served by the City. The  
15 third additional section also presents my recommendation concerning establishing  
16 rates for Public Fire protection service. In the final section, I present my rate design  
17 recommendations and discuss the formal complaint filed by Mr. Kitzmiller.  
18

19 **II. OVERVIEW OF COST OF SERVICE METHODOLOGIES**

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

21 A. A cost of service study is conducted to assist a utility or commission in determining  
22 the level of costs properly recoverable through the rates applicable for the various  
23 services provided by the utility from each of the classes to which the utility provides  
24 service. Allocation of recoverable costs to each class of service is generally based on  
25 usage and cost causation principles.

1 Q. WHAT ARE THE PRIMARY COST OF SERVICE STUDY  
2 METHODOLOGIES UTILIZED FOR WATER UTILITIES?

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

8 Q. WHAT METHODOLOGY HAS THE CITY UTILIZED FOR ITS CLASS  
9 CCOSS?

10 A. The City has utilized the base-extra capacity method in preparing its CCOSS. Under  
11 the base-extra capacity method, investment and costs are first classified into four  
12 primary functional cost categories: base or average capacity, extra capacity, customer,  
13 and fire protection. Once investment and costs are classified to these functional  
14 categories, they are allocated to the various customer classes. The City's CCOSS is  
15 presented by Ms. Constance E. Heppenstall of Gannet Fleming Valuation and Rate  
16 Consultants, LLC.

17 Q. PLEASE DESCRIBE IN GREATER DETAIL THE FOUR PRIMARY  
18 FUNCTIONAL COST CATEGORIES AND HOW THESE COSTS ARE  
19 ALLOCATED TO THE VARIOUS CUSTOMER CLASSES UNDER THE  
20 BASE-EXTRA CAPACITY METHOD.

21 A. **Base Costs** are costs that tend to vary with the quantity of water used, plus costs  
22 associated with supplying, treating, pumping, and distributing water to customers  
23 under average load conditions. Base costs were allocated to customer class on the  
24 basis of average daily usage in the City's CCOSS.

1           **Extra Capacity Costs** are costs associated with meeting usage requirements  
2 in excess of average usage. This includes operating and capital costs for additional  
3 plant and system capacity beyond that required for average usage. Extra capacity  
4 costs in the City’s study have been subdivided into costs necessary to meet maximum  
5 day extra demand and maximum hour extra demand. These extra capacity costs were  
6 allocated to customer classes on the basis of each class’s maximum day and  
7 maximum hour usage in excess of average usage.

8           **Customer Costs** are costs associated with serving customers regardless of  
9 their usage or demand characteristics. Customer costs include the operating costs  
10 related to meters and services, meter reading costs, and billing and collection costs.  
11 Customer costs were allocated on the basis of capital cost of meters and services and  
12 the number of customer bills.

13           **Fire Protection Costs** are costs associated with providing the facilities to  
14 meet the potential peak demand of fire protection service. In the City’s CCOSS, fire  
15 protection costs have been subdivided into the costs associated with meeting Public  
16 Fire Protection and Private Fire Protection demands. The extra capacity costs  
17 assigned to fire protection were allocated to Public and Private Fire Protection on the  
18 basis of the total relative demands of hydrants and fire service lines.

19  
20

1 **III. EVALUATION OF THE CITY'S CLASS COST OF**  
2 **SERVICE STUDY**

3 Q. BEFORE ASSESSING AND EVALUATING THE CITY'S CCOSS AND  
4 RATE DESIGN PROPOSALS, DO YOU HAVE ANY PRELIMINARY  
5 MATTERS TO ADDRESS?

6 A. Yes. My testimony and analysis are based on the City's proposed revenue  
7 requirement. This is standard practice because it allows the cost of service and rate  
8 design recommendations of different parties to be compared on a comparable basis.  
9 This should not be taken, however, as an endorsement of the City's proposed revenue  
10 requirement claim in this proceeding.

11 Q. PLEASE IDENTIFY THE CUSTOMER CLASSES INCLUDED IN THE  
12 CITY'S CCOSS.

13 A. The City provides service to five Inside City and seven Outside City customer  
14 classes. The Inside City customer classes served by the City are as follows:

- 15 • Residential
- 16 • Commercial
- 17 • Industrial
- 18 • Private Fire
- 19 • Public Fire

20 The City provides service to these same five customer classes outside the  
21 City, and also provides service outside the City to a Large Industrial customer class  
22 and an Other Water Utility customer class. Each of the five Inside and seven Outside  
23 City customer classes are included in the City's CCOSS. However, as subsequently  
24 discussed later in my testimony, the costs associated with providing Inside and

1 Outside City Public Fire protection service are allocated to the retail metered  
2 customer classes in the City's CCOSS.

3 Q. DO YOU HAVE ANY CONCERNS WITH THE CITY'S CCOSS?

4 A. Yes. While the City's CCOSS is generally reasonable, I have several concerns with  
5 the CCOSS.

6 Q. PLEASE IDENTIFY THE CONCERNS YOU HAVE WITH THE CITY'S  
7 CCOSS.

8 A. I have concerns with the City's functionalization and allocation of certain water  
9 treatment operation and maintenance expenses and laboratory testing O&M expenses.  
10 I also have a concern with the City's allocation of rental income.

11 Q. PLEASE DESCRIBE YOUR CONCERN WITH THE CITY'S  
12 FUNCTIONALIZATION AND ALLOCATION OF WATER TREATMENT  
13 O&M EXPENSES.

14 A. The City has functionalized and allocated water treatment salary expenses based on  
15 Factor 2 which functionalizes and allocates costs partially based on average day  
16 demands and partially based on maximum day demands. Water treatment salaries do  
17 not increase on the maximum demand day and, therefore, these expenses should be  
18 functionalized and allocated based on average day demands (Factor 1).

19 Q. PLEASE DESCRIBE YOUR CONCERN WITH THE CITY'S  
20 FUNCTIONALIZATION AND ALLOCATION OF LABORATORY  
21 TESTING O&M EXPENSES.

22 A. Laboratory testing O&M expenses have also been allocated based on Factor 2 in the  
23 City's CCOSS. Like water treatment salaries, laboratory O&M expenses do not  
24 increase on the maximum demand day. The frequency of the City's various  
25 laboratory tests and the associated expenses are a function of time rather than

1 demands (OCA-VIII-6, attached hereto as Schedule JDM-1). Therefore, laboratory  
2 testing expenses should be functionalized and allocated based on average day  
3 demands.

4 Q. WHAT IS RENTAL INCOME AND HOW DID THE CITY ALLOCATE IT  
5 IN ITS CCOSS?

6 A. The City's CCOSS includes \$319,593 in rental income. All of this income is from  
7 cellular antenna leases. The City's CCOSS allocates this income among customer  
8 classes using allocation Factor 17 which is a composite factor based on the total cost  
9 of service (excluding the items being allocated). Using this factor results in 28.90% of  
10 these revenues being allocated to Inside City customers and 71.10% being allocated  
11 to Outside City customers.

12 Q. IS THIS ALLOCATION OF RENTAL INCOME REASONABLE?

13 A. No, it is not reasonable. All of the rental income is received for renting space on  
14 water tanks that are outside the City (OCA VIII-3, attached hereto as Schedule JDM-  
15 2). In the CCOSS, the cost of these water tanks is allocated using factor 5B which  
16 allocates all of the cost to Outside City customers. Since Outside City customers are  
17 being asked to support all of the cost of these water tanks, they also should receive all  
18 of the revenues from leasing space on those tanks.

19 Q. HAVE YOU REVISED THE CITY'S CCOSS TO ADDRESS YOUR  
20 CONCERNS?

21 A. Yes. I have revised the City's CCOSS to functionalize and allocate water treatment  
22 salaries and laboratory O&M expenses based on average day demands (Factor 1). I  
23 have also revised the City's CCOSS to allocate all rental income to Outside City  
24 customers. A summary of the results of the revised CCOSS is presented as Schedule  
25 JDM-3 to my testimony. A comparison of the cost of service by customer class under



1 the City's filed CCOSS and the revised CCOSS which reflects my modifications is  
 2 provided in Table 1. Table 1 also identifies the increases in rates which would be  
 3 required to move each Outside City customer class to the indicated cost of service. As  
 4 shown in Table 1, my modifications to the City's CCOSS results in a slight decrease  
 5 to the indicated cost of service of Residential, Commercial, and Private Fire  
 6 customers and a slight increase in the cost of service for all other classes.

**Table 1.**  
**Comparison of City and OCA Class Cost of Service Study Results**

	City			OCA			CCOSS Variance
	CCOSS	Increase	Percent	CCOSS	Increase	Percent	
<b><u>Inside City</u></b>							
Residential	\$4,976,614			\$4,988,567			(\$11,953)
Commercial	3,350,004			3,390,712			(40,707)
Industrial	535,645			550,295			(14,651)
Private Fire	298,563			302,623			(4,060)
<b>Total Inside City</b>	<b>\$9,160,826</b>			<b>\$9,232,197</b>			<b>(\$71,372)</b>
<b><u>Outside City</u></b>							
Residential	\$11,850,476	\$2,319,303	24.3%	\$11,722,333	\$2,191,159	23.0%	\$128,144
Commercial	7,562,831	1,155,653	18.0	7,548,126	1,140,948	17.8	14,705
Industrial	1,466,075	232,954	18.9	1,488,467	255,347	20.7	(22,393)
Large Industrial	936,510	149,311	19.0	977,141	189,942	24.1	(40,632)
Other Water Utilities	622,689	79,232	14.6	642,681	99,224	18.3	(19,992)
Private Fire	467,967	88,140	23.2	457,223	77,396	20.4	10,744
<b>Total Outside City</b>	<b>\$22,906,548</b>	<b>\$4,024,593</b>	<b>21.3%</b>	<b>\$22,835,971</b>	<b>\$3,954,016</b>	<b>20.9%</b>	<b>\$70,577</b>
<b>TOTAL:</b>	<b>\$32,067,374</b>	<b>\$4,024,593</b>	<b>14.4%</b>	<b>\$32,068,168</b>	<b>\$4,025,388</b>	<b>14.4%</b>	<b>(\$795)</b>

1 **IV. DISTRIBUTION OF REVENUE INCREASE**

2 Q. WHAT ARE SOME THE PRINCIPLES OF A SOUND REVENUE  
3 ALLOCATION AND RATE DESIGN?

4 A. A sound revenue allocation should:

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

13 Q. IS THE CITY PROPOSING TO DESIGN RATES TO COLLECT THE  
14 REVENUE REQUIREMENT FROM EACH CUSTOMER CLASS  
15 INDICATED BY ITS CCOSS?

16 A. No. Even though the City's CCOSS properly shows costs for the provision of Public  
17 Fire protection service, the City does not charge any municipalities for that service.  
18 This cost it significant. The City's Outside City CCOSS indicates a Public Fire  
19 protection cost of service of \$2.0 million.

20 Q. HOW DOES THE CITY PROPOSE TO COLLECT OUTSIDE CITY  
21 PUBLIC FIRE PROTECTION COSTS?

22 A. The City reallocates Public Fire costs to each retail metered customer class in  
23 proportion to the number of equivalent 5/8-inch meters in the class. This has the  
24 effect of imposing most of the cost on the Residential class. The increase in costs to

---

<sup>1</sup> *Principles of Public Utility Rates*, Second Edition, James C. Bonbright, Albert L. Daniels, David R. Kamerschen; Public Utility Reports, Inc. 1988, pages 383-384.

1 the Residential class is \$1.485 million. That is, Residential costs are about 14%  
2 higher.

3 Q. IS THE CITY'S RECOVERY OF PUBLIC FIRE PROTECTION SERVICE  
4 COSTS TYPICAL OF HOW WATER UTILITIES IN PENNSYLVANIA  
5 COLLECT THESE COSTS?

6 A. No. Most water utilities in Pennsylvania charge municipalities a portion of the cost of  
7 providing service, with the remainder spread among the retail metered classes. There  
8 is a specific provision of the Public Utility Code, 66 Pa C.S. § 1328, that allows  
9 utilities to charge up to 25% of the cost of Public Fire service directly to  
10 municipalities, with the remainder collected using the methodology the City  
11 recommends.

12 Q. IN YOUR OPINION, IS THE CITY'S POSITION NOT TO ASSESS  
13 MUNICIPALITIES A PORTION OF THE COSTS OF PROVIDING  
14 PUBLIC FIRE PROTECTION SERVICE REASONABLE?

15 A. No, I find the City's position to be unreasonable. The City's rates are set like a public  
16 utility for service outside its municipal boundaries and it should be treated the same  
17 way other water utilities are treated. The Pennsylvania General Assembly has made a  
18 policy judgment that it is reasonable for some of the cost of Public Fire service to be  
19 collected directly from the municipalities in which the service is provided, with the  
20 remainder charged to retail metered customers through a customer charge.

21 Assessing all of these costs on retail metered customer is inconsistent with this  
22 policy as the Public Utility Code allows up to 25% of the Public Fire costs to be  
23 shouldered by municipalities. This policy makes sense because it is the municipalities  
24 that decide to have public fire hydrants and that impose requirements on the water  
25 system including required flow rates, distances between hydrants, and so on.

1 Municipalities have at least some ability to control Public Fire costs; individual  
2 customers have no such ability.

3 Q. WHAT DO YOU RECOMMEND?

4 A. I recommend that the Commission order the City in its next rate case to propose rates  
5 for Public Fire service that collect 25% of the Public Fire cost of service. The order  
6 also should specifically require the City to give at least six months notice prior to its  
7 formal rate case notice to each affected municipality of the amount each municipality  
8 would be charged under those rates, so that the municipalities have an opportunity to  
9 budget for that charge.

10 Q. WHAT DO YOU RECOMMEND FOR THIS CASE?

11 A. For this case, I recommend that the Company's methodology be followed for  
12 practicality sake. As I mentioned, this has the effect of increasing the cost of service  
13 to the Residential class by 14%. Moreover, because this amount is collected through  
14 the customer charge, the effect on the customer charge is even worse. According to  
15 the City's calculation, approximately one-third of the costs the City wants to collect  
16 in the customer charge are solely because of the reallocation of Public Fire service  
17 costs.

18 Q. WHAT IS YOUR RECOMMENDATION CONCERNING THE COSTS  
19 THAT SHOULD BE COLLECTED FROM EACH CUSTOMER CLASS  
20 THROUGH RATES IN THIS CASE?

21 A. The City has proposed a distribution of its requested increase which provides for the  
22 recovery of revenues from each Outside City customer class equal to the cost of  
23 service indicated by its CCOSS. I recommend that the City's requested increase  
24 initially be distributed to each Outside City customer class based on the results of my

1 revised CCOSS, and that this initial distribution be proportionately scaled-back to  
2 reflect the actual increase authorized by the Commission in this proceeding.

3

4

**V. RATE DESIGN**

5 Q. WHAT HAS THE CITY PROPOSED WITH RESPECT TO RATES IN  
6 THIS PROCEEDING?

7 A. The City claims it has proposed to increase rates to reflect the results of its CCOSS.  
8 For example, under present rates, a typical Outside City Residential customer with a  
9 5/8-inch meter is currently assessed a quarterly customer charge of \$16.65 and a  
10 consumption charge of \$4.4890 per 1,000 gallons. Under the City's proposed rates,  
11 the quarterly customer charge for a Residential customer with a 5/8-inch meter would  
12 increase to \$27.30, or by 64%, and the consumption charge would increase to  
13 \$4.9150, or 9.5%. The City has proposed similar 64% increases in customer charges  
14 for all meter sizes.

15 Q. IS THE SIGNIFICANT INCREASE IN THE CUSTOMER CHARGES  
16 PROPOSED BY THE CITY REASONABLE?

17 A. No. In other proceedings, the Commission has concluded that customer charges  
18 should consist of the direct costs for billing, metering, and service lines. For example,  
19 in a 2004 Aqua Pennsylvania rate case, the Commission concluded as follows:

20

21

22

23

24

25

26

27

28

29

On review of the evidentiary record herein, we shall adopt the ALJ's Recommendation on this issue. First, the ALJ correctly found that the cost of customer equipment, and also of meters and service line maintenance, is properly includable in a cost study. We find that the OTS' proposed limitation of costs to only services and meters is unreasonably narrow.

Second, we find that it is reasonable and proper to

1 include allocated portions of indirect costs, such as  
2 employee benefits, local taxes and other general and  
3 administrative costs, in a cost study. We caution that  
4 these are costs which may be considered for inclusion  
5 in the customer charge, but such claims are subject to  
6 scrutiny on a case-by-case basis.  
7

8 *Pa. PUC v. Aqua Pennsylvania, Inc.*, Docket No. R-  
9 00038805, 236 P.U.R.4th 218 (Aug. 5, 2004).  
10

11 In this proceeding, the City has included numerous indirect costs along with  
12 direct costs in its customer charge calculation. For example, the City's calculation of  
13 metering and billing costs includes costs for office buildings, City administrators,  
14 professional services, and many other indirect costs. As shown on Schedule JDM-4,  
15 excluding those indirect costs from the City's calculations and adjusting that  
16 calculation to exclude recovery of 25% of Public Fire Protection costs reduces the  
17 City's 5/8-inch customer charge calculation from \$29.71 to \$21.48.

18 As indicated previously, gradualism is an important aspect of a sound rate  
19 design. The City's proposed 64% increase in customer charges is 3 times the 21%  
20 overall system average increase requested by the City. Clearly, the City's proposed  
21 customer charge increase violates the principle of gradualism. Consistent with the  
22 Commission's finding in the Aqua Pennsylvania proceeding, a case-by-case basis  
23 determination is warranted in this case with respect to customer charges.

24 To provide for gradualism, I recommend that customer charges be increased  
25 by 1.5 times the system average increase authorized in this proceeding. Based on the  
26 City's requested increase, this would result in a 31.5% increase in customer charges.  
27 Under this recommendation, for a Residential customer with a 5/8-inch meter at the  
28 City's requested increase, the quarterly customer charge would increase from \$16.65

1 to \$21.90. This customer charge recommendation would provide for the recovery of a  
2 portion of the indirect costs included in the City's customer charge calculation.

3 Q. PLEASE SUMMARIZE THE FORMAL COMPLAINT FILED BY MR.  
4 KITZMILLER IN THIS PROCEEDING.

5 A. In the formal complaint filed by Mr. Kitzmiller on October 27, 2021 and in testimony  
6 presented at the public input hearing on December 16, 2021, Mr. Kitzmiller has  
7 claimed that the City appears to be improperly billing customer charges based on the  
8 size of a customer's service line rather than the size of a customer's meter as  
9 specified by the City's Commission-approved tariff. More specifically, Mr. Kitzmiller  
10 has claimed that he and approximately 6,000 customers that are served by 1-inch  
11 service lines and ¾-inch meters are improperly being billed at 1-inch meter customer  
12 charges. In his formal complaint and testimony, Mr. Kitzmiller requested that the City  
13 be required to bill customers based on the size of the customer's water meter and not  
14 the size of the customer's service line.

15 Q. DO YOU AGREE WITH MR. KITZMILLER THAT THE CITY'S  
16 COMMISSION-APPROVED TARIFF PROVIDES FOR THE  
17 ASSESSMENT OF CUSTOMER CHARGES BASED ON METER SIZE  
18 AND THAT HIS REQUEST BE APPROVED BY THE COMMISSION?

19 A. Yes, I do. The City should be required to bill customer charges based on meter size  
20 consistent with the City's Commission-approved tariff. Based on my experience  
21 billing customer charges based on meter size is standard practice in Pennsylvania.

22 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

23 A. Yes, it does.

**BEFORE THE**  
**PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PENNSYLVANIA PUBLIC  
UTILITY COMMISSION**

v.

**CITY OF LANCASTER –  
BUREAU OF WATER**

)  
)  
)  
)  
)  
)  
)  
)  
)  
)  
)

**DOCKET NO. R-2021-3026682**

**SCHEDULES ACCOMPANYING THE**

**DIRECT TESTIMONY OF**

**JEROME D. MIERZWA**

**ON BEHALF OF THE**

**PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE**

**DECEMBER 23, 2021**



**Pennsylvania Public Utility Commission**  
**v.**  
**City of Lancaster – Water Department**  
**Docket No. R-2021-3026682**  
**Interrogatories of the Office of Consumer Advocate**  
**Set VIII**

**Witness: Stephen P. Campbell**

OCA-VIII-6: Reference the response to OCA-III-20. Please identify each water quality test performed by the City's laboratory facilities and how frequently each test is performed (daily, weekly, based on usage, etc.)

Response: Please refer to OCA-VIII-6 Attachment, which provides a summary of the water quality tests performed by the City and the frequency at which each test is performed.

**City of Lancaster Water,  
In-House Water Quality Testing**

<u>Parameter</u>	<u>Frequency</u>
pH	Daily-Lab, Hourly-Operator
Free Chlorine	Daily-Lab, Hourly-Operator
Turbidity	Daily-Lab, Hourly-Operator
Alkalinity	Daily-Lab
Aluminum	Daily-Lab
Chloride	Weekly-Lab
Color	Daily-Lab
Copper	Weekly-Lab
Fluoride	Daily-Lab
Hardness	Daily-Lab
Iron	Weekly-Lab
Manganese	Twice a Week-Lab
Nitrates	Weekly-Lab
Orthophosphate	Daily-Lab
Specific Conductivity	Daily-Lab
Sulfate	Weekly-Lab
Temperature	Daily-Lab
UV-254	Weekly-Lab
Total Coliform/ E-Coli	Daily-Lab (State Accredited)

**City of Lancaster Water,  
Contract Lab Water Quality Testing**

<u>Parameter</u>	<u>Frequency</u>
Disinfection By-Products	Quarterly
Lead and Copper	Triennial
Nitrates and Nitrites	SWTP-Yearly, CWTP-Quarterly
Volatile Organic Compounds	Annual
Synthetic Organic Compounds	Triennial 2nd and 3rd quarter
Inorganic Chemicals	Annual
Asbestos	Every 9 years
Gross Alpha	Every 9 years
Uranium	Every 6 years
Radium 226 and 228	Every 9 years
Atrazine	Annual 2nd quarter
Total Organic Carbon	Monthly

**Pennsylvania Public Utility Commission**  
**v.**  
**City of Lancaster – Water Department**  
**Docket No. R-2021-3026682**  
**Interrogatories of the Office of Consumer Advocate**  
**Set VIII**

**Witness: Constance E. Heppenstall**

OCA-VIII-3 Reference the response to OCA-III-15(e).

- a. How much of the rental income is associated with renting space on water tanks?
- b. How many of the City's water tanks are located inside the City and how many are located outside the City?

Response:

- a. All of the rental income is associated with renting space on water tanks.
- b. All of the water tanks, in which telecommunication companies rent space, are located outside of the City limits.

CITY OF LANCASTER - BUREAU OF WATER

PROJECTED COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2022  
 ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER WATER UTILITIES AND FIRE SERVICE CUSTOMER CLASSIFICATIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	INSIDE-CITY				OUTSIDE-CITY					PUBLIC FIRE (15)		
			RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	PRIVATE FIRE (7)	PUBLIC FIRE (8)	RESIDENTIAL (9)	COMMERCIAL (10)	INDUSTRIAL (11)	LARGE INDUSTRIAL (12)		OTHER UTILITIES (13)	PRIVATE FIRE (14)
<b>OPERATION AND MAINTENANCE EXPENSES</b>														
<b>WATER TREATMENT</b>														
SUSQUEHANNA TREATMENT PLANT														
601.3 SALARIED PERSONNEL	1	\$ 1,043,288	\$ 143,348	\$ 128,637	\$ 25,248	\$ 835	\$ 1,252	\$ 308,292	\$ 285,881	\$ 65,727	\$ 48,200	\$ 30,873	\$ 1,148	\$ 4,089
601.3 OVERTIME	2	73,048	10,629	9,918	1,629	44	66	22,850	19,918	4,237	2,761	1,834	56	205
SUSQUEHANNA - SALARY/BENEFITS														
620.3 MAINTENANCE-BUILDING	2	22,788	3,313	2,780	508	14	20	7,122	6,177	1,321	861	571	18	64
620.3 MAINTENANCE-COMMUNIC.	2	78	11	10	2	0	0	24	21	5	3	2	0	0
620.3 MAINTENANCE-EQUIPMENT	2	245,306	35,692	28,962	5,470	147	221	76,732	66,551	14,228	9,273	6,157	196	687
620.3 MAINTENANCE-VEHICLES	2	10,881	1,563	1,329	243	7	10	3,404	2,962	631	411	273	9	30
610.3 WATER UTILITY EXPENSE	2	12,980	1,889	1,585	289	8	12	4,080	3,521	753	491	328	10	36
SLUDGE	1	83,873	12,868	11,576	2,272	76	113	27,739	25,721	5,914	4,337	2,760	103	386
615.3 POWER ELECTRIC	1	703,816	96,704	86,781	17,032	563	845	207,978	192,846	44,340	32,516	20,892	774	2,745
620.8 OPERATING SUPPLIES	2	1,952	284	238	44	1	2	611	530	113	74	49	2	5
620.8 MINOR EQUIPMENT	2	58,697	8,540	7,167	1,309	35	53	18,360	15,924	3,404	2,219	1,473	47	184
618.3 CHEMICALS	1	460,877	64,149	57,586	11,298	374	560	137,862	127,924	28,413	21,570	13,726	514	1,821
618.3 GASOLINE	2	10,614	1,544	1,298	237	6	10	3,320	2,860	616	401	286	8	30
650.3 FUEL	2	40,081	5,832	4,894	894	24	36	12,537	10,874	2,325	1,515	1,095	32	112
SUSQUEHANNA - OPERATING EXPENSES														
TOTAL SUSQUEHANNA		2,764,260	396,416	342,728	66,474	2,132	3,198	830,991	761,601	173,028	124,631	79,809	2,920	10,335
CONESTOGA TREATMENT PLANT														
601.3 SALARIED PERSONNEL	1	1,031,300	141,701	127,159	24,957	825	1,238	304,749	282,576	64,972	47,646	30,320	1,134	4,022
601.3 OVERTIME	2	85,590	12,453	10,451	1,909	51	77	26,772	23,220	4,964	3,235	2,148	68	240
CONESTOGA - SALARY/BENEFITS														
620.3 MAINTENANCE-BUILDING	2	71,342	10,380	8,711	1,591	43	64	22,316	19,355	4,138	2,697	1,791	57	200
620.3 MAINTENANCE-EQUIPMENT	2	106,028	23,944	24,289	4,436	119	176	62,225	53,069	11,538	7,510	4,893	159	557
620.3 MAINTENANCE-VEHICLES	2	22,288	3,243	2,721	497	13	20	6,972	6,047	1,283	842	559	16	62
630.3 SLUDGE	1	80,948	11,122	9,081	1,959	65	87	23,820	22,179	5,100	3,740	2,360	89	316
615.3 POWER ELECTRIC	1	485,097	66,652	59,912	11,739	388	562	143,340	132,917	30,581	22,411	14,262	534	1,862
620.3 OPERATING SUPPLIES	2	8,575	1,248	1,047	191	5	8	2,682	2,328	497	324	215	7	24
618.3 CHEMICALS	1	363,731	49,877	44,848	8,802	201	436	107,482	98,662	22,915	16,804	10,894	400	1,419
618.3 MEMBRANES	2													

CITY OF LANCASTER - BUREAU OF WATER

PROJECTED COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2022  
 ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER WATER UTILITIES AND FIRE SERVICE CUSTOMER CLASSIFICATIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	INSIDE-CITY				OUTSIDE - CITY					PUBLIC FIRE (15)		
			RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	PRIVATE FIRE (7)	PUBLIC FIRE (8)	RESIDENTIAL (9)	COMMERCIAL (10)	INDUSTRIAL (11)	LARGE INDUSTRIAL (12)		OTHER UTILITIES (13)	PRIVATE FIRE (14)
610.3 GASOLINE	2	12,742	1,854	1,559	284	8	11	3,986	3,457	730	482	320	10	36
650.3 HEATING OIL	2	54,764	7,698	6,697	1,221	33	49	17,130	14,859	3,176	2,070	1,375	44	153
620.5 CAPITAL OUTLAY	10	70,893	9,772	3,742	464	1,148	3,890	22,804	9,183	1,545	985	680	2,048	14,883
CONESTOGA - OPERATING EXPENSES		1,369,275	161,160	163,393	31,125	2,113	5,338	412,862	363,932	81,502	57,875	37,288	3,368	19,341
TOTAL CONESTOGA		2,486,164	345,314	301,003	57,061	2,060	6,652	744,363	660,729	151,438	108,756	89,737	4,569	23,803
LABORATORY														
601.3 SALARIED PERSONNEL	1	250,398	34,405	30,874	6,080	200	300	73,993	66,609	15,775	11,508	7,362	275	977
601.3 SALARY TEMPORARY	1	-	-	-	-	-	-	-	-	-	-	-	-	-
601.3 OVERTIME	1	16,367	2,249	2,018	386	13	20	4,837	4,485	1,031	756	481	-	64
LABORATORY - SALARY/BENEFITS		266,765	36,654	32,892	6,466	213	320	78,830	73,004	16,806	12,325	7,843	203	1,040
635.3 CONTRACT SERVICES	1	32,202	4,424	3,970	778	28	39	9,516	8,823	2,029	1,488	947	35	126
620.3 LABORATORY - SUPPLIES/EQUIPMENT	1	50,082	6,881	6,175	1,212	40	60	14,799	13,723	3,155	2,314	1,472	55	185
LABORATORY - OPERATING EXPENSE		82,284	11,306	10,148	1,991	68	99	24,315	22,548	5,184	3,802	2,419	91	321
TOTAL LABORATORY		349,049	47,959	43,039	8,447	278	419	103,144	95,039	21,090	16,128	10,282	384	1,381
TRANSMISSION/DISTRIBUTION														
601.5 SALARIED PERSONNEL	10	992,644	136,886	52,412	6,658	16,081	54,499	319,433	128,349	21,640	13,708	9,529	28,887	205,676
601.5 OVERTIME	10	38,876	5,381	2,053	222	630	2,134	12,510	5,027	848	540	373	1,124	8,055
TRANS. & DISTR. - SALARY/BENEFITS		1,031,520	142,247	54,464	5,880	16,711	56,630	331,943	133,376	22,487	14,338	9,903	29,811	213,731
620.5 MAINT. EQUIPMENT	10	4,898	863	264	27	78	284	1,548	622	105	87	48	139	998
620.5 MAINT. MAINS	6	101,754	8,008	6,594	1,058	2,025	3,114	29,183	22,556	4,152	2,737	1,893	4,457	15,375
620.5 MAINT. SERVICE LINES	9	30,936	8,452	1,745	34	535	-	17,863	1,544	80	3	3	647	1,604
620.5 MAINT. VEHICLES	10	77,416	10,978	4,088	441	1,254	4,250	24,972	10,010	1,688	1,078	743	2,237	16,041
636.5 PROFESSIONAL SERVICES	10	3,422	472	181	20	55	188	1,101	442	75	48	33	98	700
636.5 CONTRACT SERVICES	10	24,889	3,433	1,315	142	403	1,367	8,012	3,210	643	348	239	720	5,169
620.5 TRENCH PAVING	6	80,312	6,794	5,106	835	1,598	2,458	23,041	17,805	3,277	2,160	1,484	3,518	12,135
620.5 SIDEWALK - REPLACEMENT - INSIDE	9A	31,643	24,846	5,129	98	1,570	-	-	-	-	-	-	-	-
620.5 SIDEWALK - REPLACEMENT - OUTSIDE	9B	48,976	-	-	-	-	-	43,442	3,752	161	10	10	1,572	-
620.5 OPERATING SUPPLIES/GASOLINE	10	14,230	1,062	751	81	231	781	4,579	1,840	310	188	137	411	2,949
620.5 MINOR EQUIPMENT	10	14,283	1,970	754	81	231	784	4,596	1,847	311	169	137	413	2,960
620.5 HYDRANTS	7	59,422	-	-	-	-	-	-	-	-	-	-	-	45,624
620.5 CAPITAL OUTLAY	10	143,275	19,758	7,565	817	2,321	7,866	48,106	18,525	3,123	1,962	1,375	4,141	29,886
620.5 GASOLINE	10	40,162	5,538	2,121	220	651	2,205	12,924	5,193	876	558	386	1,161	8,322
TRANS. & DISTR. - OPERATING EXPENSES		675,539	93,173	35,682	3,884	10,952	37,074	217,349	87,368	14,730	9,393	6,495	19,513	139,056
TOTAL TRANSMISSION & DISTRIBUTION		1,707,060	235,419	90,146	9,743	27,663	63,705	549,292	220,734	37,217	23,731	16,388	49,324	353,857

CITY OF LANCASTER - BUREAU OF WATER

PROJECTED COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2022  
 ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER WATER UTILITIES AND FIRE SERVICE CUSTOMER CLASSIFICATIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	INSIDE-CITY						OUTSIDE - CITY						PUBLIC FIRE (8)	PRIVATE FIRE (7)	PUBLIC FIRE (15)
			RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	PRIVATE FIRE (7)	COMMERCIAL (10)	INDUSTRIAL (11)	LARGE INDUSTRIAL (12)	OTHER UTILITIES (13)	PRIVATE FIRE (14)	PUBLIC FIRE (15)					
METER SHOP - SALARY/BENEFITS			119,842	10,770	376	-	-	62,605	18,033	1,386	164	115	-	-	-	-	-
METER SHOP - MAINT. METERS			685,538	47,884	1,091	-	-	385,320	71,787	4,869	481	388	-	-	-	-	-
METER SHOP - MAINT. VEHICLES			32,887	2,814	412	229	-	11,970	5,943	1,151	768	503	-	-	382	-	2,383
METER SHOP - GASOLINE			216,556	13,419	262	2,754	-	124,627	12,414	869	22	44	-	-	3,409	-	53,160
METER SHOP - OVERTIME			729,212	62,785	9,188	5,104	14,147	287,038	132,571	25,608	17,136	11,230	-	-	8,532	-	1,572
METER SHOP - SICK LEAVE BONUS AND VESTED ABSENCES			21,557	1,856	272	151	418	7,894	3,910	759	507	332	-	-	252	-	1,807
METER SHOP - OPEB ARC EXPENSE			29,015	2,722	438	154	420	10,277	5,812	1,183	883	537	-	-	258	-	1,807
METER SHOP - OPEB GASB 75 AND 67 EXPENSE			426,324	40,271	6,483	2,275	6,354	182,067	85,994	17,642	12,322	7,942	-	-	3,821	-	23,785
METER SHOP - MEDICAL INSURANCE			24,031	2,339	376	132	369	8,831	4,994	1,025	716	481	-	-	222	-	1,381
METER SHOP - DENTAL/VISION			2,000,000	197,600	30,200	10,600	29,600	769,400	403,900	82,200	57,400	37,000	-	-	17,900	-	110,800
METER SHOP - PAYROLL TAXES			59,487	4,971	800	281	784	18,773	10,818	2,178	1,521	981	-	-	472	-	2,938
METER SHOP - LIFE INSURANCE			397,487	65,148	6,002	2,107	5,883	140,790	79,817	16,337	11,466	7,354	-	-	3,536	-	22,821
METER SHOP - PENSION CONTRIBUTION			10,940	1,026	185	58	162	3,675	2,191	450	314	202	-	-	97	-	806
METER SHOP - UNEMPLOYMENT COMPENSATION			347,167	32,594	5,242	1,840	5,138	122,967	69,538	14,268	9,064	6,423	-	-	3,060	-	19,233
METER SHOP - WORKERS COMP			30,388	4,977	459	161	448	10,756	6,063	1,248	872	562	-	-	270	-	1,862
METER SHOP - TOTAL METER SHOP			86,879	14,238	1,312	460	1,288	30,772	17,402	3,571	2,493	1,607	-	-	773	-	4,813
METER SHOP - ADMINISTRATION - SALARY/BENEFITS			4,411,122	400,649	61,611	26,306	65,654	1,019,335	837,691	168,391	116,275	75,177	-	-	42,917	-	245,979
METER SHOP - 642 SPACE RENTAL			15,713	1,353	198	110	305	5,754	2,857	553	389	242	-	-	184	-	1,145
METER SHOP - 643 PC LEASE			1,402	718	105	58	162	3,056	1,517	294	198	129	-	-	98	-	608
METER SHOP - 643 RENTAL OF PARKING LOT			2,504	1,314	192	107	286	5,580	2,775	537	359	235	-	-	170	-	1,113
METER SHOP - 620.8 MAINTENANCE OF EQUIPMENT			2,950	1,512	221	123	341	6,430	3,192	618	413	270	-	-	205	-	1,280
METER SHOP - 890.8 ADVERTISING			678	348	51	28	78	1,480	735	142	95	62	-	-	47	-	265
METER SHOP - 820.8 POSTAGE			17,157	3,799	74	780	35,366	6	3,514	188	6	12	-	-	965	-	1,077
METER SHOP - 820.8 PRINTING			2,481	1,272	188	103	287	5,408	2,885	520	347	227	-	-	173	-	5,054
METER SHOP - 875.8 TELEPHONE			11,648	5,970	874	485	1,345	25,390	12,605	2,441	1,629	1,088	-	-	811	-	5,054
METER SHOP - 875.8 TRAVEL			255	131	19	11	29	555	276	63	36	23	-	-	18	-	111
METER SHOP - 875.8 MISC. EXPENSES			(302)	(155)	(23)	(13)	(35)	(659)	(327)	(83)	(42)	(28)	-	-	(21)	-	(131)
METER SHOP - 831.8 PROFESSIONAL SERVICES - RATE CASE EXPENSE			87,382	44,788	6,554	3,641	10,092	100,494	94,571	18,311	12,224	8,011	-	-	6,086	-	37,922
METER SHOP - 832.8 PROFESSIONAL SERVICES - RATE CASE EXPENSE			158,000	158,000	-	-	-	158,000	158,000	48,764	10,446	4,415	-	-	4,446	-	16,193
METER SHOP - 875.8 BANK SERVICE CHARGES			5,188	2,658	389	216	569	11,305	5,812	1,087	725	475	-	-	361	-	2,251
METER SHOP - 875.8 CREDIT CARD FEES			754	387	57	31	87	1,644	816	159	108	69	-	-	53	-	327
METER SHOP - 875.8 CONTRACT SERVICES			25,000	2,291	328	181	503	9,488	4,710	912	609	399	-	-	303	-	1,869
METER SHOP - 875.8 TRAINING - SCHOOL			376	270	66	31	85	1,614	801	155	104	68	-	-	52	-	321
METER SHOP - 820.8 OFFICE SUPPLIES			618	317	46	26	71	1,347	689	129	86	57	-	-	43	-	268
METER SHOP - 858-857 INSURANCE PACKAGE			32,526	16,070	2,439	1,355	3,758	70,800	35,198	8,815	4,550	2,882	-	-	2,826	-	14,114
METER SHOP - ADMINISTRATION - OPERATING EXPENSES			1,145,786	83,691	11,786	7,275	18,001	439,790	221,970	42,006	28,364	18,717	-	-	16,268	-	83,836
METER SHOP - 820.8 MINOR EQUIPMENT			14,801	1,274	186	104	287	5,420	2,891	521	348	228	-	-	173	-	1,079
METER SHOP - 820.8 SAFETY EQUIPMENT			2,360	1,209	177	98	273	5,464	2,354	494	330	216	-	-	164	-	1,024
METER SHOP - 820.8 COMPUTER APPLICATIONS			9,111	784	115	64	177	3,337	1,856	321	214	140	-	-	107	-	684
METER SHOP - ADMINISTRATION-EQUIPMENT			37,856	6,377	3,268	266	736	13,901	6,901	1,336	882	585	-	-	444	-	2,767

CITY OF LANCASTER - BUREAU OF WATER

PROJECTED COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2022  
 ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER WATER UTILITIES AND FIRE SERVICE CUSTOMER CLASSIFICATIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	INSIDE-CITY				OUTSIDE - CITY					PUBLIC FIRE (15)							
			RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	PRIVATE FIRE (7)	PUBLIC FIRE (8)	RESIDENTIAL (9)	COMMERCIAL (10)	INDUSTRIAL (11)	LARGE INDUSTRIAL (12)		OTHER UTILITIES (13)	PRIVATE FIRE (14)					
ADMIN. INDIRECT COSTS																			
COLLECTION	11	167,488	40,447	10,284	201	2,110	-	66,742	0,514	538	17	33	2,613						
HUMAN RESOURCES	14	90,704	14,866	8,508	1,370	481	1,342	32,127	18,188	3,728	2,603	1,878	807						
OTHER	13	566,153	93,434	47,885	7,008	3,893	10,786	203,663	101,109	16,577	13,070	8,565	6,507						
636.8 PAYING AGENT	13	1,357	228	117	17	10	28	497	247	48	32	21	16						
ADMINISTRATION - INTERGOVERNMENTAL		815,712	154,875	66,794	8,595	6,494	12,158	332,030	129,037	23,888	15,721	10,287	9,943						
TOTAL ADMINISTRATION		6,410,560	1,085,375	554,402	82,451	40,341	96,550	2,405,025	1,185,599	236,522	181,252	104,776	69,572						
GROUPS MAINTENANCE																			
801.8 SALARY BUREAU CHIEF	13	8,852	1,492	785	112	62	172	3,253	1,615	313	209	137	104						
801.8 SALARIED PERSONNEL	13	126,224	21,710	11,128	1,628	905	2,507	47,322	23,493	4,549	3,037	1,800	1,512						
801.8 SALARY TEMPORARY	13	-	-	-	-	-	-	-	-	-	-	-	-						
801.8 OVERTIME	13	21,485	3,610	1,850	271	150	417	7,868	3,906	756	505	331	251						
GROUPS MAINT. - SALARY/BENEFITS		159,502	28,811	13,741	2,011	1,117	3,066	58,443	29,014	5,618	3,750	2,458	1,867						
842.8 RENTALS OF UNIFORMS	13	1,260	212	109	16	9	24	482	229	44	30	19	15						
820.8 MAINT. EQUIPMENT	13	4,000	774	397	58	32	89	1,897	837	162	108	71	54						
850.8 MAINT. VEHICLES	13	7,478	1,258	644	94	52	145	2,738	1,359	263	176	115	87						
820.8 OPERATING SUPPLIES	13	125	21	11	2	1	2	46	23	4	4	2	1						
820.8 GASOLINE	13	5,185	875	448	65	36	101	1,804	945	183	122	80	61						
GROUPS MAINT. - OPERATING EXPENSES		18,068	3,136	1,607	235	131	362	6,838	3,394	657	439	287	218						
620.8 MINOR EQUIPMENT	13	2,508	421	216	32	18	49	918	455	88	59	39	29						
TOTAL GROUPS MAINTENANCE		180,765	30,366	15,564	2,278	1,265	3,507	66,198	32,863	6,383	4,248	2,794	2,115						
TOTAL OPERATING AND MAINTENANCE		14,613,398	2,313,683	1,394,865	226,075	74,870	204,030	5,084,361	3,047,652	631,426	439,225	284,151	128,883						

**CITY OF LANCASTER - BUREAU OF WATER**  
**PROJECTED COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2022**  
**ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER WATER UTILITIES AND FIRE SERVICE CUSTOMER CLASSIFICATIONS**

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	INSIDE-CITY					OUTSIDE-CITY					PUBLIC FIRE (15)		
			RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	PRIVATE FIRE (7)	PUBLIC FIRE (8)	RESIDENTIAL (9)	COMMERCIAL (10)	INDUSTRIAL (11)	LARGE INDUSTRIAL (12)	OTHER UTILITIES (13)		PRIVATE FIRE (14)	
DEPRECIATION EXPENSE															
COLLECTING AND IMPOUNDING RESERVOIRS	2	110	16	13	2	0	0	34	30	6	4	3	0	0	
LAKE, RIVER & OTHER INTAKES	2	5,911	860	722	132	4	5	1,846	1,604	343	223	148	5	17	
POWER AND PUMPING STRUCTURES															
KISSEL HILL BOOSTER STATION - OUTSIDE	3B	1,233	4,806	4,118	752	865	1,238	450	380	83	54	30	46	171	
SUSQUEHANNA RIVER INTAKE & H.S. - JOINT	3	40,863	7,358	6,175	1,127	1,207	1,856	10,561	9,147	1,867	1,271	842	1,181	4,077	
CONESTOGA PUMP STATION - JOINT	3	81,264	3,848	3,009	549	588	904	15,837	13,717	2,865	1,905	1,262	1,771	6,114	
HESSE BLVD STATION - OUTSIDE	3B	3,848	3,695	3,009	549	588	904	1,404	1,215	200	168	112	154	533	
CONESTOGA STRAINER BUILDING	3	29,847	23,640	23,640	57,977	57,977		7,715	6,683	1,430	7,715	688	863	2,979	
DELP ROAD PUMP STATION	3B	23,640	23,640	23,640	57,977	57,977		8,629	7,470	1,568	1,033	688	948	3,277	
WILLOW VALLEY PUMP STATION	3B	57,977	12,033	10,099	1,843	1,974	3,038	21,162	18,321	3,913	2,534	1,897	2,325	8,036	
SOUTH TANK PUMP STATION	3	100,160	302,368	253,765	46,347	1,247	1,871	25,899	22,432	4,769	3,116	2,064	2,895	9,999	
PURIFICATION BUILDINGS	2	2,078,354	3,599	2,608	380	725	1,118	690,103	593,852	120,543	78,961	52,166	1,663	5,919	
DISTRIBUTION RESERVOIR AND STANDPIPES															
UNDERGROUND STORAGE RESERVOIR - JOINT	5	28,886	28,886	2,608	380	725	1,118	7,730	5,787	1,020	676	477	1,072	3,696	
WILLOW ST. STANDPIPE - OUTSIDE	5B	28,469	170,924	170,924				10,069	7,533	1,321	873	617	1,361	4,696	
LAFAYETTE STANDPIPE - OUTSIDE	5B	4,338	5,659	5,659				85,019	48,645	8,520	6,640	3,983	8,785	30,322	
LAMPETER ELEVATED TANK - OUTSIDE	5B	5,659	5,659	5,659				1,650	1,235	216	143	101	223	770	
NEFFSVILLE TANK - OUTSIDE	5B	2,869	156,060	156,060				2,115	1,582	277	183	130	286	996	
BLOSSOM HILL STANDPIPE - OUTSIDE	5B	156,060	24	17	3	6	7	1,091	817	143	95	67	147	509	
PAINING - OUTSIDE	5	193	82,225	60,050	9,086	17,881	27,100	59,369	44,417	7,788	5,150	3,636	8,022	27,687	
SOUTH TANK	5A	196,241	25,213	12,822	1,891	1,051	2,911	52	39	7	5	3	7	25	
OFFICE BUILDING	13	150,076	2,270	1,95	26	16	44	54,958	27,294	5,263	3,527	2,311	1,768	10,941	
STORES, SHOP & GARAGE BUILDINGS	13	2,270	391	195	26	16	44	413	413	80	53	35	27	105	
MISC. STRUCTURES AND IMPROVEMENTS	13	714	120	81	9	5	14	261	130	26	17	11	8	52	
ELECTRIC PUMPING EQUIPMENT	6	177,732	15,036	11,499	1,848	3,637	5,439	50,891	39,403	7,251	4,781	3,308	7,785	28,855	
TREATMENT PLANT EQUIPMENT - JOINT	2	118,287	17,212	14,444	2,638	71	106	37,003	32,084	6,881	4,472	2,868	86	331	
WILLOW ST. CHLORINE BOOSTER STATION	2B	-	-	-	-	-	-	-	-	-	-	-	-	-	
LABORATORY EQUIPMENT	2	1,331	194	163	30	1	1	416	361	77	50	33	1	4	
MAINS AND ACCESSORIES															
C&T IRON, 4" AND UNDER - INSIDE	4A	425	170	124	19	44	88	1,933	1,447	283	167	118	317	1,065	
C&T IRON, 4" AND UNDER - OUTSIDE	4B	5,332	-	-	-	-	-	-	-	-	-	-	-	-	
C&T IRON, 6" AND 8" - INSIDE	4A	-	-	-	-	-	-	-	-	-	-	-	-	-	
C&T IRON, OVER 8" - INSIDE	3A	107,155	44,116	37,118	6,783	7,533	11,605	-	-	-	-	-	-	-	
C&T IRON, 6" AND 8" - OUTSIDE	4B	-	-	-	-	-	-	-	-	-	-	-	-	-	
C&T IRON, OVER 8" - OUTSIDE	3B	532,514	-	-	-	-	-	194,308	168,274	35,945	23,271	15,486	21,354	73,806	
C&T IRON, OVER 8" - JOINT	4	-	-	-	-	-	-	-	-	-	-	-	-	-	
C&T IRON, 6" AND 8" - JOINT	3	25,703	3,097	2,591	473	506	779	6,644	5,755	1,231	799	529	743	2,565	
MANHOLES - INSIDE	3A	2,582	1,093	894	163	182	280	4,341	3,758	803	520	346	477	1,648	
MANHOLES - OUTSIDE	3B	11,862	2,246	2,246	41	44	88	581	503	108	70	46	65	224	
MANHOLES - JOINT	3	2,246	6,544	5,506	1,006	1,117	1,721	24,964	21,630	4,620	2,991	1,992	2,745	9,487	
VALVES AND VALVE BOXES - INSIDE	3A	15,865	287	241	44	47	73	619	536	115	74	49	69	239	
VALVES AND VALVE BOXES - OUTSIDE	3B	88,448	1,947	1,634	298	319	491	4,191	3,630	777	504	334	469	1,818	
VALVES AND VALVE BOXES - JOINT	3	2,393	287	241	44	47	73	16	14	3	2	1	2	6	
STEEL - OUTSIDE	3B	45	1,847	1,634	298	319	491	467	349	61	40	29	77	264	
STEEL - JOINT	3	16,213	-	-	-	-	-	10	7	1	1	1	2	6	
PLASTIC - OUTSIDE	4B	27	-	-	-	-	-	-	-	-	-	-	-	-	
LANCASTER METER PIT - OUTSIDE	4B	287	-	-	-	-	-	-	-	-	-	-	-	-	
RELINING	4	58,196	6,890	4,969	751	1,694	2,801	14,840	11,133	1,961	1,288	914	2,497	8,619	
SERVICES - INSIDE	9A	25,188	19,760	4,079	78	1,248	-	-	-	-	-	-	-	-	
SERVICES - OUTSIDE	9B	67,520	-	-	-	-	-	59,690	5,172	263	14	14	2,167	-	



CITY OF LANCASTER - BUREAU OF WATER

PROJECTED COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2022  
 ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER WATER UTILITIES AND FIRE SERVICE CUSTOMER CLASSIFICATIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	INSIDE-CITY				OUTSIDE-CITY				PUBLIC FIRE (8)	RESIDENTIAL (9)	COMMERCIAL (10)	INDUSTRIAL (11)	LARGE INDUSTRIAL (12)	OTHER UTILITIES (13)	PRIVATE FIRE (14)	PUBLIC FIRE (15)
			RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	PRIVATE FIRE (7)	COMMERCIAL (10)	INDUSTRIAL (11)	INDUSTRIAL (12)	OTHER UTILITIES (13)								
METERS - INSIDE	8A	1,970	1,303	645	22	-	-	-	-	37,904	12,263	970	118	-	77	-	-	
METERS - OUTSIDE	8B	51,332	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
HYDRANTS - INSIDE	7A	9,031	-	-	-	-	-	-	9,031	-	-	-	-	-	-	-	-	
HYDRANTS - OUTSIDE	7B	12,059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OFFICE FURNITURE	13	121,168	20,356	10,433	1,527	948	2,351	44,372	4,265	21,745	22,028	4,265	2,847	1,866	1,418	12,059	9,033	
TRANSPORTATION EQUIPMENT	13	59,380	9,978	5,113	748	416	1,152	21,745	10,795	61	30	6	4	914	665	4,329	12	
STORES EQUIPMENT	13	167	28	14	2	1	3	61	30	15	7	1	1	3	2	0	3	
SHOP EQUIPMENT	13	41	7	4	1	0	1	15	7	1	1	1	1	1	0	0	3	
TOOLS AND WORK EQUIPMENT	13	25,293	4,249	2,178	319	177	481	9,262	4,588	6,988	3,400	880	594	390	296	1,844	1,844	
COMMUNICATION EQUIPMENT	13	19,082	3,208	1,643	240	134	370	6,988	3,400	6,988	3,400	672	448	294	223	1,391	1,391	
MISCELLANEOUS EQUIPMENT	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TOTAL DEPRECIATION		4,687,744	598,408	457,301	76,192	43,227	70,835	1,488,427	1,130,006	231,780	150,823	231,780	100,714	75,044	276,108			
UTILITY INCOME AVAILABLE FOR RETURN - INSIDE	16A	4,021,624	1,849,647	1,400,981	241,297	190,223	330,578	3,972,970	3,080,503	617,860	402,958	271,517	966,982					
UTILITY INCOME AVAILABLE FOR RETURN - OUTSIDE	16B	9,594,242	-	-	-	-	-	10,525,764	7,238,525	1,481,074	982,807	656,383	2,052,403					
TOTAL COST OF SERVICE		32,917,006	4,782,218	3,282,148	549,564	308,119	611,443	14,052,734	10,319,028	2,162,154	1,464,865	3,644,837	2,035,215	1,457,858	4,049,391			
LESS OTHER OPERATING REVENUE																		
LIEN INTERESTS AND COST	17	1,016	147	101	17	10	19	325	223	46	46	31	15	63				
RENTAL INCOME	5B	319,593	-	-	-	-	-	121,573	90,966	15,948	10,547	7,447	18,427	56,096				
SEWER REIMB - METER READING INSIDE	11A	99,294	78,134	17,287	338	3,535	-	17,835	1,754	-	-	-	-	-	-	-	-	
SEWER REIMB - METER READING OUTSIDE	11B	10,078	42,739	21,163	737	-	-	9,803	3,107	246	30	20	6	481				
SEWER REIMB - METER REPAIRS INSIDE	8A	64,639	-	-	-	-	-	14,907	10,251	2,098	1,408	928	676	2,909				
SEWER REIMB - METER REPAIRS OUTSIDE	8B	13,005	0,745	4,620	778	438	887	101,122	57,184	11,734	8,194	5,282	2,541	15,918				
MISC. REVENUE	17	46,616	46,792	25,779	4,311	1,513	4,225	265,165	163,475	30,169	20,213	13,701	20,140	75,484				
STATE AID FOR PENSION EXPENSE	14	285,493	174,558	69,949	6,181	5,486	5,111	-	-	-	-	-	-	-	-	-	-	
TOTAL OTHER OPERATING REVENUE		849,633	458,660	3,192,199	543,383	302,823	606,332	10,280,590	7,075,049	1,450,908	972,594	642,881	457,223	1,970,819				
TOTAL COST OF SERVICE RELATED TO SALE OF WATER		32,067,374	4,007,007	199,513	6,912	-	(606,332)	1,461,734	473,077	37,581	4,547	-	-	(1,970,819)				
REALLOCATION OF PUBLIC FIRE - INSIDE	19																	
REALLOCATION OF PUBLIC FIRE - OUTSIDE	20																	
TOTAL		\$ 32,067,374	\$ 4,988,667	\$ 3,390,712	\$ 550,295	\$ 302,823	\$ -	\$ 11,722,333	\$ 7,548,126	\$ 1,489,457	\$ 977,141	\$ 642,881	\$ 457,223	\$ -	\$ -	\$ -	\$ -	

CITY OF LANCASTER  
 CALCULATION OF 5/8-INCH CUSTOMER COSTS PER QUARTER  
 OUTSIDE CITY

	<u>Cost of Service</u>	<u>Number of Units</u>		<u>Unit Cost Per Quarter</u>
Meters	\$ 405,426	51,647	5/8" Meter Equivalents	\$ 1.96
Services	781,030	31,898	3/4" Service Equivalents	6.12
Billing and Collecting	769,059	125,849	Bills	6.11
Subtotal				<u>\$ 14.19</u>
Unrecoverd Public Fire	\$ 1,506,459	51,647	5/8" Meter Equivalents	<u>\$ 7.29</u>
Total				<u><u>\$ 21.48</u></u>

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

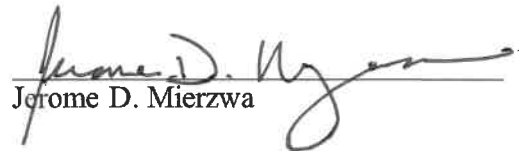
Re: Pennsylvania Public Utility Commission :  
v. : Docket No. R-2021-3026682  
City of Lancaster – Water Department :

VERIFICATION

I, Jerome D. Mierzwa, hereby state that the facts above set forth in my Direct Testimony, OCA Statement 4, are true and correct and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: December 23, 2021  
\*321173

Signature:

  
Jerome D. Mierzwa

Consultant Address: Exeter Associates, Inc.  
10480 Little Patuxent Parkway  
Suite 300  
Columbia, MD 21044-3575

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY  
COMMISSION

v.

CITY OF LANCASTER – WATER

:  
:  
:  
:  
:  
:  
:  
:  
:  
:  
:  
:

Docket No. R-2021-3026682

DIRECT TESTIMONY  
OF  
TERRY L. FOUGHT

ON BEHALF OF  
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

DECEMBER 23, 2021

1 **INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.**

3 A. Terry L. Fought, 780 Cardinal Drive, Harrisburg, Pennsylvania, 17111.

4

5 **Q BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

6 A. I am a self-employed consulting engineer retained by the Office of Consumer  
7 Advocate (OCA) for the purposes of providing testimony in this proceeding.

8

9 **Q. PLEASE DESCRIBE YOUR BACKGROUND AND QUALIFICATIONS.**

10 A. Appendix A, which is attached to this testimony, describes my educational  
11 background and applicable experience.

12

13 **Q. WHAT ISSUES HAVE YOU BEEN ASKED TO INVESTIGATE REGARDING  
14 THIS CITY OF LANCASTER – WATER DEPARTMENT (CITY) RATE CASE?**

15 A. The OCA requested that I investigate issues related to the quality of service  
16 provided by the City.

17

18 **Q. WHAT DID YOUR INVESTIGATION CONSIST OF?**

19 A. My investigation included: (1) reviewing portions of the City's filing applicable to  
20 Quality of Service; (2) reviewing the direct testimony and supplemental direct  
21 testimony of Stephen Campbell, City of Lancaster Statement Nos. 2 & 2-S; (3)  
22 reviewing the City's responses to OCA and I&E interrogatories regarding quality of  
23 service issues; (4) reviewing informal received by the Commission; (5) an

1 inspection of some of the City's facilities on November 30, 2021 and (6) addressing  
2 information provided at the Public Input Hearing (PIH) about quality of service.

3  
4 **Q. BRIEFLY DESCRIBE THE CITY'S WATER SYSTEM<sup>1</sup>.**

5 A. The City provides water service to approximately 15,864 customers in the City of  
6 Lancaster and 30,858 customers in the PUC-jurisdictional areas of Lancaster  
7 Township, Manheim Township, Millersville Borough, West Lampeter Township,  
8 Pequea and portions of Manor, West Hempfield and East Hempfield Townships  
9 and East Lampeter. The City's water system also provides bulk water for resale to  
10 other public water suppliers through service agreements with the East Petersburg  
11 Borough Authority, Upper Leacock Township, West Earl Water Authority, East  
12 Hempfield Water Authority, and Northwestern Lancaster County Authority (Penn  
13 Township).

14 The City's system consists of two water membrane filtration treatment plants  
15 having a total capacity of 36 million gallons per day (MGD) and a finished water  
16 distribution system that includes two high service pump stations, over 625 miles of  
17 distribution and transmission main, over 5,000 hydrants, 47,712 customer water  
18 meters and service lines, 13,458 valves, five booster pumping stations, a 15 million  
19 gallon (MG) reservoir, four storage tank facilities, five pressure reducing valve  
20 stations, and a supervisory control and data acquisition (SCADA) system.

21  

---

<sup>1</sup> City of Lancaster Statement No. 2, pp. 4-6.

1 **Q. WHAT QUALITY OF SERVICE ITEMS IS YOUR TESTIMONY GOING TO**  
2 **ADDRESS?**

3 A. My testimony is going to address five items: (1) unaccounted for water (UFW); (2)  
4 maintenance of isolation valves; (3) fire hydrants; (4) pressure surveys; and (5)  
5 customer complaints.  
6

7 **UNACCOUNTED FOR WATER**

8 **Q. WHAT IS MEANT BY THE TERM “UNACCOUNTED FOR WATER”?**

9 A. There are several different procedures for calculating Unaccounted for Water  
10 (UFW). The PUC Method is shown on Section 500 of the PUC Annual Report  
11 Form for Public Water Utilities. According to the PUC procedure, UFW is equal to  
12 “Total Water Delivered for Distribution & Sale” minus “Total Sales” minus “Non-  
13 Revenue Usage and Allowance.” “Non-Revenue Usage and Allowance” includes  
14 “Main Flushing,” “Blow-off Use,” “Unavoidable Leakage,” “Located & Repaired  
15 Breaks in Mains & Services” and “Other”.  
16

17 **Q. WHY IS UFW IMPORTANT?**

18 A. Calculating the amount of UFW is a method of estimating the amount of non-  
19 revenue water in a water distribution system due to leaks and inaccurate meter  
20 readings. Reducing the non-revenue water saves money in chemical and power  
21 costs and provides for important water conservation in areas that have limited  
22 water supply sources. The accuracy of the UFW estimate depends on reliable  
23 estimates of unavoidable non-metered water uses such as flushing the distribution

1 system, firefighting, normal pipe leakage, repaired main breaks, etc. Keeping track  
2 of UFW gives a water utility an indication of the extent of unknown leaks in the  
3 distribution system so that informed decisions can be made on the necessity of  
4 finding and repairing leaks. The Water Audit methodology established by the  
5 International Water Association (IWA) and the American Water Works Association  
6 (AWWA) is generally becoming a more accepted method of identifying the  
7 amounts of wasted water – Non-Revenue Water (NRW). Both the PUC and  
8 AWWA Methods, if properly utilized, provide water utilities with information needed  
9 to improve operational efficiency. According to 52 Pa. Code § 65.20(4), “Levels of  
10 unaccounted-for water should be kept within reasonable amounts. Levels of UFW  
11 above 20% have been considered by the Commission to be excessive.” The  
12 Commission has not set similar standards for levels of NRW.

13  
14 **Q. HAS THE CITY PROVIDED INFORMATION ON UFW?**

15 A. Yes. In the Filing Exhibit D, IX-6 and in response to OCA-I-13, the City submitted  
16 UFW data for the years 2018 thru 2020 and explained that the data from 2018 was  
17 incorrect because due to carryover from 2017 low meter readings. See Exhibit  
18 TLF-1. It should be noted that the City calculated UFW for 2019 and 2020 to be  
19 30.90% and 28.17%, respectively by only deducting sales from the total water  
20 delivered into the distribution system. A much lower UFW would have resulted if  
21 the City had deducted Non-Revenue Usage and Allowance as shown on the PUC  
22 Section 500 Form.



1 In response to Commissioner's Yanora's questions, Mr. Campbell referred to an  
2 AWWA 2020 audit that estimate 2,070 million gallons (MG) of lost water during  
3 2020.<sup>2</sup> His supplemental direct testimony did not include a copy of this AWWA  
4 Audit. This information was not submitted during discovery and is slightly different  
5 than the 2082.835 MG shown for 2020 on the PUC Section 500 Form. See Exhibit  
6 TLF-1.

7  
8 **Q. WHAT DO YOU RECOMMEND?**

9 A. I recommend that the City provide a copy of the 2020 AWWA Audit for inclusion to  
10 its response to Commissioner Yanora's questions with copies to OCA and other  
11 parties. In future rate cases, I recommend that the City submit a Section 500 UFW  
12 calculation that includes UFW deductions for Non-Revenue Usage and Allowance  
13 as shown on the PUC Section 500 Form.

14  
15 **ISOLATION VALVES**

16 **Q. WHAT ARE ISOLATION VALVES?**

17 A. Isolation valves are installed on water mains so that the water can be shut off in  
18 sections of the distribution system in case of a water main break or for main repairs  
19 and replacements. Isolation valves are also used to separate different pressure  
20 zones.

21  
22 **Q. WHY IS IT IMPORTANT TO EXERCISE ISOLATION VALVES?**

---

<sup>2</sup> City of Lancaster Statement No. 2-S, p. 5.

1 A. It is important to exercise isolation valves to prevent the valves from seizing up  
2 and getting stuck from corrosion or other deposits adjacent to the valve. An  
3 isolation valve that cannot be fully closed will increase the water loss during a water  
4 main break and increase the number of customers affected.

5

6 **Q. WHAT HAPPENS IF AN ISOLATION VALVE BECOMES INOPERABLE DUE TO**  
7 **LACK OF BEING EXERCISED?**

8 A. The valve either has to be repaired or replaced. Isolation valves are generally in  
9 pavement and that makes it very expensive to repair or replace. Even repairing  
10 the valve requires that the valve be exposed so that interior parts can be removed  
11 and replaced.

12

13 **Q. WHAT DOES IT MEAN TO EXERCISE ISOLATION VALVES?**

14 A. Exercising an isolation valve is operating the valve through complete full  
15 open/close cycles until it operates with little resistance. This requires some effort  
16 even for a well-maintained valve because the number of turns to fully open or close  
17 an isolation valve can vary from 12 turns for a 3-inch valve to 38 turns for a 12-  
18 inch valve.

19

1 **Q. HOW OFTEN SHOULD AN ISOLATION VALVE BE EXERCISED?**

2 A. According to The National Environmental Services Center at West Virginia  
3 University, experts recommend exercising the valves annually, if possible, or at  
4 least once every two years.<sup>3</sup>

5 According to American Water Works Association (AWWA), “[e]ach valve should  
6 be operated through a full cycle and returned to its normal position on a schedule  
7 that is designed to prevent a buildup of tuberculation [rust formation in pipes as a  
8 result of corrosion] or other deposits that could render the valve inoperable or  
9 prevent a tight shutoff. The interval of time between operations of valves in critical  
10 locations or valves subjected to severe operating conditions should be shorter than  
11 for other less important installations but can be whatever time period is found to  
12 be satisfactory based on local experience.”<sup>4</sup>

13  
14 **Q. WHAT INFORMATION DID THE CITY PROVIDE REGARDING EXERCISING  
15 ISOLATION VALVES?**

16 A. In response to OCA-I-30, the City provided information only on exercising those  
17 isolation valves that separate pressure zones. See Exhibit TLF-2. However,  
18 additional information on exercising isolation valves is provided in the City’s  
19 response to OCA-I-4 Attachments 7 & 9 Water Allocation Permit Compliance  
20 Reports (Water Allocation Reports) submitted to the Pennsylvania Department of  
21 Protection (DEP) for the calendar years 2018 and 2019). See Exhibit TLF-3. The

---

<sup>3</sup> Tech Brief, Valve Exercising, 2007, Vol. 7, Issue 2, The National Environmental Services Center of West Virginia University, Morgantown, WV.

<sup>4</sup> American Water Works Association, 1996, Manual of Water Supply Practices, Denver: AWWA.

1 Water Allocation Reports indicate that there are 12,949 isolation valves in the  
2 entire system and the City has only been exercising 400 valves per year. The  
3 Water Allocation Reports do not indicate how many isolation valves are in the  
4 jurisdictional areas.

5 In response to Commissioner's Yanora's questions, Mr. Campbell referred to  
6 turning about 1,000 valves during a normal year<sup>5</sup>. It should be noted that turning  
7 a valve is not exercising a valve. As far as I know turning a valve has no specific  
8 description and could be just slightly opening and closing the valve to make sure  
9 it is not stuck. As mentioned above, exercising a valve requires to fully open and  
10 close a valve until it operates with little resistance.

11  
12  
13 **Q. WHAT IS YOUR RECOMMENDATION CONCERNING CITY'S MAINTENANCE**  
14 **OF ISOLATION VALVES?**

15 A. The City has a responsibility to properly maintain all of its water facilities, including  
16 exercising isolation valves on a routine basis. I recommend that the City exercise  
17 (or attempt to exercise) all of the isolation valves in the PUC-jurisdictional areas  
18 until all those valves have been exercised in a 5-year period. Upon completion of  
19 this procedure, the City should be able to develop a reasonable schedule going  
20 forward for exercising its isolation valves.

21 While it is exercising its isolation valves, if there are isolation valves that are found  
22 to be inoperable, they should be repaired or replaced. The critical isolation valves

---

<sup>5</sup> City of Lancaster Statement No. 2-S, p. 5.

1 that could not be exercised should be repaired or replaced as soon as practicable  
2 after the time they are found to be inoperable. If the non-critical valves are not  
3 repaired shortly after the time they were found to be inoperable, then, once per  
4 year, for example on April 15<sup>th</sup>, the City should submit a schedule to the OCA and  
5 other parties for replacing or repairing those isolation valves that could not be  
6 properly exercised during the prior year.

7  
8  
9 **FIRE HYDRANTS**

10 **Q. HOW MANY OF THE CITY'S FIRE HYDRANTS THAT ARE LOCATED IN THE**  
11 **JURISDICTIONAL AREAS CANNOT PROVIDE A MINIMUM FIRE FLOW OF**  
12 **500 GALLONS PER MINUTE AT 20 POUNDS PER SQUARE INCH?**

13 A. According to the City's responses to OCA-I-19 & 21 and in City of Lancaster  
14 witness Stephen Campbell's Supplemental Direct testimony (St. No. 2-S, page 5)  
15 in response to Commissioner Yanora's directed questions, thirty-four of the 4,149  
16 public fire hydrants in the jurisdictional areas cannot provide the minimum fire flow  
17 of 500 gallons per minute (gpm) at 20 pounds per square inch. See Exhibit TLF-  
18 4.

19 The 34 fire hydrants that cannot provide the minimum fire flow should be marked  
20 as such so that they will only be used for flushing and blow-offs. This is important  
21 because it is generally accepted that (1) at least 500 gpm can be pumped from  
22 every fire hydrant and (2) if a fire company pumped 500 gpm from one of these 34  
23 fire hydrants, it may cause negative pressures that contaminates other portions of  
24 the distribution system.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37

**PRESSURES AND PRESSURE SURVEYS**

**Q. WHAT ARE THE PUC’S REQUIREMENTS FOR PRESSURES AND PRESSURE SURVEYS?**

A. According to 52 Pa. Code § 65.6. Pressures:

(a) *Variations in pressure.* The utility shall maintain normal operating pressures of not less than 25 p.s.i.g. nor more than 125 p.s.i.g. at the main, except that during periods of peak seasonal loads the pressures at the time of hourly maximum demand may be not less than 20 p.s.i.g. nor more than 150 p.s.i.g. and that during periods of hourly minimum demand the pressure may be not more than 150 p.s.i.g. A utility may undertake to furnish a service which does not comply with the foregoing specifications where compliance with such specifications would prevent it from furnishing adequate service to any customer or where called for by good engineering practices. The authority of the Commission to require service improvements incorporating standards other than those set forth in this subsection when, after investigation, it determines that such improvements are necessary is not hereby restricted.

(b) *Pressure gauges.* Within 2 years after the effective date of this section, each utility shall obtain one or more recording pressure gauges for each separately operated pressure zone for the purpose of making pressure surveys as required by this section. These gauges shall be able to record the pressure experienced on the zones and shall be able to record a continuous 24-hour test. Each utility serving 1,000 or more customers or 1,000 or more customers in any separately operated zone of a multi-zone utility shall maintain one or more of these recording pressure gauges in service at some representative point or points in each of the pressure zones of the utility.

(c) *Telemetry.* An utility may make the pressure surveys required by this section by means of telemetered information electronically transferred to printed copy instead of using recording pressure gauges.

(d) *Pressure surveys.* At regular intervals, but not less than once each year, each utility shall make a survey of pressures in its distribution system of sufficient magnitude to indicate the pressures maintained at representative points on its system. The surveys should be made at or near periods of maximum and minimum usage. Records of these surveys shall show the date and time of beginning and end of the test and the location at which the test was made. Records of these pressure surveys shall be maintained by the utility for a period of at least three

1 years and shall be made available to representatives, agents, or employees of the  
2 Commission upon request.

3 **Notes of Decisions**

4 *Adequate Pressure*

5 The 25 p.s.i.g. minimum expressed in subsection (a) is not intended to restrict the  
6 authority of the PUC to order improvements where service is inadequate;  
7 therefore, the PUC has the power to order needed improvements notwithstanding  
8 that the pressure in a utility's main meets the standard of the regulation. *Barone v.*  
9 *Pennsylvania Public Utility Commission*, 485 A.2d 519 (Pa. Cmwlth. 1984).

10

11 **Q. WHAT ARE DEP'S REQUIREMENTS FOR SYSTEM PRESSURES?**

12 A. According to DEP's Public Water Supply Manual, Part II, Community System  
13 Design Standards:

14 1. Pressure

15 All water mains, including those not designed to provide fire protection, shall be  
16 sized after a hydraulic analysis based on flow demands and pressure  
17 requirements. The pipe system and its appurtenances shall be designed to  
18 maintain a minimum pressure of 20 pounds per square inch, gauge (psig) at  
19 ground level at all points in the distribution system under all conditions of flow. The  
20 normal working pressure in the distribution system should be approximately 60  
21 psig.<sup>6</sup>

22

---

<sup>6</sup> Public Water Supply Manual, Part II, Community System Design Standards, May 6, 2006, p. 186-187

1 **Q. WHAT ARE THE DIFFERENCES BETWEEN THE PUC AND DEP PRESSURE**  
2 **REQUIREMENTS?**

3 A. The PUC has a maximum and minimum pressure criterion while DEP has a  
4 minimum and normal working pressure criterion. The PUC has a minimum  
5 criterion of 25 psi at the main while DEP's minimum criteria is 20 psi at ground  
6 level. Assuming the distribution system main is buried 4.5 feet below ground, DEP  
7 minimum criteria is equivalent to 22 psi at the main.

8 Instead of having a pressure survey requirement for all water systems, DEP  
9 imposes a pressure survey requirement on specific systems with known pressure  
10 problems.

11  
12 **Q. WHAT ARE THE REPRESENTATIVE POINTS ON THE SYSTEM WHERE**  
13 **PRESSURE SURVEYS SHOULD BE CONDUCTED?**

14 A. In general, the representative points are highest and lowest ground elevations of  
15 the distribution system in each pressure zone.

16  
17 **Q. HAS THE CITY PROVIDED INFORMATION ON SYSTEM PRESSURES?**

18 A. Yes. The City addressed pressures in the filing Exhibit D, IX-6 and in response to  
19 OCA-I-7. See Exhibit TLF-5. The City claims that (1) it is in compliance with 52  
20 Pa. Code § 65.6(a) and 52 Pa. Code § 65.6(d); (2) there were no pressure  
21 problems lasting longer than 24 hours since the last proceeding; and (3) the City  
22 does not have areas that have an average static head less than 25 psi or average  
23 static pressure greater than 125 psi.

24



1 **Q. HAS THE CITY SATISFIED THE REQUIREMENTS OF 52 Pa. CODE § 65.6(a)**  
2 **and 52 Pa. CODE § 65.6(d)?**

3 A. No. 52 Pa. Code § 65.6(a) refers to “normal operating pressures” not “average  
4 static pressures”. 52 Pa. Code § 65.6(d) indicates that pressure surveys should  
5 be made at or near periods of maximum and minimum usage. The City has at  
6 least one distribution storage tank on each of its three pressure zones. The water  
7 level in distribution storage tanks fluctuates depending on water usage. Therefore,  
8 the low pressure reading for each pressure zone should be taken during a period  
9 of high water usage when the distribution storage tanks have been drawn down to  
10 a low normal water level – not average water level. Likewise, the high pressure  
11 reading should be taken during a period of low water usage when the water level  
12 in the tank is full - not at its average water level.

13 The last revision of 52 Pa. Code § 65.6 occurred in 1983 prior to hydraulic  
14 computer models of water systems being common. For purposes of evaluating  
15 utility system pressures, I have generally accepted pressure information obtained  
16 from hydraulic computer models and SCADA systems, when available, assuming  
17 that a complete complaint log is also provided that includes all customer pressure  
18 complaints. The complaint log must include the final disposition of the complaint.  
19 The hydraulic computer model or SCADA system is acceptable, if the final  
20 dispositions of the pressure complaints indicate a temporary cause such as  
21 flushing, a main break, pump failure, PRV failure or adjustment or replacing a  
22 clogged in-house filter, etc.

1 Submitting pressure readings at “the two representative points” taken during the  
2 proper water usage for each of its pressure zones would also be acceptable.

3  
4 **Q. HAS THE CITY PROVIDED A CUSTOMER COMPLAINT LOG THAT SHOWS**  
5 **CUSTOMER COMPLAINTS REGARDING PRESSURES?**

6 A. Yes. The City included a water quality complaint log in the filing Exhibit D, IX-4  
7 that included some customer complaints from January 2, 2018 through February  
8 11, 2021. It is not clear if all the customer pressure complaints were included in  
9 the Water Quality Complaint Log.

10 I reviewed the water quality complaint log for customer complaints regarding  
11 pressure and noted that there were seven complaints during 2018, three  
12 complaints during 2019 and one complaint during 2020 – all of which were  
13 correctable and did not reoccur.

14  
15 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING THE CITY’S**  
16 **PRESSURES SURVEYS?**

17 A. Yes. In future rate cases the City should either: (1) submit a pressure survey for  
18 each of its three pressure zones or (2) clearly indicate why it is in compliance with  
19 52 Pa. Code § 65.6(a) and 52 Pa. Code § 65.6(d) and provide a complete  
20 complaint log that includes all customer complaints regarding pressure.

21  
22 **CUSTOMER COMPLAINTS**

23 **Q. WHAT ARE THE PUC’S REQUIREMENTS FOR CUSTOMER COMPLAINTS?**

24 A. According to 52 Pa. Code § 65.3. Complaints.

1 (a) *Investigations.* A public utility shall make a full and prompt investigation of  
2 complaints made by the Commission or by others, including customers,  
3 relating to service or facilities.

4 (b) *Records of complaints.* A public utility shall preserve for a period of at least 5  
5 years, written service complaints showing the name and address of the  
6 complainant, the date and character of the complaint and the final  
7 disposition of the complaint.  
8

9 **Q. WHAT INFORMATION HAVE YOU BEEN PROVIDED BY THE CITY**  
10 **REGARDING CUSTOMER COMPLAINTS?**

11 A. As mentioned above, the City included a water quality complaint log in the Filing  
12 Exhibit D, IX-4 that included customer complaints from January 2, 2018 through  
13 February 11, 2021.  
14

15 **Q. PLEASE DISCUSS YOUR REVIEW OF THE CITY'S WATER QUALITY**  
16 **COMPLAINT LOG.**

17 A. The Water Complaint Log registered complaints from both City and Jurisdictional  
18 customers. I have reviewed and tabulated the number of customer water quality  
19 complaint issues in Exhibit TLF-6. In my Exhibit, the number of discolored water  
20 complaints during 2020 does not include the dozens of complaints that were  
21 caused by filling the Lafayette Tank on August 24, 2020 after painting the tank. As  
22 can be noted from Exhibit TLF-6, 82% of the complaints regarded some form of  
23 discolored water and 8% of the complaints concerned taste and odor. During  
24 August of 2018, there were two complaints about water irritating the skin. The  
25 Water Quality Complaint Log indicated that the water at one site was tested and  
26 satisfactory; but did not address testing the other site.  
27

1 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING THE COMPLAINT**  
2 **LOG?**

3 A. The City should submit a customer complaint log that satisfies 52 Pa. Code § 65.3.  
4 The City also should provide the customer complaint log in a live Excel format. If  
5 the complaint log includes both City and jurisdictional customers, it should note  
6 which type of customer made the complaint. I suggest that the following categories  
7 be included so that the data can be sorted: date; location; dirty water; rusty water;  
8 water taste, odor, or color; staining (of laundry or plumbing fixtures); request for  
9 water testing; customer property damage; incomplete surface restoration; and  
10 health issues. The log should include the final disposition of the complaint.

11

12 **OTHER COMPLAINTS – INFORMAL, FORMAL, PIH**

13 **Q. ARE YOU AWARE OF OTHER QUALITY OF SERVICE COMPLAINTS THAT**  
14 **CONTAIN MORE DETAIL THAN THE CITY’S COMPLAINT LOG?**

15 A. Yes. More detail for some types of complaints has been provided by customers  
16 submitting Informal and Formal Complaints to the PUC; letters to the PUC and  
17 OCA; and customer testimony at the December 16, 2021 PIH.

18 The Company should respond to the following customer quality of service  
19 complaints summarized below.

- 20 1. In an Informal Complaint, the customer complained about excessive water pressure causing  
21 problems with water heaters and requiring the use of pressure reducing valves, Preston  
22 Road, Lancaster.
- 23 2. In an Informal Complaint, the customer complained that their water filter is always filthy from  
24 dirt and debris that comes from the public water, Millcreek Road, Lancaster.
- 25 3. In an Informal Complaint, the customer complained about “brown water”, bad smell, and  
26 water pressure

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12

**THE CITY'S RESPONSE TO COMMISSIONER YANORA'S QUESTIONS**

**Q. HAVE YOU REVIEWED THE CITY'S RESPONSES TO COMMISSIONER'S YANORA'S QUESTIONS?**

A. Yes. The City's responses are included in Mr. Campbell's testimony in City of Lancaster Statement No. 2-S. I have reviewed the City's responses and have no comments in addition to what I have discussed above regarding unaccounted for water, isolation valves and fire hydrants.

**Q. DOES THIS COMPLETE YOUR WRITTEN DIRECT TESTIMONY?**

A. Yes, at this time. I reserve the right to supplement this testimony either in writing or orally if additional relevant information is received.

BACKGROUND AND QUALIFICATIONS

TERRY L. FOUGHT, P.E.

## Education

Cleveland State University, Cleveland, Ohio, Bachelor of Civil Engineering, 1967

## Professional Registrations

Professional Engineer, Pennsylvania, PE-023343-E, 1975

Professional Engineer, New Jersey, GE 25392, 1978 (Inactive)

Professional Engineer, Virginia, 10850, 1979 (Inactive)

Professional Land Surveyor, Pennsylvania, SU-000194-A, 1980 (Inactive)

## Employment

From March 1983 to date, I have been a self-employed consulting engineer engaged in providing consulting engineering services to water and wastewater utilities, both private and municipal.

From May 1969 to March 1983, I was employed by E. H. Bourquard & Associates, Inc. as a project engineer to water and wastewater clients. At the time I left the firm I was a vice-president.

From 1962 to 1969, I was employed by the State of Ohio, Department of Highways and the Geauga County Ohio Sanitary Engineers Office as an engineer's assistant to assistant sanitary engineer with breaks in employment to attend college and 1½ years active duty military service.

## Experience

I have prepared studies related to and designed water supply, treatment, transmission, distribution and storage facilities. I have provided services to the following private and municipal water suppliers: Amber Hill Mobile Home Park, Brockway Borough Municipal Authority, Dallas Water Company, Eastern Gas and Water Investment Company, Haddonfield Hills Development, Halifax Borough, Langhorne Spring Water Company, Mifflintown Municipal Authority, Neshaminy Water Resources Authority, Newberry Water Company, Pleasant View Mobil Home Park, H. B. Reese Candy Company, Shavertown Water Company, Smethport Water Company, Tunkhannock Water Company, and Watts Business Center.

I have prepared studies related to and designed wastewater collection and interceptor sewers, pumping stations and force mains, and treatment plants. I have provided services to the following private and municipal sewerage utilities: Brockway Glass Company, Central Dauphin School District, Clean Waste Technologies, Inc., Dauphin Borough, Dauphin Borough Municipal Authority, Halifax Area School District, Halifax Municipal Authority, Mercersburg Borough, Middle Paxton Township, Newberry Sewer Company, Newberry Township Municipal Authority, Park-a-way Park Family Campground, Reading Township Municipal Authority, Reynoldsville Borough, Saint Thomas Township, and Watts Business Center.

I have prepared over 100 stormwater management and drainage plans for land development and subdivision plans in Cumberland, Dauphin, and York Counties. Most of these plans included the design of storm sewer collection systems.

List of Public Utility cases which I have testified or provided substantial assistance:

**NEW JERSEY BUREAU OF PUBLIC UTILITIES**

<u>Docket Number</u>	<u>Company Name</u>
7712-1140	City of Trenton
787-847	Hackensack Water Company
814-119	City of Trenton
8310-862	City of Trenton

**PENNSYLVANIA PUBLIC UTILITY COMMISSION**

<u>Docket Number</u>	<u>Company Name</u>
C-2010-2175673	Pennsylvania-American Water Company
C-2011-2259004	Endsley v PAWC
C-2012-2332951	Tschachler v UGI
C-2014-2447138	Hidden Valley Utility Services - Water
C-2014-2447169	Hidden Valley Utility Services - Wastewater
C-2018-2644592	Winola Water Company
C-2020-3022354	McKercher v Borough of Hanover (Water)
F-2011-2280415	Lynette Lugo Lopez v PGW
F-2012-2311590	Belinda Lyles v Aqua
F-2012-2330753	Scott v PGW
I-840377	Pennsylvania Gas and Water Company
I-00050109	PAWC High Fluoride Incident
I-00072313	WP Water & Sewer Co.
I-2009-2109324	Clean Treatment Sewer Company
I-2016-2526085	Delaware Sewer Company
P-2008-2075142	Pennsylvania-American Water Company
P-2014-2404341	Delaware Sewer Company
P-2017-2584953	Aqua Pennsylvania, Inc.
P-2017-2594725	Newtown Artesian Water Company
P-2017-2585707	Pennsylvania-American Water Company
P-2017-2589724	Suez Water Pennsylvania, Inc.
P-2020-3020914	Twin Lakes Utilities, Inc.
R-00850174	Philadelphia Suburban Water Company
R-00932785	Meadows Water Company
R-00963708 (Sewer)	Wynnewood Water & Sewer Corporation
R-00963709 (Water)	Wynnewood Water & Sewer Corporation
R-00984257	Consumers Pa. Water Company
R-00984334	National Utilities, Inc.
R-00984375	City of Bethlehem
R-00994672	Superior Water Company
R-00005031	Penn Estates Utilities, Inc.
R-00005050	Emporium Water Company
R-00005212 (Sewer)	Pennsylvania-American Water Company
R-00005997	Jackson Sewer Corporation
R-00027982 (Sewer)	Pennsylvania-American Water Company
R-00049862	City of Lancaster – Sewer Fund
R-00050607	Glendale Yearound Sewer Co.
R-00050659	Wonderview Water Co.
R-00050673	Pocono Water Co.
R-00050678	Mesco, Inc.



**PENNSYLVANIA PUBLIC UTILITY COMMISSION (Continued)**

<u>Docket Number</u>	<u>Company Name</u>
R-00050814	Marietta Gravity Water Co.
R-00051030	Aqua Pennsylvania, Inc.
R-00051167	City of Lancaster – Water Fund
R-00061297	Emporium Water Co.
R-00061492	Reynolds Disposal Co.
R-00061496	Columbia Water Co.
R-00061617	Allied Utilities Services
R-00061618	Imperial Point Water Co.
R-00061625	Phoenixville Sewer Fund
R-00061645	Eaton Water Co.
R-00062017	Borough of Ambler Water Department
R-00072074 (Sewer)	Aqua PA, Little Washington Division
R-00072075 (Sewer)	Aqua PA, Chesterdale/Williamstown Division
R-00072351	Village Water Company
R-00072491	Clarendon Water Company
R-00072492	City of Bethlehem, Bureau of Water
R-00072493 (Water)	Total Environmental Solutions, Inc., Treasure Lake
R-00072711	Aqua PA
R-2008-2020729	Blue Knob Water Company
R-2008-2020873	Warwick Drainage Company
R-2008-2020885	Warwick Water Works, Inc.
R-2008-2032689	PAWC Coatesville Wastewater Operations
R-2008-2039261	Superior Water Company
R-2008-2045157	Columbia Water Company
R-2008-2047291	Rock Spring Water Company
R-2008-2079310	AQUA, PA
R-2008-2081738	Little Washington Wastewater Company
R-09-2097323	Pennsylvania-American Water Company
R-2009-2102464	Reynoldsville Water Company
R-2009-2103937	PA Utility Company, Inc (Water)
R-2009-2103980	PA Utility Company, Inc (Sewer)
R-2009-2105601	Fryburg Water Company
R-2009-2110093	Birch Acres Water Company
R-2009-2115743	Lake Spangerberg Water Company
R-2009-2116908	Hanover Borough Water
R-2009-2117289	Utilities Inc, Westgate (Water)
R-2009-2117532	Penn Estates Utilities Inc (Water)
R-2009-2117750	Newtown Artesian Water Company
R-2009-2121928	Clean Treatment Sewage Company
R-2009-2122887	United Water Pennsylvania, Inc
R-2009-2132019	AQUA, PA
R-2010-2157062	Tri-Valley Water Supply Company, Inc
R-2010-2166208	Pennsylvania American Water Company (Wastewater)
R-2010-2171339	Reynolds Disposal Company
R-2010-2171918	TESI, Treasure Lake, Water Division
R-2010-2171924	TESI, Treasure Lake, Sewer Division
R-2010-2174643	City of Lock Haven
R-2010-2179103	City of Lancaster Water Department
R-2010-2191376	Superior Water Company
R-2010-2194499	Dear Haven Water Company
R-2010-2194577	Dear Haven Sewer Company

**PENNSYLVANIA PUBLIC UTILITY COMMISSION (Continued)**

<u>Docket Number</u>	<u>Company Name</u>
R-2010-2207833	Little Washington Waste Water, Masthope Division
R-2010-2207853	Little Washington Waste Water, SE Consolidated Division
R-2011-2218562	CMV Sewage Company, Inc.
R-2011-2232243	Pennsylvania-American Water Company
R-2011-2232985	United Water Company
R-2011-2244756	City of Bethlehem- Bureau of Water
R-2011-2246415	Twin Lakes Utilities, Inc.
R-2011-2248531	Wonderview Sanitary Facilities
R-2011-2248937	Fairview Sanitation Company
R-2011-2251181	Borough of Quakertown, Water
R-2011-2255159	Penn Estates Utility Inc - Water
R-2012-2286118	Audubon Water Company
R-2012-2330887	North Heidelberg Sewer Company
R-2012-2310366	City of Lancaster Sewer Fund
R-2012-2311725	Borough of Hanover - Sewer
R-2012-2315536	Imperial Point Water Company
R-2012-2336662	Rock Springs Water Company
R-2013-2350509	City of DuBois, Bureau of Water
R-2013-2355276	Pennsylvania-American Water Company
R-2013-2360798	Columbia Water Company
R-2013-2370455	Penn Estates Utilities, Inc. - Sewer Division
R-2013-2367108	Fryburg Water Company
R-2013-2367125	Cooperstown Water Company
R-2013-2390244	City of Bethlehem – Bureau of Water
R-2014-2400003	Borough of Ambler – Water Department
R-2014-2420204	Pocono Waterworks Company, Inc. (Water)
R-2014-2420211	Pocono Waterworks Company, Inc. (Sewer)
R-2014-2402324	Emporium Water Company
R-2014-2430945	Plumer Water Company
R-2014-2428304	Borough of Hanover Water Department
R-2014-2410003	City of Lancaster-Bureau of Water
R-2014-2427035	Venango Water Company
R-2014-2427189	B E Rhodes Sewer Company
R-2014-2447138	Hidden Valley Utilities Services - Water
R-2014-2447169	Hidden Valley Utilities Services – Sewer
R-2014-2452705	Delaware Sewer Company
R-2015-2462723	United Water Pennsylvania
R-2015-2470184	Borough of Schuylkill Haven Water Department
R-2015-2479962	Corner Water Supply
R-2015-2506337	Twin Lakes Utilities, Inc.
R-2016-2538600	Community Utilities of Pennsylvania, Inc.
R-2016-2554150	City of DuBois – Bureau of Water
R-2017-2595853	Pennsylvania-American Water Company
R-2017-2598203	Columbia Water Company
R-2017-2631441	Reynolds Water Company
R-2018-3000022	York Water Company
R-2018-3000834	Suez Water Company
R-2018-3002645 (Water)	Pittsburgh Water & Sewer Authority
R-2018-3002647 (Sewer)	Pittsburgh Water & Sewer Authority
R-2018-3001306 (Water)	Hidden Valley Utility Services
R-2018-3001307 (Sewer)	Hidden Valley Utility Services

**PENNSYLVANIA PUBLIC UTILITY COMMISSION (Continued)**

R-2019-3008947 (Water)	Community Utilities of PA
R-2019-3008948 (Sewer)	Community Utilities of PA
R-2020-3017951 (Water)	Pittsburgh Water & Sewer Authority
R-2020-3017970 (Sewer)	Pittsburgh Water & Sewer Authority
R-2020-3019369	Pennsylvania American Water Company
R-2020-3019612	Reynolds Disposal Company
R-2020-3020256	City of Bethlehem -Water
R-2020-3020917	Audubon Water Company
R-2021-3024773 (Water)	Pittsburgh Water & Sewer Authority
R-2020-3024779 (Sewer)	Pittsburgh Water & Sewer Authority
R-2021-3025206 (Water)	Community Utilities of PA
R-2021-3025207 (Sewer)	Community Utilities of PA



CITY OF LANCASTER  
WATER UTILITIES

*RESPONSES TO QUALITY OF SERVICE  
FILING REQUIREMENTS*

6. Provide a summary report demonstrating the company's efforts in water conservation, since the last rate proceeding, pursuant to 52 Pa. Code, § 65.20.

RESPONSE

The schedule showing the unaccounted for water is attached.

Unaccounted for water was calculated by using both the low service and high service sendout amount from both plants, and dividing the amount of water that was billed and the temporary water that the City has on record. The rest of the water was unaccounted for.

In 2018, the amount of unaccounted for water from high service was 1,233 million gallons or approximately 16.43% of the sendout from the treatment plants. This is not accurate. In 2018, we were in the middle of replacing our touch pad system with our radio read system, and coming from a period in 2017 with our meter shop not being able to complete many actual reads. The estimates from 2017 made the actuals in 2018 much greater, leading to a 20% error in the actual reads for 2018.

In 2019, the amount of unaccounted for water from high service was 2,331 million gallons or approximately 30.90% of the sendout from the treatment plants.

In 2020, the amount of unaccounted for water from high service was 2,082 million gallons or approximately 28.17% of the sendout from the treatment plants.

The City has several programs to help reduce the amount of unaccounted for water. For example, City has approximately 40 miles of waterline that is cast iron which is over 100 years old. Periodically, the City is taking out this water main and replacing it with brand new Ductile Iron Cement Lined Class 52 pipe. In 2021 work is planned to replace transit pipe.

2020						
	All Water Customers		In City Customers		Out of City Customers	
	Accounts	Consumption	Accounts	Consumption	Accounts	Consumption
Total	47,712	5,312,258	16,854	1,527,360	30,858	3,784,898
Residential	43,838	2,254,919	14,924	723,824	28,914	1,531,095
Industrial	109	725,752	40	150,144	69	575,608
Commercial	3,760	2,176,788	1,890	653,392	1,870	1,523,396
Bulk	5	154,799	0	0	5	154,799
2019						
	All Water Customers		In City Customers		Out of City Customers	
	Accounts	Consumption	Accounts	Consumption	Accounts	Consumption
Total	47,539	5,212,580	16,864	1,541,939	30,675	3,670,641
Residential	43,655	2,142,228	14,930	714,750	28,725	1,427,478
Industrial	107	700,760	40	171,458	67	529,302
Commercial	3,772	2,239,931	1,894	655,731	1,878	1,584,200
Bulk	5	129,661	0	0	5	129,661
2018						
	All Water Customers		In City Customers		Out of City Customers	
	Accounts	Consumption	Accounts	Consumption	Accounts	Consumption
Total	47,385	6,275,325	16,872	1,545,469	30,513	4,729,856
Residential	43,502	2,084,514	14,932	710,678	28,570	1,373,836
Industrial	106	664,948	40	125,280	66	539,668
Commercial	3,772	3,360,324	1,900	709,511	1,872	2,650,813
Bulk	5	165,539	0	0	5	165,539

Amount of water produced			
HS 2018	7,509,098	LS 2018	8,266,201
HS 2019	7,543,357	LS 2019	8,318,687
HS 2020	7,395,093	LS 2020	8,254,551

	Amount of Unaccounted Water From High Service	Percentage of Unaccounted Water From High Service	Amount of Unaccounted Water From Low Service	Percentage of Unaccounted Water From Low Service
2018	1,233,773	16.43%	1,990,876	24.08%
2019	2,330,777	30.90%	3,106,107	37.34%
2020	2,082,835	28.17%	2,942,293	35.64%

**Pennsylvania Public Utility Commission**  
**v.**  
**City of Lancaster – Water Department**  
**Docket No. R-2021-3026682**  
**Interrogatories of the Office of Consumer Advocate**  
**Set I**

**Witness: Stephen Campbell**

OCA-I-13. Please provide unaccounted for water information for the calendar years 2018, 2019, and 2020 based on the PUC method shown on Section 500 of the Class “A” and “B” Water Company Annual Reports.

**Response:** Please refer to OCA-I-13 Attachment 1 (Excel). Please note that there is a separate tab for each year requested.

**500. WATER DELIVERED INTO SYSTEM DURING YEAR**

Every estimated value shall be supported by such detailed information as will permit a ready identification, analysis, & verification of all relevant facts. The Company shall be prepared to furnish to the Commission this detailed information.

Line No.	Description (a)	(Gallons) (b)	(gpd) (c)
1	<b>Water Delivered for Distribution &amp; Sale:</b>		
2	Water Obtained from Company Sources	7,509,098,000	20,572,871
3	Water Obtained from Other Independent Utilities		
4	<b>Total Water Delivered</b>	7,509,098,000	20,572,871
5	<b>Metered Sales:</b>		
6	Residential	2,084,514,000	5,710,997
7	Commercial	3,360,324,000	9,206,367
8	Industrial	664,948,000	1,821,775
9	Public		
10	Other Water Utilities	165,539,000	453,532
11	Private Fire Protection		
12	Public Fire Protection		
13	Other Metered Sales Identify _____		
14	<b>Total Metered Sales</b>	6,275,325,000	17,192,671
15	<b>Unmetered Sales:</b>		
16	Residential		
17	Commercial		
18	Industrial		
19	Private Fire Protection		
20	Public Fire Protection		
21	Other Unmetered Sales Identify _____		
21	<b>Total Unmetered Sales</b>		
22	<b>Total Sales</b>	6,275,325,000	17,192,671
23	<b>Non-Revenue Usage Allowances:</b>		
24	<b>Authorized Unmetered Usage:</b>		
25	Main Flushing		
26	Blow-off Use		
27	Others: Identify _____		
28	Unauthorized Use		
29	Unavoidable Leakage _____ gpd/mile of main		
30	<b>Adjustments:</b>		
31	Located & Repaired Breaks in Mains & Services		
32	Others Identify _____		
33	<b>Total Allowances &amp; Adjustments</b>		
34	<b>Unaccounted-for-Water</b>	<b>1,233,773,000</b>	3,380,200
35	<b>Percentage Unaccounted-for-Water</b>	<b>16.4%</b>	



City of Lancaster  
(Company Name)

2019

### 500. WATER DELIVERED INTO SYSTEM DURING YEAR

Every estimated value shall be supported by such detailed information as will permit a ready identification, analysis, & verification of all relevant facts. The Company shall be prepared to furnish to the Commission this detailed information.

Line No.	Description (a)	(Gallons) (b)	(gpd) (c)
1	<b>Water Delivered for Distribution &amp; Sale:</b>		
2	Water Obtained from Company Sources	7,543,357,000	20,666,732
3	Water Obtained from Other Independent Utilities		
4	<b>Total Water Delivered</b>	7,543,357,000	20,666,732
5	<b>Metered Sales:</b>		
6	Residential	2,142,228,000	5,869,118
7	Commercial	2,239,931,000	6,136,797
8	Industrial	700,760,000	1,919,890
9	Public		
10	Other Water Utilities	129,661,000	355,236
11	Private Fire Protection		
12	Public Fire Protection		
13	Other Metered Sales Identify _____		
14	<b>Total Metered Sales</b>	5,212,580,000	14,281,041
15	<b>Unmetered Sales:</b>		
16	Residential		
17	Commercial		
18	Industrial		
19	Private Fire Protection		
20	Public Fire Protection		
21	Other Unmetered Sales Identify _____		
21	<b>Total Unmetered Sales</b>		
22	<b>Total Sales</b>	5,212,580,000	14,281,041
23	<b>Non-Revenue Usage Allowances:</b>		
24	<b>Authorized Unmetered Usage:</b>		
25	Main Flushing		
26	Blow-off Use		
27	Others: Identify _____		
28	Unauthorized Use		
29	Unavoidable Leakage _____ gpd/mile of main		
30	Adjustments:		
31	Located & Repaired Breaks in Mains & Services		
32	Others Identify _____		
33	<b>Total Allowances &amp; Adjustments</b>		
34	<b>Unaccounted-for-Water</b>	<b>2,330,777,000</b>	<b>6,385,690</b>
35	<b>Percentage Unaccounted-for-Water</b>	<b>30.9%</b>	

City of Lancaster  
(Company Name)

2020

### 500. WATER DELIVERED INTO SYSTEM DURING YEAR

Every estimated value shall be supported by such detailed information as will permit a ready identification, analysis, & verification of all relevant facts. The Company shall be prepared to furnish to the Commission this detailed information.

Line No.	Description (a)	(Gallons) (b)	(gpd) (c)
1	<b>Water Delivered for Distribution &amp; Sale:</b>		
2	Water Obtained from Company Sources	7,395,093,000	20,260,529
3	Water Obtained from Other Independent Utilities		
4	<b>Total Water Delivered</b>	7,395,093,000	20,260,529
5	<b>Metered Sales:</b>		
6	Residential	2,254,919,000	6,177,860
7	Commercial	2,176,788,000	5,963,803
8	Industrial	725,752,000	1,988,362
9	Public		
10	Other Water Utilities	154,799,000	424,107
11	Private Fire Protection		
12	Public Fire Protection		
13	Other Metered Sales Identify _____		
14	<b>Total Metered Sales</b>	5,312,258,000	14,554,132
15	<b>Unmetered Sales:</b>		
16	Residential		
17	Commercial		
18	Industrial		
19	Private Fire Protection		
20	Public Fire Protection		
21	Other Unmetered Sales Identify _____		
21	<b>Total Unmetered Sales</b>		
22	<b>Total Sales</b>	5,312,258,000	14,554,132
23	<b>Non-Revenue Usage Allowances:</b>		
24	<b>Authorized Unmetered Usage:</b>		
25	Main Flushing		
26	Blow-off Use		
27	Others: Identify _____		
28	Unauthorized Use		
29	Unavoidable Leakage _____ gpd/mile of main		
30	Adjustments:		
31	Located & Repaired Breaks in Mains & Services		
32	Others Identify _____		
33	<b>Total Allowances &amp; Adjustments</b>		
34	<b>Unaccounted-for-Water</b>	<b>2,082,835,000</b>	<b>5,706,397</b>
35	<b>Percentage Unaccounted-for-Water</b>	<b>28.2%</b>	



**Pennsylvania Public Utility Commission**  
**v.**  
**City of Lancaster – Water Department**  
**Docket No. R-2021-3026682**  
**Interrogatories of the Office of Consumer Advocate**  
**Set I**

**Witness: Stephen Campbell**

OCA-I-30. If all the isolation valves located in the jurisdictional areas have not been exercised during the past 5 years, please provide the following information:

- a. How many are installed in the jurisdictional areas?
- b. How many were exercised during the calendar year 2020?
- c. How many were not exercised during the past 5-years?
- d. How many were repaired or replaced during 2020 and 2021 to date?
- e. What is the frequency of valve maintenance?
- f. Submit a schedule for repair or replacement of every isolation valve that could not be exercised during the past five years.

**Response:** The City has 14 isolation vales in the jurisdictional areas. There are 12 valves to separate the regular pressure zone from the Blossom Hill pressure zone and 2 valves to separate the regular pressure zone from the Willow Street pressure zone. Due to these pressure zones being so much smaller than the regular pressure zone, they are not exercised as that would stress the pressure zones. None of the valves were repaired or replaced during the last 2 years.





COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF SAFE DRINKING WATER

**WATER ALLOCATION  
PERMIT COMPLIANCE REPORT**

Permit No.: WA-36--181B Report Year: 2018  
 Permittee: City of Lancaster  
 Address: 120 N. Duke St.  
PO Box 1599  
Lancaster, PA 17608-1599

**Have the Chapter 110 Primary and Subfacility Reports for the most recent calendar year been submitted by the due date? X Yes  No. A review of the Permit Compliance Report cannot be completed without the reports. Please submit the reports if you have not yet done so at [www.degreenport.state.pa.us](http://www.degreenport.state.pa.us).**

**Water Meter Management**

1. Please complete the following table describing your source metering. All source meters should be tested annually. Each column must be completed including last Date Tested, even if the source, including interconnections, was not used during the report year. Public water suppliers purchasing water through an interconnection where the meter is owned and maintained by the selling public water supplier must contact the seller to obtain the information for all columns including last Date Tested.

Source(s)	Meter Size (Inches)	Meter Type	Metered Individually	Metered in Combination	Date Tested
Susquehanna River	42" to 30"	Venturi	X	<input type="checkbox"/>	9-23-18
Conestoga River	30" to 13"	Venturi	X	<input type="checkbox"/>	2-27-18
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

2. If you have not installed source meters, please explain why or submit your installation schedule.

3. Please calculate the metered ratio and daily per capita water use. Indicate  if data used in calculations was taken from the  current year Primary Facility Report, or  quarterly meter records. If quarterly meter records are used, please indicate which quarter \_\_\_\_\_ and provide water use by type of connection. Sources include all Surface and Groundwater including Purchased Water.

**A. Metered Ratio**

1. Metered Ratio (MR) =  $\frac{\text{Water Metered at Service Connections}}{\text{Total Water Withdrawn from All Sources}} \times 100$   
 (MR) =  $\frac{6,275,325,000}{8,266,201,489} \times 100 = 75.92\%$

2. If the MR is less than 80% please explain the reason why, if known.

The MR is less than 80% for a few reasons. In the event of a leak, there is not an estimate of the amount of water used. The City does not bill fire lines by gallon, there is a flat rate, so when the customer needs to do their annual fire pump tests, the City has no record of it. Also, currently we do not yet have an exact method of knowing when one of the many fire companies in the area is training and need to use the fire hydrants. In addition, when system flushing occur through the year, that amount of lost water is not in this number.

B. Residential Daily Per Capita Water Use

1. Residential (Domestic) Water Use (GPD) ÷ Population Served = Residential Daily Per Capita Water Use (GPCD)  
 $(\frac{5,710,997}{43,502 * (2.62 \text{ ppl per house})}) = 50.1$  GPCD

2. If Residential Daily Per Capita Water Use exceeds 62 GPCD, please explain why, if known.

4. Do you have a method of accounting for uses difficult to meter such as fire protection, hydrant flushing, etc.?  
 Yes  Please provide your estimates and a description of your methods for estimating or calculating the amount of water supplied for such uses.  
 Pressure flow meters are used to estimate flushing on flow diffusers (Average flow = 500 gpm), along with dialed in rates for our seasonal application of hydrant auto flushers (150 gpm max flow). Start times are tracked and recorded for back calculation of water usage estimation.

No

5. Please complete the following table describing your service metering.

		Number of Service Connections	
		Metered	Unmetered
Last Year		49,240	0
This Year		48,635	0

If unmetered connections exist, please describe the type of service connections and include a schedule for installing the meters.

6. Please complete the following table describing your meter testing/replacement program last year.  
**Note: The Tested Meter Values between the 5/8 and 3/4 groups were calculated from a ratio of 2:1 since the totaling was done combining 5/8 X 3/4 with the 5/8 group instead of the 3/4 totals which is done normally. This was done also in numbers of meters in system between the two groups thus the 5/8 and 3/4 groups could vary roughly +/- 30 meters between the two groups. Total overall of the two groups combined are accurate.**

Meter Size (Inches)	Number of Meters In System	Testing/Replacement Period (Years)	Number of Meters Tested/Replaced Last Year
5/8	31,884	20	30 Tests/4640 Repla
3/4	7124	20	4/1156
1	7928	20	10/1832
1-1/2	263	20	0/92
2	1020	20	0/215
3	76	4	0/0
4	127	4	4/0
6	124	4	4/0
Larger	89	4	6/0
Source Meters	2	Yearly	2/0
Total:			60 Tested/7935 Repla

7. What is the average age of your service meters? 15 years  
\*4" meters and above are tested by a certified tester on a 4 year period. The City of Lancaster does not know if they are replaced or tested. The city switched our databases and we have put together numbers with the best current data with the new systems and the moving facilities which is why testing #s were so low this year.

**Leakage/Loss Control**

1. Please complete the following table describing your leakage and loss control program.

Frequency	Method/Equipment
<input checked="" type="checkbox"/> Irregular – Last date <u>10-28-2016</u>	<input type="checkbox"/> Leak Detection Consultant
<input type="checkbox"/> System-wide Survey	<input type="checkbox"/> Geophones
Completed Every _____	<input checked="" type="checkbox"/> Aquascope
Months _____	<input checked="" type="checkbox"/> Correlator
Years _____	<input type="checkbox"/> Other: Note type of equipment used
	<u>Utilitronics Ground Mike</u>

2. A. Please complete the following table describing your leakage control efforts during the past year.

	Fire Hydrants	Main Valves	Service Valves	Miles of Mains
System Total	5,000+	12,949	43,000	622
No. Exercised	1,000	400	300	N/A
No. Tested for Leaks	695	400	300	2 Miles
No. of Leaks Detected	52	25	30	125
No. of Leaks Repaired	52	25	30	125

B. Does the metered ratio reported on page 1 reflect improved system efficiency resulting from leaks repaired?

- Yes   
No  Please explain why.

**Water Conservation**

1. Please list specific efforts you made to provide water conservation information to your customers during the past year. (Enclose copies of literature.)

The information regarding water conservation is supplied to customers via website. For the City of Lancaster we use the website <http://saveitlancaster.com/>. This allows us to communicate and educate methods of conservation as well as optimizing usage for new applications that can improve their homes and/or businesses.

2. Please identify schools served by your system and list specific efforts you made to provide water education materials and/or opportunities to the administrators, faculty or students. (Enclose copies of materials.)



A list of schools served by our system is attached. We have discussed water conservation during tours of our filter plant provided to classes from Thaddeus Stephens and Franklin and Marshall Colleges.

3. Document meetings you have had during the past year with major water users on your system to discuss demand reduction opportunities within their facilities. If you have not met with major water users, explain why.  
We have not discussed demand reduction opportunities with major water users for any explainable reason.

4. A. Check the type of rate structure utilized by your water system.
- |                                       |   |   |
|---------------------------------------|---|---|
| <input type="checkbox"/> Flat Rate    | <input type="checkbox"/> Inclining Block          | <input checked="" type="checkbox"/> Declining Block |
| <input type="checkbox"/> Uniform Rate | <input type="checkbox"/> Summer Rate Differential | <input type="checkbox"/> Other (Explain)            |

- B. If a Flat Rate or Declining Block Rate structure is used, please explain why.  
In order to keep continuity of our billing process, the City of Lancaster uses the declining block structure because that is what we have used historically.

**Demand Reduction**

1. Do you require the installation of water saving plumbing fixtures as a condition of service to new accounts?  
Yes   
No  Please explain why.  
All new fixtures must conform to the Energy Policy Act of 1992 and 2005, since this is the case, no further water saving features should need to be required.
2. Do you investigate unusually high use by customers to determine if they have any leaks?  
Yes X  
No  Please explain why.

**Drought Contingency Planning**

1. Have you submitted a Drought Contingency Plan to our office?  
Yes X  
No  Please explain why.

2. If you have added a new source of supply to your system, have you reviewed your plan for possible revision?  
Yes   
No  Please explain why.  
N/A  Not Applicable.

3. What is the date of the current version of the plan?  
Date: February 2017

4. Indicate the name, title and telephone number of the individual responsible for implementing the plan.  
Name: Cindy McCormick Title: Deputy Director of Public Works  
Telephone Number: (8 AM-4PM) (717) 291-4729 Ext.: \_\_\_\_\_  
E-mail address: CMcCormick@cityoflancaasterpa.com

**Reporting Requirements/Special Conditions**

1. Are you reporting withdrawals or purchases as required by your permit?  
Yes   
No  Please explain why.

2. Are withdrawals or purchases in compliance with your water allocation permit?  
Yes   
No  Please explain why.

3. A. Are you reporting conservation releases from your dam(s) or passby flows below your intake(s) as required by your permit? Conservation releases or passby flows should be reported on the same form with monthly withdrawals referred to in Item 1 of this section.  
Yes   
No  Please explain why.  
N/A  Not Applicable.

B. Please complete the following table listing the type, size and maximum and minimum flow measuring capacities in gallons per day (GPD) for each of the flow measuring devices referred to in Item 3A and required by your permit.

NOTE: Provide this information for instream flow release devices, only, not for withdrawal meters from question 1, page 1. If you answered N/A on Item 3A or do not have an instream flow release requirement (conservation release/passby requirement), leave this section blank.

Source(s)	Type	Size	Maximum Flow (GPD)	Minimum Flow (GPD)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

C. Are conservation releases and passby flows in compliance with your permit?

- Yes   
 No  Please explain why.  
 N/A  Not Applicable.

4. Have you completed acquisition of property and construction of facilities necessary to utilize allocated water?

- Yes   
 No  Please explain why.  
 N/A  Not Applicable.

5. A. If required by your permit, have you initiated an engineering study for an additional source of water supply?

- Yes   
 No  Please explain why.  
 N/A  Not Applicable.

B. Have you submitted all progress reports as required by your permit?

- Yes   
 No  Please explain why.  
 N/A  Not Applicable.

6. A. If required by your permit, have you initiated a study to reduce unaccounted for water loss to a level of 20 percent or less?

- Yes
- No  Please explain why.
- N/A  Not Applicable.

B. Have you been submitting progress reports as required by your permit.

- Yes  Date of Submission: \_\_\_\_\_
- No  Please explain why.
- N/A  Not Applicable.

7. A. If required by your permit, have you undertaken a study to develop additional storage within the system?

- Yes
- No  Please explain why.
- N/A  Not Applicable.

B. Have you been submitting progress reports as required by your permit?

- Yes  Date of Submission: \_\_\_\_\_
- No  Please explain why.
- N/A  Not Applicable.

8. A. If required by your permit, have you developed an elevation-storage capacity-surface area table and graph to determine the amount of water supply storage remaining in the reservoir for a given pool elevation?

- Yes  Date of Submission: \_\_\_\_\_
- No  Please explain why.
- N/A  Not Applicable.

B. Have you installed accurate reservoir pool elevation measuring devices?

- Yes
- No  Please explain why.
- N/A  Not Applicable.

C. Are you maintaining accurate reservoir pool elevation measuring devices?

- Yes
- No  Please explain why.
- N/A  Not Applicable.


D. Are you reporting reservoir elevation/storage volume data as required by your permit?

- Yes
- No  Please explain why.
- N/A  Not Applicable.

**Signature**

Report Preparer: James C Rieben Jr, Ph.D. Date: 12-19-2019

Title: Water Treatment Engineer

Signature: 

Address: 150 Pitney Rd., Lancaster, PA 17601

Telephone Number: ( 717 ) 291-4822 Ext.: \_\_\_\_\_ Fax Number: ( 717 ) 291-4716

E-mail Address: JRieben@cityoflancasterpa.com

Name of Responsible Agent or Official: Cindy McCormick

Title: Acting Public Works Director (Deputy Director of Public Works)

Address: 120 N. Duke St., Lancaster, PA 17608

Telephone Number: ( 717 ) 291-4729 Ext.: \_\_\_\_\_ Fax Number: ( 717 ) 291-4772

E-mail Address: CMcCormick@cityoflancasterpa.com

**Please Return This Completed Form With Supporting Materials To:**

By regular mail:  
 Pennsylvania Department of Environmental Protection  
 Planning & Conservation Division  
 P. O. Box 8467  
 Harrisburg, PA 17105-8467  
 717.772.4048

OR

By fax: 717.772.5630 OR

OR

By e-mail: [kunruh@pa.gov](mailto:kunruh@pa.gov)



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF SAFE DRINKING WATER

**WATER ALLOCATION  
PERMIT COMPLIANCE REPORT**

Permit No.: WA-36 -181B Report Year: 2019  
 Permittee: City of Lancaster  
 Address: 120 N. Duke St.  
PO Box 1599  
Lancaster, PA 17608-1599

**Have the Chapter 110 Primary and Subfacility Reports for the most recent calendar year been submitted by the due date? X Yes  No. A review of the Permit Compliance Report cannot be completed without the reports. Please submit the reports if you have not yet done so at [www.degreenport.state.pa.us](http://www.degreenport.state.pa.us).**

**Water Meter Management**

1. Please complete the following table describing your source metering. All source meters should be tested annually. Each column must be completed including last Date Tested, even if the source, including interconnections, was not used during the report year. Public water suppliers purchasing water through an interconnection where the meter is owned and maintained by the selling public water supplier must contact the seller to obtain the information for all columns including last Date Tested.

Source(s)	Meter Size (Inches)	Meter Type	Metered Individually	Metered in Combination	Date Tested
Susquehanna River	42"to 30"	Venturi	X	<input type="checkbox"/>	11-20-19
Conestoga River	30" to 13"	Venturi	X	<input type="checkbox"/>	12-19-19
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

2. If you have not installed source meters, please explain why or submit your installation schedule.

3. Please calculate the metered ratio and daily per capita water use. Indicate  if data used in calculations was taken from the  current year Primary Facility Report, or  quarterly meter records. If quarterly meter records are used, please indicate which quarter \_\_\_\_\_ and provide water use by type of connection. Sources include all Surface and Groundwater including Purchased Water.

**A. Metered Ratio**

1. Metered Ratio (MR) =  $\frac{\text{Water Metered at Service Connections}}{\text{Total Water Withdrawn from All Sources}} \times 100$   
 (MR) =  $\frac{5,212,580,000}{8,318,686,705} \times 100 = 62.66\%$

2. If the MR is less than 80% please explain the reason why, if known.

The MR is less than 80% for a few reasons. In the event of a leak, there is not an estimate of the amount of water used. The City does not bill fire lines by gallon, there is a flat rate, so when the customer needs to do their annual fire pump tests, the City has no record of it. Also, currently we do not yet have an exact method of knowing when one of the many fire companies in the area is training and need to use the fire hydrants. In addition, when system flushing occur through the year, that amount of lost water is not in this number.

B. Residential Daily Per Capita Water Use

1. Residential (Domestic) Water Use (GPD) ÷ Population Served = Residential Daily Per Capita Water Use (GPCD)  
 $(5,869,117.8) \div (43,655 \times (2.62 \text{ ppl per house})) = 51.3$  GPCD

2. If Residential Daily Per Capita Water Use exceeds 62 GPCD, please explain why, if known.

4. Do you have a method of accounting for uses difficult to meter such as fire protection, hydrant flushing, etc.?

Yes  Please provide your estimates and a description of your methods for estimating or calculating the amount of water supplied for such uses.

Pressure flow meters are used to estimate flushing on flow diffusers (Average flow = 500 gpm), along with dialed in rates for our seasonal application of hydrant auto flushers (150 gpm max flow). Start times are tracked and recorded for back calculation of water usage estimation.

No

5. Please complete the following table describing your service metering.

		Number of Service Connections	
		Metered	Unmetered
Last Year		48,635	0
This Year		49,479	0

If unmetered connections exist, please describe the type of service connections and include a schedule for installing the meters.

6. Please complete the following table describing your meter testing/replacement program last year.  
**Note: The Tested Meter Values between the 5/8 and 3/4 groups were calculated from a ratio of 2:1 since the totaling was done combining 5/8 X 3/4 with the 5/8 group instead of the 3/4 totals which is done normally. This was done also in numbers of meters in system between the two groups thus the 5/8 and 3/4 groups could vary roughly +/- 30 meters between the two groups. Total overall of the two groups combined are accurate.**

Meter Size (Inches)	Number of Meters In System	Testing/Replacement Period (Years)	Number of Meters Tested/Replaced Last Year
5/8	29,385	20	30 Tests/976 Repla
3/4	11,139	20	7/197
1	7,119	20	1/76
1-1/2	523	20	0/17
2	972	20	1/28
3	68	4	1/0
4	124	4	1/1
6	114	4	2/2
Larger	89	4	6/2
Source Meters	2	Yearly	2/0
Total:			51 Tested/1299 Repla

7. What is the average age of your service meters? 15 years  
\*4" meters and above are tested by a certified tester on a 4 year period. The City of Lancaster does not know if they are replaced or tested. The city switched our databases and we have put together numbers with the best current data with the new systems and the moving facilities which is why testing #s were so low this year.

**Leakage/Loss Control**

1. Please complete the following table describing your leakage and loss control program.

Frequency	Method/Equipment
<input checked="" type="checkbox"/> Irregular – Last date _____	<input checked="" type="checkbox"/> Leak Detection Consultant
<input type="checkbox"/> System-wide Survey	<input type="checkbox"/> Geophones
Completed Every _____	<input checked="" type="checkbox"/> Aquascope
Months _____	<input checked="" type="checkbox"/> Correlator
Years _____	<input type="checkbox"/> Other: Note type of equipment used <u>Utilitronics Ground Mike</u>

2. A. Please complete the following table describing your leakage control efforts during the past year.

	Fire Hydrants	Main Valves	Service Valves	Miles of Mains
System Total	5,000+	12,949	43,000	622
No. Exercised	1,000	400	300	N/A
No. Tested for Leaks	875	400	300	2 Miles
No. of Leaks Detected	60	23	24	44
No. of Leaks Repaired	60	23	24	44

B. Does the metered ratio reported on page 1 reflect improved system efficiency resulting from leaks repaired?

- Yes   
No  Please explain why.

**Water Conservation**

1. Please list specific efforts you made to provide water conservation information to your customers during the past year. (Enclose copies of literature.)

The information regarding water conservation is supplied to customers via website. For the City of Lancaster we use the website <http://saveitlancaster.com/>. This allows us to communicate and educate methods of conservation as well as optimizing usage for new applications that can improve their homes and/or businesses.

2. Please identify schools served by your system and list specific efforts you made to provide water education materials and/or opportunities to the administrators, faculty or students. (Enclose copies of materials.)



A list of schools served by our system is attached. We have discussed water conservation during tours of our filter plant provided to classes from Thaddeus Stephens and Franklin and Marshall Colleges.

3. Document meetings you have had during the past year with major water users on your system to discuss demand reduction opportunities within their facilities. If you have not met with major water users, explain why. We have not discussed demand reduction opportunities with major water users for any explainable reason.

4. A. Check the type of rate structure utilized by your water system.
- Flat Rate       Inclining Block       Declining Block  
 Uniform Rate       Summer Rate Differential       Other (Explain)

- B. If a Flat Rate or Declining Block Rate structure is used, please explain why.  
In order to keep continuity of our billing process, the City of Lancaster uses the declining block structure because that is what we have used historically.

**Demand Reduction**

1. Do you require the installation of water saving plumbing fixtures as a condition of service to new accounts?  
Yes   
No  Please explain why.  
All new fixtures must conform to the Energy Policy Act of 1992 and 2005, since this is the case, no further water saving features should need to be required.
2. Do you investigate unusually high use by customers to determine if they have any leaks?  
Yes X  
No  Please explain why.

**Drought Contingency Planning**

1. Have you submitted a Drought Contingency Plan to our office?  
Yes X  
No  Please explain why.

2. If you have added a new source of supply to your system, have you reviewed your plan for possible revision?

- Yes   
No  Please explain why.  
N/A  Not Applicable.

3. What is the date of the current version of the plan?

Date: October 2020

4. Indicate the name, title and telephone number of the individual responsible for implementing the plan.

Name: Christine Volkay-Hilditch, P.E. BCEE Title: Deputy Director of Public Works-Utilities

Telephone Number: (8 AM-4PM) ( 717 ) 293-5531 Ext.: \_\_\_\_\_

E-mail address: chiliditch@cityofflancasterpa.com

**Reporting Requirements/Special Conditions**

1. Are you reporting withdrawals or purchases as required by your permit?

- Yes   
No  Please explain why.

2. Are withdrawals or purchases in compliance with your water allocation permit?

- Yes   
No  Please explain why.

3. A. Are you reporting conservation releases from your dam(s) or passby flows below your intake(s) as required by your permit? Conservation releases or passby flows should be reported on the same form with monthly withdrawals referred to in Item 1 of this section.

- Yes   
No  Please explain why.  
N/A  Not Applicable.

B. Please complete the following table listing the type, size and maximum and minimum flow measuring capacities in gallons per day (GPD) for each of the flow measuring devices referred to in Item 3A and required by your permit.

NOTE: Provide this information for instream flow release devices, only, not for withdrawal meters from question 1, page 1. If you answered N/A on Item 3A or do not have an instream flow release requirement (conservation release/passby requirement), leave this section blank.

Source(s)	Type	Size	Maximum Flow (GPD)	Minimum Flow (GPD)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

C. Are conservation releases and passby flows in compliance with your permit?

- Yes   
 No  Please explain why.  
 N/A  Not Applicable.

4. Have you completed acquisition of property and construction of facilities necessary to utilize allocated water?

- Yes   
 No  Please explain why.  
 N/A  Not Applicable.

5. A. If required by your permit, have you initiated an engineering study for an additional source of water supply?

- Yes   
 No  Please explain why.  
 N/A  Not Applicable.

B. Have you submitted all progress reports as required by your permit?

- Yes   
 No  Please explain why.  
 N/A  Not Applicable.

6. A. If required by your permit, have you initiated a study to reduce unaccounted for water loss to a level of 20 percent or less?  
Yes   
No  Please explain why.  
N/A X Not Applicable.

B. Have you been submitting progress reports as required by your permit.  
Yes \_\_\_\_\_  
Date of Submission: \_\_\_\_\_  
No  Please explain why.  
N/A  Not Applicable.

7. A. If required by your permit, have you undertaken a study to develop additional storage within the system?  
Yes   
No  Please explain why.  
N/A X Not Applicable.

B. Have you been submitting progress reports as required by your permit?  
Yes   
Date of Submission: \_\_\_\_\_  
No  Please explain why.  
N/A X Not Applicable.

8. A. If required by your permit, have you developed an elevation-storage capacity-surface area table and graph to determine the amount of water supply storage remaining in the reservoir for a given pool elevation?  
Yes   
Date of Submission: \_\_\_\_\_  
No  Please explain why.  
N/A X Not Applicable.

B. Have you installed accurate reservoir pool elevation measuring devices?  
Yes   
No  Please explain why.  
N/A X Not Applicable.

C. Are you maintaining accurate reservoir pool elevation measuring devices?  
Yes   
No  Please explain why.  
N/A X Not Applicable.

D. Are you reporting reservoir elevation/storage volume data as required by your permit?

- Yes
- No  Please explain why.
- N/A  Not Applicable.

**Signature**

Report Preparer: James C Rieben Jr, Ph.D. Date: 12-11-2020

Title: Water Treatment Manager

Signature: \_\_\_\_\_

Address: 150 Pitney Rd., Lancaster, PA 17601

Telephone Number: ( 717 ) 291-4822 Ext.: \_\_\_\_\_ Fax Number: ( 717 ) 291-4716

E-mail Address: JRieben@cityoflancasterpa.com

Name of Responsible Agent or Official: Christine Volkay-Hilditch, P.E., BCEE

Title: Deputy Director of Public Works-Utilities

Address: 1220 New Danville Pike

Telephone Number: ( 717 ) 293-5531 Ext.: \_\_\_\_\_ Fax Number: ( 717 ) 293-5545

E-mail Address: Childitch@cityoflancasterpa.com

**Please Return This Completed Form With Supporting Materials To:**

By regular mail:  
 Pennsylvania Department of Environmental Protection  
 Planning & Conservation Division  
 P.O. Box 8467  
 Harrisburg, PA 17105-8467  
 717.772.4048

OR

By fax: 717.772.5630 OR

OR

By e-mail: [kunruh@pa.gov](mailto:kunruh@pa.gov)



**Pennsylvania Public Utility Commission**  
**v.**  
**City of Lancaster – Water Department**  
**Docket No. R-2021-3026682**  
**Interrogatories of the Office of Consumer Advocate**  
**Set I**

**Witness: Stephen Campbell**

OCA-I-19. How many public fire hydrants are located within that part of the distribution system serving jurisdictional customers?

**Response:** The City has 4,149 public fire hydrants in the distribution system serving the jurisdictional area.

**Pennsylvania Public Utility Commission**  
**v.**  
**City of Lancaster – Water Department**  
**Docket No. R-2021-3026682**  
**Interrogatories of the Office of Consumer Advocate**  
**Set I**

**Witness: Stephen Campbell**

OCA-I-21. How many public fire hydrants in that part of the distribution system serving jurisdictional customers have a fire flow of less than 500 gallons per minute at 20 pounds per square inch?

**Response:** There are 34 fire hydrants in the distribution system serving jurisdictional customers that have a fire flow of less than 500 gpm at 20 lbs. psi.





CITY OF LANCASTER  
WATER UTILITIES

*RESPONSES TO QUALITY OF SERVICE  
FILING REQUIREMENTS*

2. Indicate whether the company is in compliance with 52 Pa. Code, § 65.6(a) regarding normal operating pressure standards, and with 52 Pa. Code, § 65.6(d) regarding pressure surveys at regular intervals.
  - a. Provide details on any water pressure problems, lasting longer than 5 days, which had occurred since the last rate proceeding in any part of the water transmission and distribution system.
  - b. Describe any action taken on a temporary basis, and the long term solutions developed to address any water pressure problems.

RESPONSE

There were no pressure problems lasting more than 24 hours since the last proceeding.

**Pennsylvania Public Utility Commission**  
**v.**  
**City of Lancaster – Water Department**  
**Docket No. R-2021-3026682**  
**Interrogatories of the Office of Consumer Advocate**  
**Set I**

**Witness: Stephen Campbell**

OCA-I-7. For each pressure zone, provide the address (or otherwise identify the location) of every customer who has a normal static head of less than 25 psi and every customer who has a normal static head of greater than 125 psi.

**Response:** The City of Lancaster has 3 pressure zones. They are the regular pressure zone (HGL 518 feet above sea level), the Willow Street Pressure Zone (HGL 611 feet above sea level) and the Blossom Hill Pressure Zone (HGL 588 feet above sea level) The City does not have areas that have average static head less than 25 psi or average static pressure greater than 125 psi.



### Lancaster City Water Quality Complaint Log

Issue	Year			Total	Percent
	2018	2019	2020		
Discolored Water	7	3	12	22	10%
Discolored Water/Brown	56	27	26	109	52%
Discolored Water/Cloudy, Air	4	5	0	9	4%
Discolored Water/Green	3	0	0	3	1%
Discolored Water/Rusty	2	0	0	2	1%
Discolored Water/Yellow	14	7	8	29	14%
Medical	2	0	0	2	1%
No Water	1	0	0	1	0%
Possible Leak	5	0	0	5	2%
Pressure	3	1	1	5	2%
Sediment in Customer Filter	1	3	0	4	2%
Staining	0	1	1	2	1%
Taste and Odor	<u>1</u>	<u>5</u>	<u>11</u>	<u>17</u>	<u>8%</u>
Total	99	52	59	210	100%

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

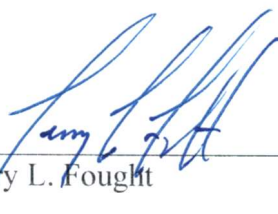
Re: Pennsylvania Public Utility Commission :  
 :  
 v. : Docket No. R-2021-3026682  
 :  
 City of Lancaster – Water Department :

VERIFICATION

I, Terry L. Fought, hereby state that the facts set forth in my Direct Testimony, OCA Statement 5, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: December 23, 2021  
\*321174

Signature:

  
\_\_\_\_\_  
Terry L. Fought

Consultant Address: 780 Cardinal Drive  
Harrisburg, PA 17111

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

<b>Pennsylvania Public Utility Commission</b>	)	
	)	
<b>v.</b>	)	<b>Docket No. R-2021-3026682</b>
	)	
<b>City of Lancaster – Water Department</b>	)	

**SURREBUTTAL TESTIMONY  
OF  
LAFAYETTE K. MORGAN, JR.**

**ON BEHALF OF THE  
OFFICE OF CONSUMER ADVOCATE**

**January 28, 2022**

**TABLE OF CONTENTS**

	<b><u>Page</u></b>
<b>I. INTRODUCTION.....</b>	<b>1</b>
Plant in Service .....	2
Application of the Outside City Allocation Factor .....	5
Operating Revenues .....	6
Payroll Expense .....	9
Susquehanna Treatment Plant Maintenance Expense.....	10
Capital Outlay Expense.....	12
Trench Paving Expense.....	13
Professional and Contract Services Expense .....	13
American Rescue Plan Act (“ARPA”) Funds.....	14

Schedules LKM-1-SR to LKM-11-SR



1 **I. INTRODUCTION**

2 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

3 A. My name is Lafayette K. Morgan, Jr. My business address is 10480 Little Patuxent  
4 Parkway, Suite 300, Columbia, Maryland, 21044. I am a Public Utilities Consultant  
5 working with Exeter Associates, Inc. (Exeter). Exeter is a consulting firm specializing  
6 in issues pertaining to public utilities.

7 Q. ARE YOU THE SAME LAFAYETTE K. MORGAN, JR. WHO SUBMITTED PRE-  
8 FILED DIRECT TESTIMONY ON DECEMBER 23, 2021 IN THIS  
9 PROCEEDING?

10 A. Yes, I am.

11 Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

12 A. The purpose of my surrebuttal testimony is to address the issues discussed in the  
13 rebuttal testimonies of City of Lancaster – Water Department’s (the City) witnesses  
14 Gregory R. Herbert, John J. Spanos, and Patrick S. Hopkins which were filed on  
15 January 13, 2022.

16 Q. ARE YOU INCLUDING UPDATED SCHEDULES SUMMARIZING THE OCA’S  
17 CURRENT REVENUE REQUIREMENT POSITION IN THIS PROCEEDING?

18 A. Yes. I have attached LKM-1-SR to LKM-11-SR to this testimony which present the  
19 OCA’s updated position after taking into account the Company’s rebuttal position.

20 Q. PLEASE SUMMARIZE THE OCA’S UPDATED RECOMMENDATION AS A  
21 RESULT OF THE CHANGES DISCUSSED IN THIS TESTIMONY.

22 A. In this testimony, I respond to the City’s witnesses’ rebuttal testimonies on various  
23 adjustments I recommended in my direct testimony. I have considered the issues  
24 addressed in their rebuttal testimonies and, in some instances, I have modified my

1 adjustments where necessary. As a result of these changes, my revised recommended  
2 total revenue requirement results in an increase in revenues of \$2,057,057 instead of  
3 the \$1,608,023 increase that I recommended in my direct testimony.

4 To the extent that the Company has submitted rebuttal to my position on an  
5 issue that I challenged in my direct testimony, but I did not address in this surrebuttal  
6 testimony, it should not be construed that I agree with the Company.

7 **Plant in Service**

8 Q. PLEASE RESPOND TO MR. SPANOS'S ASSERTION THAT YOU HAVE  
9 INCORRECTLY REMOVED THE \$179,600 RELATED TO THE SOUTH PUMP  
10 STATION DESIGN-RELATED COSTS.

11 A. In my direct testimony, I explained that the City had delayed the construction of the  
12 South Pump Station project and recommended an adjustment to remove the project  
13 from rate base consistent with an update of the construction projects planned to be  
14 placed in service during the fully projected future test year (FPFTY). I also  
15 recommended the removal of the project's \$179,600 design-related costs that the City  
16 did not remove from the list of updated projects to be completed by the end of the  
17 FPFTY. I explained, as the basis of my adjustment, that these costs should be  
18 considered as Construction Work in Progress (CWIP) because they are not an  
19 independent property unit or usable plant asset.

20 Mr. Spanos asserts that I have "incorrectly" removed the South Pump Station  
21 project design-related costs. According to him, the design costs should be included in  
22 rate base because they are a different asset than the construction costs, so design costs  
23 should be capitalized when placed in service.

1                   To be clear, there is nothing incorrect about my adjustment. Mr. Spanos may  
2 disagree with my adjustment, but there is nothing incorrect about it.

3 Q.     WHY SHOULD THE COMMISSION REJECT MR. SPANOS’  
4 RECOMMENDATION AND THE CITY’S PROPOSAL TO INCLUDE THE  
5 SOUTH PUMP STATION DESIGN-RELATED COSTS IN RATE BASE?

6 A.     To support his position, Mr. Spanos makes the following points: 1) the South Tank  
7 Pump Station design costs have already been incurred for the design that has been  
8 substantially completed; 2) the design costs are a different asset than the construction  
9 costs so design costs should be capitalized when placed in service; 3) the Commission  
10 should reject my removal of the design-related costs because “the inclusion of which  
11 was not contested by I&E Witness Cline (who, like Mr. Morgan) also removed the  
12 construction costs related to the South Tank Pumping Station.”

13                   The inclusion of costs in rate base is not based upon whether the costs have  
14 been incurred. Instead, it is based upon whether the plant to which the costs relate will  
15 be in service during the rate effective period. My determination of the costs allowed in  
16 the test year is guided by the Commission’s implementation of the law that allows the  
17 use of the FPPTY. According to the Commission’s Implementation of Act 11 of 2012  
18 Order in Docket No. M-2012-2293611, at page 5:

19                   The fully-projected test year is defined as the 12-month  
20 period that begins with the first month that the new rates will  
21 be placed into effect, after application of the full suspension  
22 period permitted under Section 1308(d). *See* 66 Pa. C.S. §  
23 1308(d).

24                   Also, beginning on page 7 of the same Order, the Commission stated:

25                   Moreover, we expect that in subsequent base rate cases, the  
26 utility will be prepared to address the accuracy of the fully-  
27 projected test year projections made in its prior base rate

1 case. Furthermore, we expect this separate proceeding to  
2 address the appropriate standard the Commission should  
3 establish for “used and useful” facilities that are projected to  
4 be in service during the fully-projected test year to be  
5 included in the rate base for ratemaking purposes. See 66  
6 Pa. C.S. § 315(e).

7 Based on the foregoing, I believe that only plant that is expected to be in service during  
8 the FPFTY should be included in rate base. The flaw in Mr. Spanos’s argument is that  
9 he believes that the incurrence of the capitalized expenditures makes the costs eligible  
10 for rate base inclusion. While he argues that the design costs are a different asset than  
11 the construction costs so the design costs should be capitalized when placed in service,  
12 the fact is the design costs do not form an asset that does anything other than provide a  
13 plan for constructing the South Tank Pumping Station. Consequently, it is not an asset  
14 that is used and useful in providing service *until and unless* the pumping station is  
15 completed and placed in service. If the South Tank Pumping Station were cancelled,  
16 the designs for that plant would have no ongoing value because it is not a stand-alone  
17 asset that produces anything. Instead, it is one of the many costs that are incurred during  
18 the construction of the plant. For instance, if one were to follow Mr. Spanos’s logic,  
19 once the cost for preparing the foundation of the plant structure is incurred, it should  
20 be included in rate base and begin earning a return. The accounting for plant  
21 construction costs is not handled in such a piecemeal manner. Rather, all of the costs  
22 incurred to erect and construct the plant are accumulated in CWIP until completion.

23 Regarding Mr. Spanos’s argument that the Commission should reject my  
24 adjustment because I&E Witness Cline did not make a similar adjustment, I believe  
25 such a recommendation has no merit. The validity of an adjustment does not hinge on  
26 another witness making the same adjustment. Following that logic would mean that  
27 any adjustment that both Mr. Cline and I have made is presumed to be correct.

1                   As I have explained, the City’s inclusion of the South Pump Station design-  
2 related in rate base is inappropriate based the fact that the design-related costs do not  
3 form a used and useful asset in itself. Therefore, the Commission should reject the  
4 City’s claim to include these costs in rate base.

5                   **Application of the Outside City Allocation Factor**

6 Q.           MR. HERBERT INDICATES THAT IN SEVERAL OF YOUR ADJUSTMENTS,  
7 YOU DO NOT APPLY THE OUTSIDE-CITY ALLOCATION FACTOR TO  
8 DETERMINE THE PA PUC JURISDICTIONAL AMOUNTS. PLEASE RESPOND.

9 A.           In determining my adjustment to:

- 10                   • Reflect FPFTY Payroll
- 11                   • Normalize Susquehanna Maintenance of Equipment
- 12                   • Non-Recurring Capital Outlay Expense
- 13                   • Normalize Trench Paving Expense
- 14                   • Normalize Professional & Contract Services Fees

15 I inadvertently did not apply the outside city allocation factor in deriving my adjustment  
16 to the various expense elements of the cost of service. I agree that it is appropriate to  
17 apply the outside city allocation factor in determining the PA PUC jurisdictional  
18 amounts. Accordingly, I have revised my adjustments to reflect the application of the  
19 outside city allocation factor in my revised schedules attached to this testimony. Below,  
20 I have provided a chart that summarizes the changes I have made.

Summary of Revision to O&M Expenses		
Adjustment	OCA Direct	OCA
	Testimony	Surrebuttal
	Amount	Amount
Reflect FPFTY Payroll	\$ 150,615	\$ 105,714
Normalize Susquehanna Maintenance of Equipment	41,923	29,806
Non-Recurring Capital Outlay Expense <sup>1/</sup>	124,851	59,176
Normalize Trench Paving Expense	85,541	60,817
Normalize Professional & Contract Services Fees <sup>2/</sup>	111,634	-

<sup>1/</sup> The change reflects a 3-year recovery of the costs in addition to applying the outside city jurisdictional factor.

<sup>2/</sup> The City has accepted this adjustment.

1 **Operating Revenues**

2 Q. PLEASE EXPLAIN MR. HERBERT’S DISAGREEMENT WITH YOUR  
3 ADJUSTMENT TO THE ANNUALIZATION OF REVENUES.

4 A. In my direct testimony, I recommended an adjustment to annualize operating revenues  
5 to reflect the 3-year compound growth in the number of customers instead of the City’s  
6 approach which is based upon the difference between 2019 and 2020.

7 In Mr. Herbert’s rebuttal testimony, he first explains that the City discovered  
8 an error related to the R-2, R-5, R-9 and R-12 components of its revenue adjustment  
9 presented in Exhibit GRH-1 and that a correction of the error was being made in his  
10 rebuttal testimony. In my direct testimony, this error caused an understatement of my  
11 adjustment to annualize operating revenues because the City had understated the  
12 average annual bill for commercial and industrial customers.

13 Mr. Herbert then indicates that he disagrees with the adjustment that I have  
14 recommended to annualize revenues based on the 3-year compound growth rate.

1 According to Mr. Herbert, my adjustment should be rejected because the  
2 methodology used in his Exhibit GRH-1 and Exhibit GRH-1R, to project the gain or  
3 loss of customers based on the difference between 2019 and 2020, has been the  
4 approach used in past cases.

5 Q. PLEASE RESPOND TO MR. HERBERT DISAGREEMENT WITH YOUR  
6 ADJUSTMENT.

7 A. One of the principles of rate making is that the test year should represent the operating  
8 results of a utility on a normalized basis. In other words, revenue and expenses should  
9 be adjusted to minimize the effect of abnormal, unusual and extraordinary activities  
10 that do not recur annually. The chart below summarizes the change in the number of  
11 outside city customers during the historical test year and the two prior years. As can be  
12 seen on the chart, the change in the number of customers shows that the annual change  
13 is not consistent from year to year. So, if one projects the change in customers on only  
14 one data point (the difference between 2019 and 2020), it could lead to incorrect  
15 conclusions.

CITY OF LANCASTER WATER			
Change in the Number of Outside City Customers			
Customer Classification	Change by Year		
	2018	2019	2020
Residential	221	155	189
Commercial	22	6	(8)
Industrial	-	1	2
Other Water Utilities	-	-	-

Source: I&E-RS-4-D Attachment

16 Consider the commercial customers in the chart above as an example of how  
17 one could reach the wrong conclusions. The City's approach would lead to the use of  
18 a decrease of eight customers in the annualization of revenues. But when one considers

1 the recent history of commercial customer additions, there is an explanation for the  
2 decrease in customers during 2020. One only has to recall that 2020 was the year with  
3 the declaration of a State of Emergency and lock downs due to the COVID-19  
4 pandemic. During this period, certain commercial establishments were unable to  
5 continue operations because of the loss of customers due to stay at home requirements  
6 and personal health concerns. Thus, it is understandable that there would be a loss of  
7 commercial customers during 2020. However, since 2021 the economy has reopened,  
8 and the federal government has provided stimulus money to encourage economic  
9 growth. (Even the City received economic stimulus funds.) With this brief historical  
10 context, it is not reasonable to calculate the annualized revenues using the City's  
11 approach just because it is the methodology that has been the approach used in past  
12 cases. Therefore, the Commission should reject the City's approach to the revenue  
13 annualization.

14           Regarding Mr. Herbert's disclosure of the error in the City's calculation of  
15 certain components of the revenue annualization, the affected components were the  
16 average annual bill amounts for commercial and industrial customers. I have accepted  
17 the corrections and incorporated them into my calculation of the annualized revenues.  
18 After reflecting this change, my revised adjustment to the annualized revenues is now  
19 \$86,110, as shown on Schedule LKM-5-SR, instead of the adjustment of \$20,409  
20 presented in my direct testimony.



1 **Payroll Expense**

2 Q. MR. HERBERT HAS INDICATED THAT THERE WAS AN ERROR IN THE  
3 CITY'S PAYROLL EXPENSE CALCULATION. PLEASE RESPOND.

4 A. In his rebuttal testimony, Mr. Herbert explains that the City has determined that the  
5 Deputy Director Public Works' salary was effectively double counted in the cost of  
6 service and that a correction has been incorporated in the City's rebuttal position. I have  
7 accepted the correction and included it in my revenue requirement calculation.

8 Q. PLEASE RESPOND TO MR. HERBERT'S DISAGREEMENT WITH YOUR  
9 ADJUSTMENT TO PAYROLL EXPENSE.

10 A. In my direct testimony, I explained that I removed the payroll expense adjustment  
11 proposed by the City to include the 2023 payroll increase from the cost of service. As  
12 I explained in my direct testimony, the use of a fully projected future test year is  
13 intended to allow rates to be set to reflect the costs and revenues that will be incurred  
14 during the first year the new rates will be in effect. The City's wage increase adjustment  
15 attempts to include a full year of payroll cost increases that will be incurred in the year  
16 following the FPFTY. I indicated that these costs should not be included in the cost of  
17 service because they are post-FPFTY costs. As I layout in my direct testimony, my  
18 position is consistent with Act 11, the Act that authorized the use of the FPFTY.

19 Mr. Herbert disagrees with my adjustment on the basis that January 1, 2023 (the  
20 day on which the new pay rates become effective) is "one day past the end of the  
21 FPFTY, and based upon the history of union contract increases averaging 2.71% over  
22 a seven year period from 2016 to 2022, the City anticipates that the union contract that

1 is currently being negotiated for the period of 2023, 2024, and 2025 will include an  
2 annual increase to salaries and wages that is at least 2.75% in each of those years.”<sup>1</sup>

3 The explanation provided by Mr. Herbert is not relevant to the inclusion of the  
4 post-FPPTY costs in the cost of service because Act 11 limits the cost recovery to only  
5 the costs incurred during the first year rates are in effect, not the full 12 months after  
6 the end of the FPPTY. So, if the payroll increase were to become effective on December  
7 1, 2022, the City would be eligible to recover the increase to be incurred only during  
8 the month of December 2022, instead of a full twelve months (the annualized effect)  
9 of the wage increase. Therefore, the fact that the wage increase would go into effect the  
10 day after the FPPTY ends is not relevant.

11 In addition, Mr. Herbert states that the contract between the City and the union  
12 is being negotiated. Therefore, any projected salary and wage increase is not yet known  
13 and certain and should be considered speculative at the moment. On that basis alone,  
14 the projected payroll rate increase should not be allowed in the FPPTY cost of service.

15 Based on the foregoing, the Commission should reject the City’s claim.

16 **Susquehanna Treatment Plant Maintenance Expense**

17 Q. PLEASE RESPOND TO MR. HERBERT’S DISAGREEMENT WITH YOUR  
18 ADJUSTMENT TO NORMALIZE THE SUSQUEHANNA TREATMENT PLANT  
19 MAINTENANCE EXPENSE?

20 A. In my direct testimony, I recommended an adjustment to normalize the Susquehanna  
21 Treatment Plant Maintenance Expense based on an average of the three-year period  
22 2018, 2019 and 2020 because the test year amount (which was the 2020 amount) was  
23 unusually high. Mr. Herbert disagrees with my adjustment in his rebuttal testimony.

---

<sup>1</sup> City of Lancaster Statement No. 3R, page 13, line 5.

1 According to Mr. Herbert, “the City will incur maintenance equipment expenses each  
2 year that are necessary to maintain its treatment plants in order to supply its customers  
3 with safe drinking water, as this is the nature of treatment plant maintenance.  
4 Accordingly, these are not non-recurring expenses.” He challenges my claim that the  
5 test year expense level was abnormally high because of the \$272,000 that was budgeted  
6 for this expense in the 2021 budget as evidence of the increase in expenses.

7 Despite these claims by Mr. Herbert, the City has not fully justified the expenses  
8 claimed for 2022. The City filed its rate case based upon a fully projected test year  
9 ending December 3, 2022. However, in the reproduced data request (below) to the City,  
10 there was no 2022 budget to evaluate its FPFTY claims.

**Pennsylvania Public Utility Commission**  
**v.**  
**City of Lancaster – Water Department**  
**Docket No. R-2021-3026682**  
**Interrogatories of the Office of Consumer Advocate**  
**Set V**

**Witness: Patrick Hopkins**

OCA-V-1. Please provide a copy of the 2021 and 2022 capital and operating budgets adopted for the City of Lancaster – Bureau of Water. In your response, please provide a narrative explaining the budgetary process for the Bureau of Water. Explain how the capital and operating budgets are developed, including the sources of data and the use of escalation rates.

Response: Please refer to Exhibit D XI-4 for the 2021 budget. The City’s 2022 budget is not yet available. The narrative explaining the budgetary process is included within the budget.

11 The data provided in Exhibit D XI-4 of the filing was budgeted data only for 2021 and  
12 provided no explanation about assumptions and data sources for the amounts. In several  
13 instances, the City was asked in discovery requests to provide budgeted and actual data  
14 in different forms and the City either did not provide the information or provided

1 inadequate data.<sup>2</sup> Additionally, no other data was provided by the City to lead one to  
2 conclude that 2022 expenses were increasing. Hence, the only data that was available  
3 to evaluate the City’s claim was the historical data. The 3-year data I presented on  
4 Schedule LKM-7 clearly demonstrate an unusual increase in the expense. I also did not  
5 claim that the entire Susquehanna Treatment Plant Maintenance Expense was non-  
6 recurring as stated by Mr. Herbert. He has taken my statement out of context. Instead,  
7 I was speaking specifically about the 2020 incremental expense. His claim that the  
8 \$272,000 that was budgeted for this expense in the 2021 budget as evidence of the  
9 increase in expenses is not valid because the description of the work to be done  
10 describes it as “overhaul maintenance.” Overhaul maintenance is not a typical annual  
11 maintenance work.

12 Based on the foregoing, the Commission should reject Mr. Herbert’s position.

13 **Capital Outlay Expense**

14 Q. PLEASE RESPONSE TO MR HERBERT’S DISAGREEMENT WITH YOUR  
15 ADJUSTMENT TO CAPITAL OUTLAY EXPENSE?

16 A. In my direct testimony I recommended an adjustment to remove these two expenditures  
17 from the O&M expenses to reflect a normal level of expenses given that these  
18 categories had no costs during the two previous years. Based on Mr. Herbert’s rebuttal  
19 testimony, I have reconsidered my adjustment. I have revised my adjustment to reflect  
20 a 3-year normalization of the test year expense. Therefore, on Schedule LKM-8-SR, I  
21 have revised my adjustment to reflect a decrease of \$59,176 instead of the \$124,851  
22 decrease presented in my direct testimony.

---

<sup>2</sup> See OCA-V-1 through 6, 8, XI-1 and XI-2

1 **Trench Paving Expense**

2 Q. PLEASE RESPONSE TO MR HERBERT’S DISAGREEMENT WITH YOUR  
3 ADJUSTMENT TO TRENCH PAVING EXPENSE?

4 A. In my direct testimony, I recommended an adjustment to normalize the Trench Paving  
5 Expense over a 3-year period because the test year amount for Trench Paving (Account  
6 No. 620.5) was significantly higher than the previous years.

7 Mr. Herbert disagrees with my adjustment and states that while the City has  
8 made efforts to decrease trench paving costs by completing the work in house, the  
9 demands for trench paving jobs are increasing each year.

10 The Commission should reject Mr. Herbert’s claim because the City has  
11 provided very limited data to substantiate its claim. The budget data provided in Exhibit  
12 D XI-4 of the filing was budgeted data only for 2021 and provided no explanation about  
13 assumptions and data sources for the amounts. Additionally, no other data was provided  
14 by the City in response to discovery requests to lead one to conclude that 2022 expenses  
15 were increasing, and if so, by how much. Hence, the only data that was available to  
16 evaluate the City’s claim was the historical data. The 3-year data I presented on  
17 Schedule LKM-9 clearly demonstrate an unusual increase in the expense. Therefore,  
18 the 3-year normalization of this expense is reasonable.

19 **Professional and Contract Services Expense**

20 Q. WHAT ADJUSTMENT ARE YOU RECOMMENDING TO PROFESSIONAL  
21 AND CONTRACT SERVICES EXPENSE?

22 A. In my direct testimony, I recommended an adjustment to normalize the Professional  
23 Services Expense (Account No. 631.8) and Contract Services Expense (Account No.  
24 675.8) over a 3-year period. While Mr. Herbert has accepted my adjustment, he

1 disagrees with the level of expenses. According to him, I have artificially inflated my  
2 adjustment because I included rate case expenses of \$68,494 in the 3-year average and  
3 I have attributed the entire expense to the outside city jurisdictional customers.

4 I have already acknowledged that the jurisdictional allocation factors should be  
5 applied the various O&M adjustment that I have recommended, so I have revised my  
6 adjustment to reflect the allocation factor. In addition, I have taken another review of  
7 the data source I used to calculate my adjustment and will accept Mr. Herbert's  
8 recommendation that the rate case expense be removed from the derivation of the 3-  
9 year average. On Schedule LKM-10-SR, I have revised my adjustment to normalize  
10 the expense resulting in an adjustment of \$0 instead of the \$111,634 presented in my  
11 direct testimony because the City has accepted the adjustment.

12 **American Rescue Plan Act (“ARPA”) Funds**

13 Q. WHAT CONCERNS DO YOU HAVE WITH RESPECT TO THE USE OF  
14 FEDERAL AMERICAN RESCUE PLAN ACT (“ARPA”) FUNDS FOR THE  
15 WATER UTILITY?

16 A. In the response to OCA-VI-3(c), the City stated:

17 The City of Lancaster (not specifically the Bureau of Water)  
18 has received an allocation of ARPA funds. The City has  
19 received the first 50% of its allocated funds. A portion of  
20 those funds (\$5.9 million) were used to purchase a 30.4 acre  
21 property adjacent to the Bureau of Water Oyster Point  
22 Reservoir property.

23 When I filed my direct testimony, I had interpreted the response to mean that the funds  
24 were received by the City of Lancaster and the funds were used to purchase property  
25 that was to be owned by the City of Lancaster for non-Bureau of Water activities.

1           However, the rebuttal testimony of Mr. Hopkins has provided more details on  
2 the transaction that causes concern. According to Mr. Hopkins’s testimony, the City  
3 received direct funding through the ARPA. The funds received were allowed to be used  
4 for investing in water, sewer and broadband infrastructure. The Lancaster City Council  
5 authorized the use of \$5.9 million of the City’s ARPA funding to purchase the 30.4-  
6 acre property at 1625 Stony Battery Road, adjacent to the City-owned 27.1-acre Oyster  
7 Point Reservoir property, on which a 12 million gallon underground water reservoir is  
8 located. While there are currently no definitive plans as to how the property will  
9 ultimately be used in the water system, it appears that the purchase of the property was  
10 for the City to gain control of the parcel of land available for future expansion of the  
11 Oyster Point Reservoir or for other Bureau of Water transmission and distribution  
12 system improvements.

13           The legislation adopted by the City Council to authorize use of the ARPA funds  
14 for purchase of the property also expressly required that the Bureau of Water finance  
15 the repayment of the \$5.9 million purchase price to the City within three years. Mr.  
16 Hopkins states that the Bureau of Water will be including the \$5.9 million purchase  
17 price repayment in future financing to comply with the City Council-approved  
18 legislation.

19           These funds appear to be used for water infrastructure, so I am not questioning  
20 the use of the funds. The issue of concern is whether it is appropriate to charge PA PUC  
21 jurisdictional customers financing costs for funds that were provided as a grant, which  
22 requires no repayment, from their federal tax dollars.<sup>3</sup> I believe it is not appropriate.

---

<sup>3</sup> Regarding repayment of the grant, in response to OCA-XII-5, the City stated: “The US Treasury was the entity that granted the ARPA funds to the City. The City is unable to answer this question at this time, as it is not the final arbiter of whether award dollars have been spent in a manner consistent with and in compliance with the ARPA and associated rules and regulations issued by the US Treasury related to the specific statutory authority by which the City of Lancaster was granted the ARPA funds. However, the City believes that the purchase of

1           Therefore, I recommend that the Commission expressly order that any financing costs  
2           related to the \$5.9 million purchase repayment be excluded from the cost of service in  
3           future rate proceedings before this Commission.

4    Q.    DOES THIS COMPLETE YOUR SURREBUTTAL TESTIMONY?

5    A.    Yes, it does.

---

the property was an appropriate and allowable use of the ARPA funds it received.” Hence, repayment would only be required if it was deemed that the funds were used in a manner not consistent with the ARPA. The OCA is not aware of anything that provides a basis for the OCA to challenge the use of the funds.

---



**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

<b>Pennsylvania Public Utility Commission</b>	)	
	)	
<b>v.</b>	)	<b>Docket No. R-2021-3026682</b>
	)	
<b>City of Lancaster – Water Department</b>	)	

**SCHEDULES ACCOMPANYING THE  
SURREBUTTAL TESTIMONY  
OF  
LAFAYETTE K. MORGAN, JR.**

**ON BEHALF OF THE  
OFFICE OF CONSUMER ADVOCATE**

**January 28, 2022**

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Summary of Operating Income  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Company Amounts at Present Rates	OCA Adjustments	Amounts After OCA Adjustments	Pro Forma Change in Revenues	Amounts After Change in Revenues
	<u>Operating Revenues</u>					
1	Total Water Sales	\$ 18,932,503	\$ 86,110	\$ 19,018,613	\$ -	\$ 19,018,613
2	Total Other Revenues	588,090	-	588,090	-	588,090
3	Revenue Increase	-	-	-	2,057,057	2,057,057
4	Total Operating Revenues	<u>19,520,593</u>	<u>86,110</u>	<u>19,606,703</u>	<u>2,057,057</u>	<u>21,663,760</u>
5						
6	<u>Operating Expenses</u>					
7	O&M Expenses	10,291,603	(326,423)	9,965,180	-	9,965,180
8	Depreciation	3,408,721	(3,395)	3,405,326	-	3,405,326
9	Taxes, Other Than Income	-	-	-	-	-
10	State Income Taxes	-	-	-	-	-
11	Federal Income Taxes	-	-	-	-	-
12						
13	Total Operating Expenses	<u>13,700,324</u>	<u>(329,818)</u>	<u>13,370,506</u>	<u>-</u>	<u>13,370,506</u>
14						
15	Net Operating Income	<u>\$ 5,820,269</u>	<u>\$ 415,927</u>	<u>\$ 6,236,196</u>	<u>\$ 2,057,057</u>	<u>\$ 8,293,253</u>
16						
17	Rate Base	<u>\$ 148,251,352</u>		<u>\$ 148,093,799</u>		<u>\$ 148,093,799</u>
18						
19	Return On Rate Base	<u>3.93%</u>		<u>4.21%</u>		<u>5.60%</u>

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Summary of Revenue Increase at OCA Rate of Return  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Amount	Source
1	Adjusted Rate Base	\$ 148,093,799	Schedule LKM-2, Page 2
2	Required Rate of Return	<u>5.600%</u>	OCA Witness Garrett
3			
4	Net Operating Income Required	\$ 8,293,253	
5	Net Operating Income at Present Rates	<u>6,236,196</u>	Schedule LKM-1, Page 1
6			
7	Income Deficiency/(Surplus)	\$ 2,057,057	
8	Revenue Multiplier	<u>1.000000</u>	
9			
10	Required Change in Company Revenue	<u><u>\$ 2,057,057</u></u>	

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Summary of Rate Base  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Amount per Company Filing	OCA Rate Base Adjustments	Amount After OCA Adjustments
1	Original Cost of Utility Plant in Service	\$ 286,750,522	\$ (179,600)	\$ 286,570,922
2	Accumulated Depreciation	<u>(78,306,323)</u>	<u>3,395</u>	<u>(78,302,928)</u>
3	Net Plant in Service	208,444,199	(176,205)	208,267,994
4	Other Rate Base Items:			
5	Customer Advances for Construction	(544,557)	-	(544,557)
6	Accumulated Depreciation	<u>245,581</u>	<u>-</u>	<u>245,581</u>
7	Subtotal	(298,976)	-	(298,976)
8	Customer Advances for Construction	(14,390,926)	-	(14,390,926)
9	Accumulated Depreciation	<u>2,902,037</u>	<u>-</u>	<u>2,902,037</u>
10	Subtotal	(11,488,889)	-	(11,488,889)
11				
12	Cash Working Capital	<u>1,809,441</u>	<u>(34,713)</u>	<u>1,774,729</u>
13	Total Rate Base	\$ 198,465,775	\$ (210,918)	\$ 198,254,858
14	Outside City Allocation Factor	<u>0.746986991</u>	<u>0.746986991</u>	<u>0.746986991</u>
15	Outside City Total Rate Base	<u>\$ 148,251,352</u>	<u>\$ (157,553)</u>	<u>\$ 148,093,799</u>

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Summary of Rate Base Adjustments  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Source	Amount
1	Rate Base per Company Filing	Schedule LKM-2, Page 1	\$ 148,251,352
2			
3			
4	<u>OCA Adjustments:</u>		
5	Adjustment to Reflect Revised Rate Base Components	Schedule LKM - 4	\$ (176,205)
6	Reflect OCA's Adjustment in Cash Working Capital	OCA Witness DeAngelo	(34,713)
7			-
8			
9	Total Ratemaking Adjustments		\$ (210,918)
10			
11	Adjusted Rate Base per OCA		\$ 148,040,435

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Summary of Adjustments to Income Before Income Taxes  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Amount	Source
1	Operating Income per Company	\$ 5,820,269	Schedule LKM-1
2			
3	<u>OCA Adjustments:</u>		
4	Annualize Operating Revenues	\$ 86,110	Schedule LKM-5
5	Reflect FPFTY Payroll	105,714	Schedule LKM-6
6	Normalize Susquehanna Maintenance of Equipment	29,806	Schedule LKM-7
7	Non-Recurring Capital Outlay Expense	59,176	Schedule LKM-8
8	Normalize Trench Paving Expense	60,817	Schedule LKM-9
9	Normalize Professional & Contract Services Fees	-	Schedule LKM-10
10	Remove FPFTY Plant from Depreciation Expense	3,395	Schedule LKM-14
11	Normalization of Rate Case	70,909	OCA witness DeAngelo
12			
13	Total OCA Adjustments	<u>415,927</u>	
14			
15	Total OCA Adjustments	<u>\$ 6,236,196</u>	

**CITY OF LANCASTER – BUREAU OF WATER**  
Outside City Revenue Requirement  
Summary of Adjustments to Operating Income  
For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Operating Revenues	O&M Expenses	Depreciation & Amortization	Taxes Other Than Income	State Income Taxes	Federal Income Taxes	Operating Income Before Income Taxes
1	Amount per Company	\$ 19,520,593	\$ 10,291,603	\$ 3,408,721	\$ -	\$ -	\$ -	\$ 5,820,269
2								
3	<u>OCA Adjustments:</u>							
4	Annualize Operating Revenues	\$ 86,110	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 86,110
5	Reflect FPFTY Payroll	-	(105,714)	-	-	-	-	105,714
6	Normalize Susquehanna Maintenance of Equipment	-	(29,806)	-	-	-	-	29,806
7	Non-Recurring Capital Outlay Expense	-	(59,176)	-	-	-	-	59,176
8	Normalize Trench Paving Expense	-	(60,817)	-	-	-	-	60,817
9	Normalize Professional & Contract Services Fees	-	-	-	-	-	-	-
10	Remove FPFTY Plant from Depreciation Expense	-	-	(3,395)	-	-	-	3,395
11	Normalization of Rate Case	-	(70,909)	-	-	-	-	70,909
12								
13								
14	Total OCA Adjustments	\$ 86,110	\$ (326,423)	\$ (3,395)	\$ -	\$ -	\$ -	\$ 415,927
15								
16	Total Adjusted Income Before Income Taxes	\$ 19,606,703	\$ 9,965,180	\$ 3,405,326	\$ -	\$ -	\$ -	\$ 6,236,196

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Adjustment to Reflect Revised Rate Base Components  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Amount per City Filing	FPPTY Amount per Revised Exhibit JJS-3	OCA Rate Base Adjustments
1	<u>Plant in Service:</u>			
2	Original Cost of Utility Plant in Service	\$ 286,750,522	\$ 286,750,522	\$ -
3	South Pump Station Design Related Costs			(179,600)
4	Total Adjustment to Plant in Service			<u>\$ (179,600)</u>
5	<u>Accumulated Depreciation</u>			
6	Total Depreciable Plant - Accumulated Depreciation	\$ (78,306,323)	\$ (78,306,323)	\$ -
7	South Pump Station Design Related Costs Accumulated Depreciation			3,395
8	Total Adjustment to Accumulated Depreciation			<u>\$ 3,395</u>
9	Net Decrease in Rate Base			<u><u>\$ (176,205)</u></u>

Notes:

<sup>1/</sup> Exhibit GRH-1, Schedule 4.

<sup>2/</sup> Revised Exhibit JJS-3.



**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Adjustment to Annualize Operating Revenues  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Number of Customers 31-Dec-20 <sup>1/</sup>	Growth Factor <sup>2/</sup>	Number of Customers 31-Dec-21	FPPTY Gain/Loss in Customers	Number of Customers 31-Dec-22	Increase in of Customers Over HTY	Average Annual Bill, Present Rates	FPPTY Revenue Adjustment <sup>1/</sup>
1	Residential	28,914	100.65997%	29,105	100.65997%	29,297	383	\$ 311.86	\$ 119,415
2	Commercial	1,870	100.35907%	1,877	100.35907%	1,883	13	6,471.47	87,063
3	Industrial	69	101.49276%	70	101.49276%	71	2	28,151.88	58,426
4									
5	Total								264,904
6	Annualized Operating Adjustment per City								178,794 <sup>1/</sup>
7									
8	Adjustment to Annualize Operating Revenues								<u>\$ 86,110</u>

Notes:

<sup>1/</sup> Exhibit GRH-1, Schedule 5.

<sup>2/</sup> Schedule LKM-4, Page 2.

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Calculation Compound Customer Growth Rate  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Customer Classification	As of 12/31/2017		As of 12/31/2018		As of 12/31/2019		As of 12/31/2020		3-Year Compound Growth Rate
		Inside-City	Outside-City	Inside-City	Outside-City	Inside-City	Outside-City	Inside-City	Outside-City	
	(1)	(2)	(3)	(2)	(3)	(2)	(3)	(4)	(5)	
1	Residential	14,893	28,349	14,932	28,570	14,930	28,725	14,924	28,914	0.65997%
2	Commercial	2,012	1,850	1,900	1,872	1,894	1,878	1,890	1,870	0.35907%
3	Industrial	42	66	40	66	40	67	40	69	1.49276%
4	Other Water Utilities	0	5	0	5	0	5	0	5	
5	Total	16,947	30,270	16,872	30,513	16,864	30,675	16,854	30,858	

Data Source:  
 I&E-RS-4-D

**CITY OF LANCASTER – BUREAU OF WATER**  
Outside City Revenue Requirement  
Adjustment to Reflect FPFTY Payroll  
For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Annualized Based on 1/1/2022	<sup>1/</sup>	Annualized Based on 1/1/2023	<sup>1/</sup>	Adjustment
<b>Regular Payroll</b>						
1	Susquehanna Treatment Plant	\$ 1,015,365		\$ 1,043,288		\$ (27,923)
2	Conestoga Treatment Plant	1,003,698		1,031,300		(27,602)
3	Laboratory	243,696		250,398		(6,702)
4	Laboratory - Temporary	-		-		-
5	Transmission/Distribution	966,077		992,644		(26,567)
6	Transmission/Distribution - Temporary	-		-		-
7	Meter Shop	542,125		557,033		(14,908)
8	Meter Shop - Temporary	-		-		-
9	Admin - Salary Bureau Chief	31,812		32,687		(875)
10	Admin - Personnel	857,402		880,981		(23,579)
11	Grounds Maintenance	134,410		138,107		(3,697)
12	Total Regular Payroll	4,794,585		4,926,438		(131,853)
<b>Overtime Payroll</b>						
14	Susquehanna Treatment Plant	\$ 71,093		\$ 73,048		(1,955)
15	Conestoga Treatment Plant	83,299		85,590		(2,291)
16	Transmission/Distribution	37,836		38,876		(1,040)
17	Grounds Maintenance	16,705		17,164		(459)
18	Meter Shop	19,136		19,663		(526)
19	Total Overtime Payroll	228,070		234,341		(6,272)
	Adjustment to O&M Expense					(138,124)
	Outside City Factor					71.10%
20	Adjustment to Combined Payroll					\$ (98,202)
21	Adjustment to Payroll Tax					\$ (7,512)

Note:

<sup>1/</sup> Exhibit GRH-1, Schedule 6, Page 1.

**CITY OF LANCASTER – BUREAU OF WATER**  
Outside City Revenue Requirement  
Adjustment to Normalize Maintenance of Equipment  
Susquehanna Treatment Plant  
For the Fully Projected Future Test Year Ending December 31, 2022

<u>Line No.</u>	<u>Description</u>	<u>Amount</u> <sup>1/</sup>
1	<u>Maintenance of Equipment Acct. 620.3</u>	
2	2018 Expense	\$ 198,439
3	2019 Expense	166,402
4	2020 Expense	<u>245,306</u>
5	Average Expense	203,382
6	FPFTY Expense	<u>245,306</u>
7	Adjustment to O&M Expense	\$ (41,923)
8	Outside City Factor	<u>71.10%</u>
9	Adjustment to Outside City O&M Expense	<u>\$ (29,806)</u>

Notes:

<sup>1/</sup> Response I&E-1 Attachment

**CITY OF LANCASTER – BUREAU OF WATER**  
Outside City Revenue Requirement  
Adjustment to Non-Recurring Capital Outlay Expense  
For the Fully Projected Future Test Year Ending December 31, 2022

<u>Line No.</u>	<u>Description</u>	<u>Amount</u> <sup>1/</sup>
1	Susquehanna Capital Outlay Expense	\$ 54,015
2	Conestoga Capital Outlay Expense	<u>70,836</u>
3	Total Non-Recurring Capital Outlay Expense	\$ 124,851
4	Normalization Period (3 Years)	<u>3</u>
5	Adjustment to O&M Expense	\$ 41,617
6	Test Year Amount	<u>124,851</u>
7	Adjustment to O&M Expense	\$ (83,234)
8	Outside City Factor	<u>71.10%</u>
9	Adjustment to Outside City O&M Expense	<u><u>\$ (59,176)</u></u>

Notes:

<sup>1/</sup> Response I&E-1 Attachment

**CITY OF LANCASTER – BUREAU OF WATER**  
Outside City Revenue Requirement  
Adjustment to Normalize Trench Paving Expense  
For the Fully Projected Future Test Year Ending December 31, 2022

<u>Line No.</u>	<u>Description</u>	<u>Amount</u> <sup>1/</sup>
1	<u>Trench Paving Acct. 620.5</u>	
2	2018 Expense	\$ 30,954
3	2019 Expense	44,128
4	2020 Expense	<u>165,853</u>
5	Average Expense	80,312
6	FPFTY Expense	<u>165,853</u>
7	Adjustment to O&M Expense	(85,541)
8	Outside City Factor	<u>71.10%</u>
9	Adjustment to Outside City O&M Expense	<u><u>\$ (60,817)</u></u>

Notes:

<sup>1/</sup> Response I&E-1 Attachment

**CITY OF LANCASTER – BUREAU OF WATER**  
 Outside City Revenue Requirement  
 Adjustment to Normalize Professional & Contract Services Fees  
 For the Fully Projected Future Test Year Ending December 31, 2022

Line No.	Description	Amount <sup>1/</sup>
1	<u>Professional Services Acct. 631.8</u>	
2	2018 Expense	\$ 454,291
3	2019 Expense	406,768
4	2020 Expense	<u>520,191</u>
5	Average Expense	\$ 460,417
6	<u>Contract Services Acct. 675.8</u>	
7	2018 Expense	\$ 19,726
8	2019 Expense	13,500
9	2020 Expense	<u>25,909</u>
10	Average Expense	\$ 19,712
11	Total Professional & Contract Services Fees	480,129
12	FPFTY Expense	<u>480,129</u>
13	Adjustment to O&M Expense	-
14	Outside City Factor	<u>71.10%</u>
15	Adjustment to Outside City O&M Expense	<u><u>\$ -</u></u>

Notes:

<sup>1/</sup> Response I&E-1 Attachment

**CITY OF LANCASTER – BUREAU OF WATER**

Adjustment to Depreciation Expense  
For the Fully Projected Future Test Year Ending December 31, 2022

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>
1	Depreciation on South Pump Station Design Costs per OCA	\$ -
2	Depreciation on South Pump Station Design Costs per City	<u>3,395</u> <sup>1/</sup>
3	Adjustment to Depreciation Expense	<u><u>\$ (3,395)</u></u>

Note:

<sup>1/</sup> Revised Exhibit JJS-3, page I-3.



BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Re: Pennsylvania Public Utility Commission :  
 :  
 v. : Docket No. R-2021-3026682  
 :  
 City of Lancaster – Water Department :

VERIFICATION

I, Lafayette K. Morgan, hereby state that the facts above set forth in my Surrebuttal Testimony, OCA Statement 1SR, are true and correct and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: January 28, 2022  
\*323369

Signature:   
Lafayette K. Morgan

Consultant Address: Exeter Associates, Inc.  
10480 Little Patuxent Parkway  
Suite 300  
Columbia, MD 21044-3575

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	
	:	
v.	:	Docket No. R-2021-3026682
	:	
City of Lancaster – Water Department	:	

Surrebuttal Testimony of  
**Morgan N. DeAngelo**

On Behalf of  
Pennsylvania Office of Consumer Advocate

January 28, 2022

1 **Introduction:**

2

3 **Q. Please state your name, business address and occupation.**

4 A. My name is Morgan N. DeAngelo. My business address is 555 Walnut Street, Forum  
5 Place, 5<sup>th</sup> Floor, Harrisburg, Pennsylvania 17101. I am currently employed as a Regulatory  
6 Analyst by the Pennsylvania Office of Consumer Advocate (OCA).

7

8 **Q. Have you previously provided testimony in this case?**

9 A. Yes. I provided direct testimony in this case on December 23, 2021, in OCA Statement 2.

10

11 **Q. What is the purpose of your surrebuttal testimony?**

12 A. In my surrebuttal testimony, I will comment on the rebuttal testimony of the City of  
13 Lancaster – Water Bureau (the “City”) witnesses Patrick S. Hopkins (City Rebuttal  
14 Testimony Statement No. 1 R) and Gregory R. Herbert (City Rebuttal Testimony Statement  
15 No. 3 R), which respond to issues discussed in my direct testimony.

16

17 **Q. Please summarize your direct testimony.**

18 A. My direct testimony discusses details regarding the impacts the ongoing COVID-19  
19 Pandemic has had, the provisions to Section 8.4 brought forth in Supplement No. 46 to  
20 Water Tariff No. 6 by the City, Rate Case Normalization, and Cash Working Capital.  
21 These specific facts should be considered by the Pennsylvania Public Utility Commission  
22 (“Commission”) in this proceeding.

23

1 **Response to the City’s Rebuttal Testimony:**

2 **City Statement 1 R, Patrick S. Hopkins regarding the impacts of the COVID-19 Pandemic**  
3 **and the provisions to Section 8.4 of the Tariff**

4  
5 **Q. Please summarize Mr. Hopkins’ rebuttal testimony regarding the COVID-19 impact**  
6 **section of your direct testimony.**

7 A. Mr. Hopkins stated in his rebuttal testimony that overall, the Commission should  
8 disregard topics in my direct testimony. He does not agree that outside-City customers  
9 are facing hardships and unemployment brought forth by the COVID-19 Pandemic  
10 impacts, as shown in the statewide PULSE survey. (City Statement No. 1 R, p. 7) He  
11 argued there were improper assumptions based on the evidence cited about the outside-  
12 City customers’ economic situation or ability to pay their bills, and the quarterly bill  
13 under proposed water rates is reasonable. (City Statement No. 1 R, p. 8-10)

14  
15 **Q. Do you agree with Mr. Hopkins that the Commission should disregard topics in**  
16 **your direct testimony?**

17 A. No. In my direct testimony I provided valuable data and statistics as to the ongoing  
18 impacts of the COVID-19 Pandemic on Pennsylvania’s economy and on the citizens of  
19 Pennsylvania. While the data is not limited specifically to the City’s service territory or  
20 customers, the information provided the most accurate demonstration of the effects of the  
21 Pandemic on Pennsylvania’s citizens. COVID-19 Pandemic data specific to the City’s  
22 territory and customers does not exist. Statewide data is more reliable than no data.  
23 Therefore, the Commission should thoroughly consider this information when making its  
24 final determinations on the proposed rate increase and its impact on consumers.

1 **Q. Please summarize Mr. Hopkins’ rebuttal testimony regarding provisions to Section**  
2 **8.4 of the Tariff concerning the reconnection fee.**

3 A. Mr. Hopkins explained that fees and costs necessary to complete disconnection and  
4 reconnection of water customers were examined closely by the City Treasury Office and  
5 outside consultants. He then stated “based upon the results of the analysis conducted by  
6 Maximus, the Bureau of Water believes it is reasonable and supported by cost-based  
7 evidence that its reconnection fee should be increased from \$83.00 to \$135.00”. (City  
8 Statement No. 1 R, p. 17).

9

10 **Q. Do you agree with the proposed tariff revision to the reconnection fee in Section 8.4?**

11 A. No. Although the City provided information for the first time in its rebuttal testimony  
12 regarding the cost justification support for the proposed increase to the reconnection fee,  
13 an increase is not supported in this case. Among other things, the City has not provided  
14 information regarding how the proposed reconnection fee compares to the inside City  
15 customers, its total reconnections fee costs, and the allocation factor between inside and  
16 outside City customers. The City did not provide further breakdown of detailed costs  
17 such as the average time required to complete a reconnection and the hourly labor rate of  
18 the personnel performing reconnections. That information should have been provided  
19 with its filing to support its proposed increase.

20 **Q. Do you know the reconnection fee for other cities?**

21 A. The City of Bethlehem and the City of Lock Haven have reconnection fees for service  
22 that is restored after termination for non-payment of a bill or other violation. The chart

1 below shows these fees are significantly lower and not comparable to the proposed  
2 reconnection fee in this case.<sup>1</sup>

<b>City</b>	<b>Reconnection Fee</b>
The City of Bethlehem	\$35.00
The City of Lock Haven	\$15.00

3  
4 The City has failed to support its large, proposed increase to the reconnection fee, including the  
5 reasonableness of the fee. No fee increase should be allowed in this proceeding.

6 **City Statement 3 R, Gregory R. Herbert regarding rate case normalization and cash**  
7 **working capital**

8  
9 **Q. Turning now to City witness Mr. Herbert, please summarize Mr. Herbert’s rebuttal**  
10 **testimony regarding your direct testimony on rate case normalization.**

11 A. Mr. Herbert stated in his rebuttal that “A three-year normalization period is reasonable as  
12 it acknowledges that the rate case expense should be spread over a period of years, but  
13 also does not penalize the City for delaying a subsequent rate case whether due to costs,  
14 requirements from the previous case, limited resources, or any other number of reasons  
15 that could cause the City to file a rate case over a period longer than planned.” (City  
16 Statement No. 3 R, p. 3-4) He indicated the City maintains that the rate case expense  
17 should be normalized over a three-year period, instead of longer normalization periods,  
18 such as the 63-month and 66-month periods that the Bureau of Investigation and  
19 Enforcement (I&E) and OCA suggest, respectively.

20  

---

<sup>1</sup> Reconnection fees for the each City can be found on the Commission’s website at  
<https://www.puc.pa.gov/filing-resources/tariffs/waterwastewater-tariffs/>

1 **Q. Do you agree with the City’s position?**

2 A. No, I do not. There is Commission precedent to utilize the average period between rate  
3 cases to determine the normalization of the rate case expense, as I have done to calculate  
4 the normalization period in this case. The 66-month period for normalizing the  
5 recommended amount of the City’s rate case expense accurately reflects the rate case  
6 filing interval based on analysis of historical filing intervals. As for the City’s concern,  
7 this is not to penalize the City for filing a rate case as needed, but it results in a way to  
8 align the expense recovery over the average period of time when cases are filed.  
9 Therefore, I maintain my recommendation to utilize a 66-month normalization period.  
10 Of course, normalizing this expense over a 66-month period does not prevent the City  
11 from filing a rate case sooner than this, it is simply the most appropriate period to use to  
12 align costs with the average period between rate cases based on the facts that exist at  
13 present.

14  
15 **Q. Please summarize Mr. Herbert’s rebuttal regarding cash working capital.**

16 A. Mr. Herbert stated he “would agree that the O&M expenses included in the calculation of  
17 CWC should reflect any changes to those expenses ultimately allowed in this case.” (City  
18 Statement No. 3 R, p. 18-19) He also indicated Schedule MND-2 miscalculated the  
19 City’s outside-City allocated CWC to be \$1,296,913 instead of the filed amount of  
20 \$1,290,160. Mr. Herbert concluded the City’s CWC has been adjusted based on the  
21 O&M expenses described in rebuttal testimony and reflected in Exhibit GRH-1R. The  
22 City’s updated jurisdictional CWC claim is \$1,280,360. (City Statement No. 3 R, p. 19)

23

1 **Q. Was there another number provided for the CWC claim for outside-City customers**  
2 **in addition to the filed amount?**

3 A. Mr. Herbert stated the City’s updated jurisdictional CWC claim is \$1,280,360. Prior to  
4 that, the City provided a response to I&E-RE-7A that stated “The outside-City CWC  
5 claim is determined by the cost allocation presented in the City’s cost of service study.  
6 Out of the total CWC claim of \$1,826,674, 0.7066 is allocated to the outside-City for a  
7 total of \$1,290,728.” These numbers differ from the filed amount of \$1,290,160 Mr.  
8 Herbert stated in his rebuttal testimony. (City Statement No. 3 R, p. 19)

9

10 **Q. Did you make corrections to your CWC adjustment?**

11 A. Yes. Schedule MND – 2SR has been updated to reflect the corrections identified by Mr.  
12 Herbert in his rebuttal testimony. When using the City’s updated jurisdictional CWC  
13 claim of \$1,280,360, the new recommended total allowance is \$1,245,648 or a reduction  
14 of \$34,713 to the CWC for the outside-City customers. (Schedule MND-2SR) My  
15 adjusted amount should be modified to reflect the total adjustments to O&M, as shown  
16 on Schedule LMK-3SR, p. 2, accepted by the Commission.

17

18 **Conclusion:**

19

20 **Q. Does this conclude your surrebuttal testimony at this time?**

21 A. Yes, it does. However, I reserve the right to modify or supplement my testimony if  
22 necessary.



The City of Lancaster

Adjustment of Rate Case Expense  
For the Fully Projected Future Test Year Ending December 31, 2022

<u>Line No.</u>		
1	Rate Case Expense	\$ 468,000
2	Months to Normalize*	66
3	Annual Normalized Expense	<u>\$ 85,091</u>
4		
5	The City's FTY Expense	<u>156,000</u>
6	OCA Adjustment	<u><u>\$ (70,909)</u></u>

\*This number is calculated using the average number of months between the last two rate cases, 48 and 84 months, respectively.  $(48+84)/2=66$  months.

The City of Lancaster

Adjustment of Cash Working Capital  
For the Fully Projected Future Test Year Ending December 31, 2022

Line No.

1	The City's Projected O&M	\$ 10,291,603
2	Less: OCA Adjustments to O&M	<u>\$ (326,423)</u>
3	OCA Adjusted O&M	\$ 9,965,180
4	CWC Percentage	<u>12.50%</u>
5	Total Cash Working Capital	<u><u>\$ 1,245,648</u></u>
6		
7	The City's Cash Working Capital Expense	<u>\$ 1,280,360</u>
8	OCA Adjustment	<u><u>\$ (34,713)</u></u>

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Re: Pennsylvania Public Utility Commission :  
 :  
 v. : Docket No. R-2021-3026682  
 :  
 City of Lancaster – Water Department :

VERIFICATION

I, Morgan N. DeAngelo, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement 2SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: January 28, 2022  
\*323370

Signature: Morgan N. DeAngelo  
Morgan N. DeAngelo

Consultant Address: Office of Consumer Advocate  
555 Walnut Street  
5<sup>th</sup> Floor, Forum Place  
Harrisburg, PA 17101-1923

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

RE: Pennsylvania Public Utility Commission :  
 :  
 v. : Docket No. R-2021-3026682  
 :  
 City of Lancaster – Water Department :

**SURREBUTTAL TESTIMONY**

**OF**

**DAVID J. GARRETT**

**ON BEHALF OF**

**THE PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE**

**January 28, 2022**

## **I. INTRODUCTION**

1 **Q. Please state your name and business address.**

2 A. My name is David J. Garrett. My business address is 101 Park Avenue, Suite 1125,  
3 Oklahoma City, Oklahoma 73102.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am the managing member of Resolve Utility Consulting, LLC. I am an independent  
6 consultant specializing in public utility regulation.

7 **Q. Have you previously filed testimony in this proceeding?**

8 A. Yes. I filed direct testimony in OCA Statement 3 on December 23, 2021, on behalf of the  
9 Pennsylvania Office of Consumer Advocate (“OCA”). A summary of my qualifications is  
10 included in my direct testimony.

11 **Q. What is the purpose of your surrebuttal testimony?**

12 A. My surrebuttal testimony responds to the rebuttal testimony of City of Lancaster  
13 (“Lancaster” or the “City”) witness Harold Walker, III.

14 **Q. Did any of the rebuttal testimony you reviewed cause you to change your positions  
15 and recommendations as stated in your direct testimony?**

16 A. No. To the extent I did not specifically address a statement made in the rebuttal testimony  
17 filed in this case, it should not constitute my agreement with such rebuttal testimony.

18 **Q. In his rebuttal testimony, did Mr. Walker raise any new, significant issues related to  
19 your cost of equity and rate of return testimony and analysis?**

20 A. No. In Mr. Walker’s rebuttal testimony, it is clear that he disagrees with my opinions  
21 related to the City’s cost of equity estimate, and my return on equity (“ROE”) and capital  
22 structure recommendations. However, I do not believe he raised any new, significant  
23 issues regarding the same. Thus, in my surrebuttal testimony, I will not repeat all the

1 arguments and points raised in my direct testimony; rather, I will reiterate a few important  
2 points in my response to Mr. Walker’s rebuttal testimony.

3 **Q. Please summarize Mr. Walker’s rebuttal testimony regarding your cost of equity**  
4 **estimates.**

5 A. In addition to criticizing my overall rate of return recommendation, Mr. Walker addresses  
6 the issues of capital structure, risk factors, the Capital Asset Pricing Model (“CAPM”), the  
7 Discounted Cash Flow (“DCF”) Model, and the leverage adjustment based on the Hamada  
8 formula. Regarding the CAPM and DCF Model, Mr. Walker argues that my use of a 30-  
9 day stock price average is too short to be used in the DCF Model.<sup>1</sup> He also disagrees with  
10 my long-term growth rate input in the DCF Model. In addition, Mr. Walker criticizes my  
11 equity risk premium (“ERP”) used in my CAPM.<sup>2</sup>

12 **Q. In addition to the issues discussed above, do you have any response to Mr. Walker’s**  
13 **rebuttal testimony regarding the tax adjustment made by Mr. Spadaccio?**

14 A. Yes. While I continue to maintain that the 13% tax adjustment factor I applied to my cost  
15 of capital calculation is reasonable, I do not oppose the 28.55% tax adjustment applied by  
16 Mr. Spadaccio.

17 **Q. Mr. Walker claims that your rate of return recommendations are flawed and do not**  
18 **produce a fair rate of return for Lancaster. Do you agree?**

19 A. No. The difference between my rate of return recommendation and Mr. Walker’s  
20 recommendation is primarily driven by our differing cost of equity estimates. To estimate  
21 cost of equity, both Mr. Walker and I used the same proxy group, and several of the key  
22 inputs to our CAPM and DCF Models are not materially different. The main difference in

---

<sup>1</sup> City of Lancaster Statement No. 6R, Rebuttal Testimony of Harold Walker, III, p. 19.

<sup>2</sup> *Id.* at pp. 30-31.

1 our approaches and results, is due to the fact that I do not apply Mr. Walker's leverage  
2 adjustment to my results. Without the inappropriate leverage adjustment applied by Mr.  
3 Walker, the DCF Model indicates a cost of equity of 8.2%. I recommend an authorized  
4 ROE of 8.2%, which is fair in light of the fact that, when using reasonable inputs without  
5 a leverage adjustment, the CAPM indicates an even lower cost of equity of 7.8%.

6 **Q. Regarding capital structure, Mr. Walker criticizes your use of the 2021 projected**  
7 **capital structures of the proxy group, rather than using 2022 or a further projected**  
8 **time period. Do you have a response?**

9 A. Yes. The 2021 capital structures are reflective of actual, known capital structures of the  
10 proxy companies and therefore require less projection and estimation on the part of Value  
11 Line. While I do not necessarily believe it is unreasonable to use Value Line's projected  
12 2022 capital structures for the proxy group as an indication of a fair ratemaking capital  
13 structure for Lancaster, these figures are far less certain and require greater projection and  
14 estimation on the part of Value Line.

15 **Q. Mr. Walker also claims that you did not adequately consider the risk of Lancaster in**  
16 **comparison with the proxy group. Do you have a response?**

17 A. Yes. Every company in the market place is risky and responds to market risks in varying  
18 degrees. The primary reason analysts use proxy groups in utility rate cases is because there  
19 is not sufficient data for the utility-application being studied to conduct the CAPM and  
20 DCF Model, which rely on market data for publicly-traded companies (such as stock prices,  
21 dividends, and beta estimates). Mr. Walker and I both used the same proxy group, and  
22 obtained the requisite data to estimate how market risk effects the proxy companies  
23 (primarily through the beta term in the CAPM). Since firm-specific risk is not rewarded  
24 by the market (as discussed in detail in my direct testimony), investors do not expect a

1 return for such risks, which can be effectively eliminated through rational portfolio  
2 diversification. I have adequately assessed the market risks of the proxy group through the  
3 beta term of the CAPM, a model which indicates an even lower cost of equity than the  
4 awarded ROE I recommend for Lancaster.

5 **Q. Regarding the DCF Model, would using longer or shorter periods of time for stock**  
6 **price averages have made a material difference in your DCF cost of equity input?**

7 A. No. In my direct testimony, I discuss my opinions regarding why I believe a 30-day  
8 average of stock prices is advisable when estimating utility cost of equity in rate  
9 proceedings. Some analysts choose longer periods of time, which is not necessarily  
10 unreasonable. Because utility stocks are relatively less influenced by market risk (as  
11 observed in their low betas), their stock prices do not fluctuate widely relative to the  
12 market. The primary factor driving the discrepancy in Mr. Walker's and my DCF Models  
13 is not the length of time for our stock price averages, but rather our long-term growth rate  
14 inputs.

15 **Q. Mr. Walker also criticizes the long-term growth rate input used in your DCF Model.**  
16 **Do you have a response to his criticisms?**

17 A. Yes. Mr. Walker discusses his disagreements with my consideration of nominal GDP as a  
18 typical limiting factor to the terminal growth rate input in the DCF model. Regardless of  
19 our differing opinions on this subject from a conceptual standpoint, in this case I ultimately  
20 used a growth rate cited by Mr. Walker himself as part of my DCF calculation. In my  
21 opinion, the growth rate I used in my DCF model is the highest reasonable growth rate that  
22 should be considered in this case. This idea is furthered by the fact that the CAPM results  
23 are notably lower than the DCF results. The CAPM is a model specifically designed to  
24 measure cost of equity, whereas the DCF is not.



1 **Q. Mr. Walker also highlights the actual earned returns of the proxy group as an**  
2 **indication of Lancaster’s cost of equity and fair authorized return. Do you agree with**  
3 **these arguments?**

4 A. No. Mr. Walker notes the earned returns on common equity for the proxy group and  
5 suggests that an authorized ROE of 8.2% would put the City at a disadvantage.<sup>3</sup> Mr.  
6 Walker’s reasoning ignores the difference between cost of equity and earned returns on  
7 equity. They are completely different concepts. The best example to show this is any  
8 period in which a company earns a negative return on equity. This does not mean this  
9 company’s investors required a negative return at that time. Instead, the cost of equity is a  
10 forward-looking concept that primarily considers market risks and its relative impacts on  
11 individual firms in the marketplace. In addition, if awarded ROEs were set based on earned  
12 ROEs, it would inevitably create a circular reference or feedback loop that would be  
13 disconnected from capital costs. When setting a fair awarded ROE, the Commission should  
14 focus on cost of equity (as estimated through the CAPM and DCF Model) and not on earned  
15 returns.

16 **Q. Mr. Walker also criticizes your equity risk premium estimate in your CAPM. Do you**  
17 **have a response to his testimony?**

18 A. Yes. As discussed in my direct testimony, the equity risk premium (ERP) is probably the  
19 single most important figure in estimating the cost of equity. Because this number is so  
20 critical in financial and investment evaluations, many experts, scholars, academics,  
21 managers, and investors around the country are concerned with finding an accurate  
22 estimate for the ERP. Mr. Walker refers to the ERP estimates used in my testimony as

---

<sup>3</sup> See *id.* at p. 3, lines 1-4.

1 “unique” and claims they have “substantially underestimated market performance.”<sup>4</sup> I find  
2 Mr. Walker’s rebuttal testimony on this issue puzzling, since I used the same ERP estimate  
3 that Mr. Walker used in this case – 7.3%. Although I present evidence in my direct  
4 testimony showing that 7.3% is a relatively high estimate for the ERP, I used 7.3% in this  
5 case in the interest of reasonableness.

6 **Q. Mr. Walker disagrees with your CAPM result of 7.8%. What is your response?**

7 A. The CAPM is a relatively straight-forward model with three inputs: (1) the risk-free rate;  
8 (2) beta; and (3) the equity risk premium. For the risk-free rate, I used the yield on 30-year  
9 Treasury bonds, which is a standard approach to estimate the risk-free rate. For beta, I  
10 used the betas publish by Value Line – another common approach. For the ERP, I used  
11 the same ERP used by Mr. Walker. Those inputs result in a CAPM cost of equity estimate  
12 of 6.8%, which is perfectly reasonable.

13 **Q. Mr. Walker disagrees with your decision to not a apply a similar type of leverage**  
14 **adjustment to the cost of equity models as Mr. Walker did. Do you have a response?**

15 A. Yes. I continue to assert that no leverage adjustment is necessary in this case. As discussed  
16 in my direct testimony, using the Hamada formula to adjust the cost of equity model results  
17 is not necessary, and moreover, I do not believe Mr. Walker applied the Hamada formula  
18 correctly. In his surrebuttal testimony, Mr. Walker claims that I should have used market  
19 values for debt and equity, instead of relying on book values for debt.<sup>5</sup> When determining  
20 the weighted average cost of capital in utility ratemaking, regulators and analysts

---

<sup>4</sup> *Id.* at pp. 27-28.

<sup>5</sup> City of Lancaster Statement No. 6R, Rebuttal Testimony of Harold Walker, III, p. 26, lines 4-15.

1 consistently rely on book values for debt, rather than market values. In fact, I cannot recall  
2 a single case I have reviewed or in which I testified that would be an exception.

3 **Q. Do you have any surrebuttal to any other issues raised by Mr. Walker in his rebuttal**  
4 **testimony?**

5 A. Yes. Regarding some articles I cited in my testimony to support the claim that awarded  
6 ROEs tend to exceed market-based cost of equity, Mr. Walker responds in part by citing  
7 actual market returns.<sup>6</sup> First, cost of equity is a different concept than actual returns.  
8 Primarily, cost of equity is a forward-looking concept that is much more consistent than  
9 earned returns (which occur in the past). For example, if an investment expects an 8%  
10 return from a stock, but the Company reports a loss for a given period, this does not mean  
11 the investor expected a negative return. Furthermore, whatever the expected (not actual)  
12 return on the market is, the cost of equity for Lancaster must be less than that estimate, due  
13 to the fact that the average beta for the proxy group is less than 1.0, thereby indicating that  
14 Lancaster is less risky than the market average (which has a beta equal to 1.0).

15 **Q. Did any of Mr. Walker's rebuttal testimony regarding the size adjustment cause you**  
16 **to change your opinion on this issue as discussed in your direct testimony?**

17 A. No. As discussed in my direct testimony, there is sufficient evidence indicating that small  
18 stocks do not consistently produce higher risk-adjusted returns than larger stocks. Thus, it  
19 is inappropriate to automatically assume there to be a small cap premium.

20 **Q. Does this conclude your surrebuttal testimony?**

21 A. Yes.

---

<sup>6</sup> City of Lancaster Statement No. 6R, Rebuttal Testimony of Harold Walker, III, p. 14, lines 3-18.

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Re: Pennsylvania Public Utility Commission :  
 :  
 v. : Docket No. R-2021-3026682  
 :  
 City of Lancaster – Water Department :

VERIFICATION

I, David J. Garrett, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement 3SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: January 28, 2022  
\*323371

Signature: \_\_\_\_\_

David J. Garrett

Consultant Address: Resolve Utility Consulting, PLLC  
101 Park Avenue  
Suite 1125  
Oklahoma City, OK 73102

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PENNSYLVANIA PUBLIC  
UTILITY COMMISSION**

**v.**

**CITY OF LANCASTER –  
BUREAU OF WATER**

)  
)  
)  
)  
)  
)  
)

**DOCKET NO. R-2021-3026682**

**SURREBUTTAL TESTIMONY OF**

**JEROME D. MIERZWA**

**ON BEHALF OF THE**

**PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE**

**JANUARY 28, 2022**

1 **I. INTRODUCTION**

2 Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

3 A. My name is Jerome D. Mierzwa. I am a Vice President of and a Principal with Exeter  
4 Associates, Inc (“Exeter”). My business address is 10480 Little Patuxent Parkway,  
5 Suite 300, Columbia, Maryland 21044. Exeter specializes in providing public utility-  
6 related consulting services.

7 Q. HAVE YOU PREVIOUSLY TESTIFIED IN THIS PROCEEDING?

8 A. Yes. My direct testimony was filed as OCA Statement 4 on December 23, 2021.

9 Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

10 A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimony of  
11 Constance E. Heppenstall and Patrick S. Hopkins presented on behalf of the City of  
12 Lancaster (“City”).

13 **II. WITNESS: Constance E. Heppenstall**

14 Q. MS. HEPPENSTALL IS THE WITNESS THAT PRESENTED THE CITY’S  
15 CLASS COST OF SERVICE STUDY (“CCOSS”). IN YOUR DIRECT  
16 TESTIMONY, DID YOU FIND THE CITY’S CCOSS TO BE REASONABLE?

17 A. No. In my direct testimony, I noted that although I found the City’s CCOSS generally  
18 to be reasonable and appropriate for determining cost responsibility for Outside City  
19 customers, several modifications to the CCOSS were appropriate. I incorporated these  
20 modifications in a revised CCOSS which I presented in my direct testimony. My  
21 specific modifications to the City’s CCOSS were as follows:

- 22 • Water treatment operation and maintenance (“O&M”) salary expenses  
23 should be functionalized and allocated to each customer class based on  
24 average demands;

- 1 • Laboratory testing O&M salary expenses should also be functionalized
- 2 and allocated to each customer class based on average demands; and
- 3 • Rental income should be allocated entirely to Outside City customers.

4 Q. DOES MS. HEPPENSTALL PRESENT A REVISED CCOSS IN HER REBUTTAL  
5 TESTIMONY?

6 A. Yes. Ms. Heppenstall presents a revised CCOSS which reduced the rate base and  
7 depreciation expense related to the South Tank Pump Station project and Blossom Hill  
8 Tank Repainting project as recommended by City witness John J. Spanos. The revised  
9 CCOSS also modified the allocation factors for the South Tank and South Tank Pump  
10 Station and revised the billing determinants as recommended by City witness Greg  
11 Herbert.

12 Q. DID MS. HEPPENSTALL AGREE WITH YOUR RECOMMENDATION  
13 CONCERNING THE ALLOCATION OF SALARY EXPENSES RELATED TO  
14 WATER TREATMENT AND LABORATORY TESTING AND REFLECT YOUR  
15 RECOMMENDED ALLOCATION IN HER REVISED CCOSS?

16 A. No. Ms. Heppenstall claims that the City's water treatment plant is designed to supply  
17 water to meet maximum day demands and, therefore, the O&M expenses associated  
18 with those facilities, including expenses for labor and laboratory testing, should be  
19 allocated partially based on maximum day demands.

20 Q. WHAT IS YOUR RESPONSE TO MS. HEPPENSTALL' S CLAIM  
21 CONCERNING THE ALLOCATION OF WATER TREATMENT AND  
22 LABORATORY TESTING SALARY EXPENSE?

23 A. Ms. Heppenstall's CCOSS utilized the American Water Works Association's  
24 ("AWWA") base-extra capacity cost of service method. This method is explained in  
25 detail in my direct testimony. Under the base-extra capacity method, base functional

1 category costs are allocated to customer class on the basis of average daily demands.

2 The AWWA M1 Manual defines base costs as follows:

3 Base costs are expenses that tend to vary with the total  
4 quantity of water used plus those O&M expenses and capital  
5 costs associated with service to customers under average  
6 load conditions, without elements of costs incurred to meet  
7 water-use variations and resulting peaks in demand (7<sup>th</sup>  
8 Edition, page 62).

9 Ms. Heppenstall does not dispute my claim that water treatment and laboratory testing  
10 salary expenses, which are O&M expenses, do not vary materially with changes in the  
11 total quantity of water used. That is, there are no additional water treatment and  
12 laboratory testing salary expense related costs incurred to meet peaks in demand.  
13 Therefore, it is appropriate to allocate these salary expenses based entirely on average  
14 day demands, as I have recommended. The capital costs associated with the City's  
15 water treatment facilities would continue to be assigned based on the maximum day  
16 demand allocation factor, consistent with the approach utilized by Ms. Heppenstall.

17 Q. HAVE YOU MODIFIED THE REVISED CCOSS PRESENTED BY MS.  
18 HEPPENSTALL IN HER REBUTTAL TESTIMONY TO REFLECT YOUR  
19 RECOMMENDATION CONCERNING THE ALLOCATION OF WATER  
20 TREATMENT AND LABORATORY TESTING SALARY EXPENSE?

21 A. Yes. A summary of the results of my surrebuttal CCOSS is presented as Schedule JDM-  
22 5. A comparison of the cost of service by customer class under the revised CCOSS  
23 presented by Ms. Heppenstall and my surrebuttal CCOSS is provided in Table 1-S.  
24 Table 1-S also identifies the increases in rates which would be required to move each  
25 Outside City customer class to the indicated cost of service. As shown in Table 1-S,  
26 my modifications to the City's revised CCOSS results in a slight decrease to the



1 indicated cost of service of Residential customers, and a slight increase in the cost of  
 2 service for all other classes.

**Table 1-S.  
 Comparison of City and OCA Class Cost of Service Study Results**

	City			OCA			CCOSS Variance
	CCOSS	Increase	Percent	CCOSS	Increase	Percent	
<b><u>Inside City</u></b>							
Residential	\$4,990,805			\$4,950,818			\$(39,987)
Commercial	3,359,950			3,366,864			6,914
Industrial	537,242			546,928			9,686
Private Fire	272,847			274,331			1,484
<b>Total Inside City</b>	<b>\$9,160,844</b>			<b>\$9,138,941</b>			<b>\$(21,903)</b>
<b><u>Outside City</u></b>							
Residential	\$11,805,016	\$2,273,843	23.9%	\$11,723,759	\$2,192,585	23.0%	\$(81,257)
Commercial	7,543,161	1,168,991	18.3	7,556,646	1,182,477	18.6	13,485
Industrial	1,568,830	252,153	19.2	1,594,604	277,926	21.1	25,773
Large Industrial	931,967	144,768	18.4	971,967	184,768	19.8	40,000
Other Water Utilities	618,361	74,904	13.8	639,740	96,283	17.7	21,379
Private Fire	474,826	94,999	25.0	477,431	97,604	25.7	2,606
<b>Total Outside City</b>	<b>\$22,942,160</b>	<b>\$4,009,657</b>	<b>21.2%</b>	<b>\$22,964,147</b>	<b>\$4,031,644</b>	<b>21.3%</b>	<b>\$21,986</b>
<b>TOTAL:</b>	<b>\$32,103,005</b>	<b>\$4,009,657</b>	<b>14.3%</b>	<b>\$32,103,087</b>	<b>\$4,009,740</b>	<b>14.3%</b>	<b>\$83</b>

3  
 4 Q. DID MS. HEPPENSTALL AGREE WITH YOUR RECOMMENDATION  
 5 CONCERNING THE ALLOCATION OF RENTAL INCOME AND REFLECT  
 6 YOUR RECOMMENDATION IN HER REVISED CCOSS?

7 A. In effect, yes. Although Ms. Heppenstall does not agree with my recommendation  
 8 concerning the allocation of rental income, she has reflected my recommendation in  
 9 her revised CCOSS.

1 Q. WHAT DID YOU RECOMMEND IN YOUR DIRECT TESTIMONY  
2 CONCERNING THE CITY'S PROPOSED INCREASE IN CUSTOMER  
3 CHARGES?

4 A. In my direct testimony, I noted that the City had proposed increases of approximately  
5 64% to its customer charges, and that this was three times the overall system average  
6 increase requested by the City. To provide for gradualism, I recommended that  
7 customer charges be increased by 1.5 times the system average increase authorized in  
8 this proceeding.

9 Q. WHAT ARE SOME OF THE PRINCIPLES OF A SOUND REVENUE  
10 ALLOCATION AND RATE DESIGN?

11 A. A sound revenue allocation and rate design should:

- 12 • Utilize class cost of service study results as a guide;
- 13 • Provide stability and predictability of the rates themselves, with a minimum of  
14 unexpected changes seriously adverse to ratepayers or the utility (gradualism);
- 15 • Yield the total revenue requirement;
- 16 • Provide for simplicity, certainty, convenience of payment, understandability,  
17 public acceptability, and feasibility of application; and
- 18 • Reflect fairness in the apportionment of the total cost of service among the  
19 various customer classes.<sup>1</sup>

20 Q. WHAT WAS MS. HEPPENSTALL'S RESPONSE TO YOUR CUSTOMER  
21 CHARGE RECOMMENDATION?

22 A. Although Ms. Heppenstall claims to agree with the concept of gradualism, she claims  
23 the overall customer charge increase for the average Residential customer with a 5/8-

---

<sup>1</sup> *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 inch meter is small at only \$3.55 per month. Due to this small increase, Ms. Heppenstall  
2 recommends that the Commission reject my customer charge recommendation.

3 Q. WHAT IS YOUR RESPONSE TO MS. HEPPENSTALL'S CUSTOMER CHARGE  
4 RECOMMENDATION?

5 A. The City is proposing to increase the customer charge for the average Residential  
6 customer with a 5/8-inch meter that is billed monthly from \$5.55 to \$9.10, and from  
7 \$16.65 to \$27.30 for a customer that is billed quarterly. These each reflect increases of  
8 64%. The Customer Notice provided by the City in this proceeding indicated that the  
9 average Residential customer would experience a rate increase of 21.2%, which is  
10 nearly identical to the City's overall requested increase of 21.3%. An increase in  
11 customer charges which is three times the overall system increase authorized in this  
12 proceeding would be inconsistent with a sound rate design because the increase would  
13 not provide for stability and predictability in rates. Such an increase would also not  
14 provide for understandability, also a principle of a sound rate design, since the increase  
15 would be significantly in excess of the system average increase and may lead to  
16 customer confusion. I maintain my position that the increase in the customer charge  
17 should be no more than 1.5 times the system average increase authorized in this  
18 proceeding.

19 Q. IN YOUR DIRECT TESTIMONY, YOU NOTED THAT THE CITY DOES NOT  
20 CHARGE OUTSIDE MUNICIPALITIES A PUBLIC FIRE PROTECTION  
21 CHARGE AND RECOMMENDED THAT, IN ITS NEXT CASE, THE CITY  
22 PROPOSES IMPLEMENTING A PUBLIC FIRE CHARGE THAT RECOVERS  
23 25% OF THE COST TO PROVIDE FIRE PROTECTION SERVICE FROM THE  
24 MUNICIPALITIES SERVING CUSTOMERS OUTSIDE THE CITY. WHAT WAS  
25 MS. HEPPENSTALL'S RESPONSE TO THIS RECOMMENDATION?

1 A. In my direct testimony, I noted that the Public Utility Code, 66 Pa C.S. §1328 allows  
2 utilities to charge up to 25% of the cost of Public Fire Protection service directly to  
3 municipalities. Ms. Heppenstall agrees with this, but claims that this section of the  
4 Public Utility Code does not require the City to recover 25% of Public Fire Protection  
5 costs from municipalities. Ms. Heppenstall states that the City believes that collecting  
6 costs related to Public Fire Protection from all customers as part of its customer charge  
7 is a fair and equitable method of recovering these costs, particularly since the City's  
8 proposed customer charge is only \$9.10 per month.

9 Q. WHAT IS YOUR RESPONSE TO MS. HEPPENSTALL'S POSITION  
10 CONCERNING THE RECOVERY OF PUBLIC FIRE PROTECTION COSTS?

11 A. Recovering all Public Fire Protection costs through customer charges may not be fair  
12 and equitable. For example, typically, if a municipality is assessed Public Fire  
13 Protection charges, those costs may be collected through property taxes. If a property  
14 is rented, property taxes are the responsibility of the property owner, but water bills are  
15 frequently the responsibility of the tenant. The property owner benefits from Public  
16 Fire Protection service as does the renter. Therefore, it would be equitable for the  
17 property owner to bear some of the responsibility for Public Fire Protection charges.  
18 Under the City's current method, all of the responsibility for Public Fire Protection  
19 costs is on the renter. The City's current method also implicitly assumes that there is  
20 a relationship between the size of a customer's water meter and the value of the  
21 property protected by Public Fire Protection service. This may not always be accurate.  
22 For example, a car wash would have a low risk of fire loss but have high-volume water  
23 requirements, and a lumber yard or large warehouse would have a high risk of property  
24 loss from fire but very low water requirements. I would also note that municipal-owned  
25 parks and play-grounds also benefit from Public Fire Protection service. Therefore, the

1 municipalities themselves should pay some direct share of Public Fire Protection  
2 service costs.

3

4 **III. WITNESS: Patrick S. Hopkins**

5 Q. BRIEFLY DESCRIBE THE FORMAL COMPLAINT FILED BY MR. FRANK D.  
6 KITZMILLER IN THIS PROCEEDING AND YOUR DIRECT TESTIMONY  
7 ADDRESSING THE FORMAL COMPLAINT.

8 A. Mr. Kitzmiller has claimed that the City is improperly billing customer charges based  
9 on the size of a customer's service line rather than the size of a customer's meter as  
10 specified by the City's Commission-approved tariff. More specifically, Mr. Kitzmiller  
11 claims he is served by a ¾-inch meter, but the City bills him the customer charge for a  
12 1-inch meter because he is served by a 1-inch service line. In my direct testimony, I  
13 agreed with Mr. Kitzmiller that the City should be required to bill customer charges  
14 based on meter size consistent with the City's Commission-approved tariff.

15 Q. DID MR. HOPKINS AGREE WITH YOUR RECOMMENDATION?

16 A. No. Mr. Hopkins claims that Mr. Kitzmiller's complaint was previously addressed at  
17 length in the Deputy Chief Administrative Law Judge's ("ALJ") Initial Decision in  
18 Docket No. C-2014-2435567, dated March 18, 2019, in which the ALJ recommended  
19 that Mr. Kitzmiller's complaint be dismissed in its entirety.

20 Q. HAS THE ALJ'S INITIAL DECISION BEEN APPROVED BY THE  
21 COMMISSION?

22 A. No. The ALJ's Initial Decision has not been formally approved by the Commission.  
23

1 Q. HOW HAS MR. HOPKINS PROPOSED TO ADDRESS MR. KITZMILLER'S  
2 COMPLAINT?

3 A. Mr. Hopkins has proposed to modify the City's tariff to provide as follows for assessing  
4 customer charges:

5 Rates are established based on the size of the meter serving  
6 the property, except in cases where the size of the meter is  
7 less than the size of the service line to the property, in which  
8 case, the size of the service line shall be used to determine  
9 the applicable rate.

10 Q. DO YOU BELIEVE MR. HOPKINS' PROPOSED TARIFF LANGUAGE  
11 MODIFICATION ADEQUATELY RESOLVES MR. KITZMILLER'S  
12 COMPLAINT?

13 A. No, I do not. The City's customer charges should be cost based charges designed to  
14 recover the direct costs associated with metering, service, billing, and collecting. The  
15 City's current customer charges are based on meter size. Mr. Hopkins notes that  
16 typically, the size of a customer's meter is the same as the line serving the property.  
17 Under the proposed language, a customer like Mr. Kitzmiller would continue to be  
18 inequitably charged the cost of a 1-inch meter even though the customer is actually  
19 served by a smaller-sized meter. An alternative approach to address this inequity would  
20 be for the City to develop separate customer charges for customers like Mr. Kitzmiller  
21 with a meter which is sized smaller than their service line. The City currently bills  
22 customers with 5/8-inch and 3/4-inch meters the same customer charge. Under the  
23 alternative approach, the customer charge assessed to a customer like Mr. Kitzmiller  
24 would be based on the 3/4-inch meter customer charge adjusted to reflect the costs of  
25 a 1-inch service line rather than the service line costs reflected in the 3/4-inch meter  
26 customer charge. An alternative approach would be to simply charge all Residential  
27 customers with 5/8-inch, 3/4-inch, and 1-inch meters the same customer charge as

1 Pennsylvania-American Water Company did in its most recent 2020 base rate  
2 proceeding at Docket Nos. R-2020-3019369, R-2020-3019371. As shown in Schedule  
3 JDM-6, which is subsequently discussed, the same customer charge is billed to  
4 Residential customers with 5/8-inch, 3/4-inch, 1-inch, and 1½-inch meters by the  
5 Pennsylvania-American Water Company.

6 Q. MR. HOPKINS CLAIMS “IT IS STANDARD THROUGHOUT THE WATER  
7 INDUSTRY FOR THE SIZE OF THE SERVICE LINE TO A PROPERTY TO BE  
8 THE DETERMINING FACTOR ON WHICH TO BASE A FLAT CUSTOMER  
9 CHARGE.” DO YOU AGREE WITH THIS CLAIM?

10 A. No. It is my experience that it is standard practice throughout the water industry to base  
11 customer charges on meter size. Attached to my surrebuttal testimony as Schedule  
12 JDM-6 are sample tariff pages from six of the larger water utilities in Pennsylvania –  
13 Newton Artesian Water Company, The Columbia Water Company, Aqua  
14 Pennsylvania, Pennsylvania-American Water Company, The York Water Company,  
15 and Suez Water Pennsylvania. As shown in these tariff pages, for each of these water  
16 utilities, the customer charge is based on meter size.

17 Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

18 A. Yes, it does.

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PENNSYLVANIA PUBLIC  
UTILITY COMMISSION**

**v.**

**CITY OF LANCASTER –  
BUREAU OF WATER**

)  
)  
)  
)  
)  
)  
)

**DOCKET NO. R-2021-3026682**

**SCHEDULES ACCOMPANYING THE  
SURREBUTTAL TESTIMONY OF  
JEROME D. MIERZWA**

**ON BEHALF OF THE  
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE**

**JANUARY 28, 2022**



CITY OF LANCASTER - BUREAU OF WATER

PROJECTED COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2022  
 ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER WATER UTILITIES AND FIRE SERVICE CUSTOMER CLASSIFICATIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	INSIDE-CITY					OUTSIDE-CITY					PUBLIC FIRE (15)		
			RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	PRIVATE FIRE (7)	PUBLIC FIRE (8)	RESIDENTIAL (9)	COMMERCIAL (10)	INDUSTRIAL (11)	LARGE INDUSTRIAL (12)	OTHER UTILITIES (13)		PRIVATE FIRE (14)	
<b>OPERATION AND MAINTENANCE EXPENSES</b>															
<b>WATER TREATMENT</b>															
SUSQUEHANNA TREATMENT PLANT	1	\$ 1,043,288	\$ 142,817	\$ 128,011	\$ 25,039	\$ 835	\$ 1,252	\$ 306,831	\$ 284,505	\$ 70,526	\$ 47,887	\$ 30,589	\$ 1,148	\$ 4,060	
SALARIED PERSONNEL	2	73,048	10,592	8,875	1,814	44	86	22,747	19,730	4,551	2,747	1,819	58	205	
OVERTIME															
SUSQUEHANNA - SALARY/BENEFITS		1,116,336	153,208	136,887	26,853	878	1,318	329,578	304,235	75,077	50,834	32,387	1,208	4,273	
MAINTENANCE-BUILDING	2	22,788	3,301	2,768	503	14	20	7,090	6,150	1,418	856	567	18	64	
MAINTENANCE-COMMUNIC.	2	78	11	9	2	0	0	24	21	6	3	2	0	0	
MAINTENANCE-EQUIPMENT	2	245,308	35,966	29,905	5,421	147	221	70,388	66,257	15,283	9,223	6,108	198	687	
MAINTENANCE-VEHICLES	2	10,881	1,578	1,322	240	7	10	3,388	2,839	678	400	271	9	30	
WATER UTILITY EXPENSE	2	12,080	1,882	1,577	287	8	12	4,042	3,508	809	488	323	10	38	
SLUDGE	1	93,873	12,832	11,518	2,253	75	113	27,068	25,599	6,346	4,300	2,750	103	368	
POWER ELECTRIC	1	703,816	90,212	80,358	16,892	563	845	206,962	191,891	47,578	32,305	20,622	774	2,745	
OPERATING SUPPLIES	2	1,852	283	237	43	1	2	608	527	122	73	49	2	5	
MINOR EQUIPMENT	2	58,697	8,511	7,132	1,297	35	53	18,278	16,854	3,657	2,207	1,462	47	164	
CHEMICALS	1	466,877	63,822	57,288	11,205	374	580	137,308	127,317	31,661	21,430	13,680	514	1,821	
GASOLINE	2	10,614	1,539	1,290	235	8	10	3,305	2,867	661	399	284	8	30	
FUEL	2	40,091	5,812	4,870	898	24	38	12,481	10,826	2,497	1,507	968	32	112	
SUSQUEHANNA - OPERATING EXPENSES		1,987,924	231,353	204,170	39,284	1,254	1,881	497,514	463,794	110,614	73,210	47,085	1,714	6,061	
TOTAL SUSQUEHANNA		2,784,280	384,662	341,057	65,917	2,132	3,188	827,093	758,029	185,891	123,843	79,483	2,020	10,335	
CONESTOGA TREATMENT PLANT	1	1,031,300	140,879	128,540	24,751	825	1,238	303,305	281,235	69,716	47,337	30,217	1,134	4,022	
SALARIED PERSONNEL	2	85,580	12,411	10,399	1,802	51	77	29,653	23,118	5,332	3,218	2,131	88	240	
OVERTIME															
CONESTOGA - SALARY/BENEFITS		1,116,880	153,389	138,940	26,643	878	1,315	329,958	304,353	75,048	50,555	32,348	1,203	4,262	
MAINTENANCE-BUILDING	2	71,342	10,345	8,668	1,577	43	64	22,216	19,289	4,445	2,882	1,778	57	200	
MAINTENANCE-EQUIPMENT	2	198,028	28,845	24,170	4,300	110	179	61,946	53,730	12,303	7,480	4,853	159	557	
MAINTENANCE-VEHICLES	2	22,288	3,232	2,708	483	13	20	6,940	6,020	1,369	838	555	18	62	
SLUDGE	1	80,946	11,005	9,032	1,043	65	97	23,806	22,074	5,472	3,715	2,372	89	316	
POWER ELECTRIC	1	485,097	68,313	58,521	11,842	388	582	142,867	132,288	32,783	22,268	14,213	534	1,862	
OPERATING SUPPLIES	2	8,575	1,243	1,042	180	5	8	2,870	2,316	534	322	214	7	24	
CHEMICALS	1	383,731	49,722	44,830	8,730	291	438	108,973	96,189	24,588	16,885	10,657	400	1,419	
MEMBRANES	2														

CITY OF LANCASTER - BUREAU OF WATER

PROJECTED COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2022  
 ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER WATER UTILITIES AND FIRE SERVICE CUSTOMER CLASSIFICATIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	INSIDE-CITY					OUTSIDE-CITY						
			RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	PRIVATE FIRE (7)	PUBLIC FIRE (8)	RESIDENTIAL (9)	COMMERCIAL (10)	INDUSTRIAL (11)	LARGE INDUSTRIAL (12)	OTHER UTILITIES (13)	PRIVATE FIRE (14)	PUBLIC FIRE (15)
GASOLINE	2	12,742	1,848	1,548	282	8	11	3,988	3,442	764	479	317	10	36
HEATING OIL	2	54,784	7,941	6,654	1,210	33	48	17,054	14,792	3,412	2,059	1,364	44	153
CAPITAL OUTLAY	10	70,663	9,772	3,742	404	1,148	3,860	22,740	9,127	1,651	978	680	2,048	14,683
CONESTOGA - OPERATING EXPENSES		1,366,275	190,325	162,614	30,966	2,113	5,338	410,960	362,248	87,470	57,515	37,102	3,366	19,341
TOTAL CONESTOGA		2,486,164	343,714	299,554	57,508	2,989	6,652	740,938	666,599	162,518	108,070	69,450	4,589	23,603
LABORATORY														
SALARIED PERSONNEL	1	250,398	34,220	30,724	6,010	200	300	73,642	66,284	16,927	11,493	7,337	275	977
SALARY TEMPORARY	1	-	-	-	-	-	-	-	-	-	-	-	-	-
OVERTIME	1	16,367	2,237	2,008	363	13	20	4,814	4,453	1,106	751	480	18	64
LABORATORY - SALARY/BENEFITS		266,765	36,467	32,732	6,402	213	320	78,456	72,747	18,033	12,245	7,816	293	1,040
CONTRACT SERVICES	1	32,202	4,402	3,951	773	26	39	9,470	8,781	2,177	1,478	944	35	128
LABORATORY - SUPPLIES/EQUIPMENT	1	50,052	6,845	6,145	1,202	40	60	14,729	13,657	3,380	2,269	1,487	55	195
LABORATORY - OPERATING EXPENSE		82,284	11,248	10,096	1,875	66	99	24,200	22,439	5,602	3,777	2,411	91	321
TOTAL LABORATORY		349,049	47,715	42,828	8,377	270	410	102,655	95,166	23,596	16,021	10,227	384	1,361
TRANSMISSION/DISTRIBUTION														
SALARIED PERSONNEL	10	982,644	136,890	62,412	5,658	10,081	54,496	318,539	127,853	23,129	13,998	9,529	28,687	205,876
OVERTIME	10	38,878	5,261	2,053	222	630	2,134	12,475	5,007	906	538	373	1,124	8,055
TRANS. & DISTR. - SALARY/BENEFITS		1,031,520	142,247	54,464	5,880	10,711	56,630	331,015	132,860	24,034	14,235	9,903	29,811	213,731
MAINT. EQUIPMENT	10	4,809	663	254	27	78	264	1,543	619	112	66	46	139	696
MAINT. MAINS	6	101,754	8,608	6,584	1,058	2,025	3,114	20,041	22,447	4,447	2,717	1,882	4,457	15,375
MAINT. SERVICE LINES	9	30,636	8,452	1,745	34	535	1,544	17,863	1,544	80	3	3	647	3
MAINT. VEHICLES	10	77,416	10,976	4,088	441	1,254	4,250	24,843	9,071	1,804	1,068	743	2,237	16,041
PROFESSIONAL SERVICES	10	3,422	472	181	20	55	188	1,068	441	80	47	33	99	709
CONTRACT SERVICES	10	24,898	3,433	1,315	142	403	1,397	7,960	3,207	590	344	239	720	5,159
TRENCH PAVING	6	80,312	6,764	5,196	835	1,578	2,458	22,021	17,717	3,510	2,144	1,488	3,518	12,135
SIDEWALK - REPLACEMENT - INSIDE	9A	31,843	24,848	5,120	98	1,570	-	-	-	-	-	-	-	-
SIDEWALK - REPLACEMENT - OUTSIDE	9B	48,076	-	-	-	-	-	43,442	3,752	191	10	10	1,572	-
OPERATING SUPPLIES/GASOLINE	10	14,230	1,982	751	81	231	781	4,567	1,833	332	198	137	441	2,640
MINOR EQUIPMENT	10	14,263	1,970	754	81	231	784	4,584	1,840	333	187	137	413	2,660
HYDRANTS	7	59,422	-	-	-	-	-	13,798	-	-	-	-	-	-
CAPITAL OUTLAY	10	143,275	19,758	7,605	817	2,321	7,866	45,977	18,454	3,338	1,977	1,375	4,141	48,624
GASOLINE	10	40,162	5,538	2,121	229	651	2,205	12,888	5,173	698	554	386	1,161	8,322
TRANS. & DISTR. - OPERATING EXPENSES		675,539	93,173	35,682	3,864	10,852	37,074	216,786	88,998	15,742	9,324	6,477	19,513	139,956
TOTAL TRANSMISSION & DISTRIBUTION		1,707,060	236,419	90,146	9,743	27,863	63,705	547,801	219,656	39,776	23,550	16,380	49,324	363,667

**CITY OF LANCASTER - BUREAU OF WATER**  
**PROJECTED COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2022**  
**ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER WATER UTILITIES AND FIRE SERVICE CUSTOMER CLASSIFICATIONS**

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	INSIDE-CITY				OUTSIDE - CITY				PUBLIC FIRE (15)		
			RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	PRIVATE FIRE (7)	PUBLIC FIRE (8)	RESIDENTIAL (9)	COMMERCIAL (10)	INDUSTRIAL (11)		LARGE INDUSTRIAL (12)	OTHER UTILITIES (13)
METER SHOP - SALARY/BENEFITS	12	363,910	117,438	19,311	681	-	221,708	1,113	38	-	-	-	-
METER SHOP - MAINT. METERS	8	173,124	34,175	16,914	589	-	89,061	2,303	277	-	-	-	-
METER SHOP - MAINT. VEHICLES	12	19,663	6,015	889	35	-	11,355	1,205	2	-	-	-	-
METER SHOP - OPERATING EXPENSES	12	576,686	157,627	37,214	1,315	-	322,724	53,755	317	-	-	-	-
METER SHOP - TOTAL METER SHOP		1,198,442	253,983	109,770	376	-	625,605	180,333	164	-	-	-	-
ADMINISTRATION - SALARY/BENEFITS	13	685,538	183,011	47,984	1,891	-	385,329	71,787	481	-	-	-	-
ADMINISTRATION - MAINT. METERS	8	32,987	5,472	2,808	409	-	11,924	5,933	768	-	-	-	-
ADMINISTRATION - MAINT. VEHICLES	11	203,155	56,335	12,474	244	-	116,123	11,539	650	-	-	-	-
ADMINISTRATION - OPERATING EXPENSES	13	677,926	113,488	58,225	8,473	-	247,271	123,025	15,929	-	-	-	-
ADMINISTRATION - TOTAL ADMINISTRATION		1,599,506	348,331	130,395	10,926	-	562,247	232,280	23,117	-	-	-	-
ADMINISTRATION - SALARY/BENEFITS	13	4,339,226	734,076	394,313	60,455	-	1,562,412	825,551	178,779	-	-	-	-
ADMINISTRATION - MAINT. METERS	8	15,713	2,630	1,350	196	-	5,732	2,852	594	-	-	-	-
ADMINISTRATION - MAINT. VEHICLES	11	8,345	1,397	717	104	-	3,044	1,515	315	-	-	-	-
ADMINISTRATION - OPERATING EXPENSES	13	15,264	2,555	1,311	191	-	5,569	2,770	577	-	-	-	-
ADMINISTRATION - TOTAL ADMINISTRATION		17,587	2,982	1,508	219	-	8,405	3,187	684	-	-	-	-
ADMINISTRATION - SALARY/BENEFITS	13	4,041	677	347	51	-	1,474	734	95	-	-	-	-
ADMINISTRATION - MAINT. METERS	8	61,871	17,157	3,796	74	-	35,366	3,514	198	-	-	-	-
ADMINISTRATION - MAINT. VEHICLES	11	14,769	2,472	1,269	185	-	5,388	2,681	568	-	-	-	-
ADMINISTRATION - OPERATING EXPENSES	13	69,335	11,807	5,956	867	-	25,293	12,594	347	-	-	-	-
ADMINISTRATION - TOTAL ADMINISTRATION		147,825	33,173	16,818	1,222	-	49,163	24,666	1,303	-	-	-	-
ADMINISTRATION - SALARY/BENEFITS	13	1,789	304	159	29	-	659	275	57	-	-	-	-
ADMINISTRATION - MAINT. METERS	8	1,178	201	100	15	-	384	190	38	-	-	-	-
ADMINISTRATION - MAINT. VEHICLES	11	460,417	77,074	39,550	5,755	-	167,960	83,568	17,404	-	-	-	-
ADMINISTRATION - OPERATING EXPENSES	13	156,000	5,168	2,652	380	-	11,282	5,603	1,167	-	-	-	-
ADMINISTRATION - TOTAL ADMINISTRATION		1,406,417	238,636	126,469	16,929	-	368,943	193,796	36,985	-	-	-	-
ADMINISTRATION - SALARY/BENEFITS	13	30,871	5,168	2,652	380	-	11,282	5,603	1,167	-	-	-	-
ADMINISTRATION - MAINT. METERS	8	4,400	752	388	58	-	1,038	815	170	-	-	-	-
ADMINISTRATION - MAINT. VEHICLES	11	18,712	3,300	1,663	246	-	7,191	3,578	745	-	-	-	-
ADMINISTRATION - OPERATING EXPENSES	13	4,406	738	378	55	-	1,607	800	167	-	-	-	-
ADMINISTRATION - TOTAL ADMINISTRATION		165,809	32,410	16,531	2,420	-	36,868	18,764	3,989	-	-	-	-
ADMINISTRATION - SALARY/BENEFITS	13	1,079,794	161,443	77,938	10,848	-	413,911	209,312	43,480	-	-	-	-
ADMINISTRATION - MAINT. METERS	8	14,801	2,478	1,271	185	-	5,399	2,686	559	-	-	-	-
ADMINISTRATION - MAINT. VEHICLES	11	14,047	2,351	1,207	176	-	5,124	2,549	531	-	-	-	-
ADMINISTRATION - OPERATING EXPENSES	13	9,111	1,525	783	114	-	3,324	1,654	344	-	-	-	-
ADMINISTRATION - TOTAL ADMINISTRATION		37,959	6,354	3,261	474	-	13,847	6,890	1,435	-	-	-	-

CITY OF LANCASTER - BUREAU OF WATER

PROJECTED COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2022  
 ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER WATER UTILITIES AND FIRE SERVICE CUSTOMER CLASSIFICATIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	INSIDE-CITY				OUTSIDE-CITY							
			RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	PRIVATE FIRE (7)	PUBLIC FIRE (8)	RESIDENTIAL (9)	COMMERCIAL (10)	INDUSTRIAL (11)	LARGE INDUSTRIAL (12)	OTHER UTILITIES (13)	PRIVATE FIRE (14)	PUBLIC FIRE (15)
ADMIN. INDIRECT COSTS														
COLLECTION	11	107,408	46,447	10,284	201	2,110	65,742	9,514	538	17	33	2,613	-	
HUMAN RESOURCES	14	80,704	14,704	8,489	1,381	481	31,955	18,150	4,009	2,594	1,678	807	5,025	
OTHER	13	556,153	83,100	47,774	6,952	3,893	202,885	100,942	21,023	13,970	8,368	6,507	40,665	
PAYING AGENT	13	1,357	227	117	17	10	485	246	51	32	21	10	99	
ADMINISTRATION - INTERGOVERNMENTAL		815,712	154,598	66,673	8,530	8,494	331,077	128,852	25,819	15,712	10,297	9,643	45,779	
TOTAL ADMINISTRATION		6,272,662	1,056,441	542,086	80,308	39,298	2,341,247	1,170,604	249,313	157,918	102,809	88,007	370,114	
GROUPS MAINTENANCE														
SALARY BUREAU CHIEF	13	8,982	1,487	763	111	62	3,240	1,612	338	209	137	104	649	
SALARIED PERSONNEL	13	129,224	21,032	11,100	1,615	905	47,141	23,454	4,685	3,037	1,660	1,512	9,446	
SALARY TEMPORARY	13	21,485	3,597	1,846	269	150	7,838	3,900	812	505	331	251	1,571	
OVERTIME	13	159,592	26,716	13,709	1,965	1,117	58,219	28,988	6,033	3,750	2,458	1,867	11,669	
GROUPS MAINT. - SALARY/BENEFITS														
RENTALS OF UNIFORMS	13	1,200	211	108	16	9	460	229	48	30	19	15	62	
MAINT. EQUIPMENT	13	4,008	771	366	58	32	1,680	938	174	108	71	54	337	
MAINT. VEHICLES	13	7,478	1,252	642	93	52	2,728	1,357	283	176	115	87	547	
OPERATING SUPPLIES	13	125	21	11	2	1	48	23	5	3	2	1	9	
GASOLINE	13	5,198	870	447	65	38	1,896	943	188	122	80	61	380	
GROUPS MAINT. - OPERATING EXPENSES		18,668	3,125	1,604	233	131	6,810	3,388	706	439	287	218	1,365	
MINOR EQUIPMENT	13	2,506	419	215	31	18	914	465	95	59	39	29	183	
TOTAL GROUNDS MAINTENANCE		180,795	30,260	15,628	2,200	1,295	65,943	32,808	6,833	4,248	2,784	2,115	13,214	
TOTAL OPERATING AND MAINTENANCE		14,475,528	2,281,123	1,379,183	225,804	73,627	5,011,006	3,014,870	672,566	434,141	281,518	127,316	772,314	

**CITY OF LANGCASTER - BUREAU OF WATER**  
 PROJECTED COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2022  
 ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER WATER UTILITIES AND FIRE SERVICE CUSTOMER CLASSIFICATIONS

FACTOR REF (2)	ACCOUNT (1)	COST OF SERVICE (3)	INSIDE-CITY					OUTSIDE-CITY					PUBLIC FIRE (15)							
			RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	PRIVATE FIRE (7)	PUBLIC FIRE (8)	RESIDENTIAL (9)	COMMERCIAL (10)	INDUSTRIAL (11)	LARGE INDUSTRIAL (12)	OTHER UTILITIES (13)		PRIVATE FIRE (14)						
	DEPRECIATION EXPENSE																			
2	COLLECTING AND IMPOUNDING RESERVOIRS	110	16	13	2	0	0	0	34	30	7	4	3	0	0					
2	LAKE, RIVER & OTHER INTAKES	5,911	857	718	131	4	5	1,841	1,507	388	222	54	147	5	17					
3B	POWER AND PUMPING STRUCTURES	1,233																		
3B	KISSEL HILL BOOSTER STATION - OUTSIDE	40,853	4,866	4,098	748			447	387	89	89	38	38	49	171					
3	SUSQUEHANNA RIVER INTAKE & H.S. - JOINT	61,284	7,327	6,145	1,121			10,503	9,106	2,104	1,266	842	842	1,181	4,077					
3B	CONESTOGA PUMP STATION - JOINT	3,846						15,751	13,656	3,165	1,990	1,262	1,262	1,771	6,114					
3	HESS BLVD STATION - OUTSIDE	29,847	3,570	2,994	546			1,394	1,208	278	167	112	112	154	533					
3B	CONESTOGA STRAINER BUILDING	23,840						7,674	6,653	1,537	1,028	688	688	863	2,979					
3B	DEEP ROAD PUMP STATION	57,077						8,570	7,423	1,709	1,028	688	688	848	3,277					
3B	WILLOW VALLEY PUMP STATION	2,173	865	753	138			21,017	18,205	4,192	2,522	1,681	1,681	2,325	8,038					
3A	SOUTH TANK PUMP STATION	1,222						443	384	88	88	53	53	49	169					
2	PURIFICATION BUILDINGS	2,076,334	301,358	252,518	45,531			847,183	581,358	129,480	78,145	51,751	51,751	1,863	5,819					
5	DISTRIBUTION RESERVOIR AND STANDPIPES																			
5	UNDERGROUND STORAGE RESERVOIR - JOINT	28,886	3,580	2,668	387			7,088	5,778	1,085	676	474	474	1,072	3,896					
5B	WILLOW ST. STANDPIPE - OUTSIDE	26,468						10,021	7,498	1,413	868	614	614	1,361	4,806					
5B	LAFAYETTE STANDPIPE - OUTSIDE	170,924						64,712	48,406	9,127	5,806	3,965	3,965	8,785	30,322					
5B	LAMPETER ELEVATED TANK - OUTSIDE	4,388						1,842	1,229	332	142	101	101	223	770					
5B	NEFFSVILLE TANK - OUTSIDE	5,558						2,105	1,574	287	182	129	129	286	986					
5B	BLOSSOM HILL STANDPIPE - OUTSIDE																			
5B	PAINTING - OUTSIDE	131,248						48,690	37,189	7,009	4,305	3,045	3,045	6,748	23,283					
5	FENCING - JOINT	163	24	17	3			51	39	7	5	5	5	7	25					
5A	SOUTH TANK	125,594	52,024	38,432	5,815			28,747	20,007	3,773	2,317	1,639	1,639	3,831	12,533					
5B	OFFICE BUILDING	70,647						54,748	27,239	5,673	3,527	2,311	2,311	1,756	10,871					
13	STORES, SHOP & GARAGE BUILDINGS	150,078	25,123	12,892	1,878			828	412	86	53	35	35	27	169					
13	MISC. STRUCTURES AND IMPROVEMENTS	2,270	380	185	28			50,725	38,208	7,707	4,745	3,288	3,288	7,785	20,955					
13	ELECTRIC PUMPING EQUIPMENT	714	120	61	9			36,838	31,952	7,370	4,448	3,046	3,046	65	331					
6	TREATMENT PLANT EQUIPMENT	177,732	15,036	11,489	1,848			36,838	31,952	7,370	4,448	3,046	3,046	65	331					
2	WILLOW ST. CHLORINE BOOSTER STATION	118,287	17,153	14,373	2,814															
2B	LABORATORY EQUIPMENT																			
2	MAINS AND ACCESSORIES	1,331	163	162	28			414	360	83	50	33	33	1	4					
4A	CAST IRON, 4" AND UNDER - INSIDE	425	170	124	19															
4B	CAST IRON, 4" AND UNDER - OUTSIDE	5,332						1,924	1,440	271	107	117	117	317	1,095					
4A	CAST IRON, 6" AND 8" - INSIDE																			
3A	CAST IRON, OVER 8" - INSIDE	107,155	44,116	37,118	6,783															
4B	CAST IRON, 6" AND 8" - OUTSIDE																			
3B	CAST IRON, OVER 8" - OUTSIDE	532,514						193,036	187,200	38,501	23,184	15,443	15,443	21,354	73,906					
4	CAST IRON, OVER 8" - JOINT																			
3	CAST IRON, OVER 8" - JOINT	25,703	3,074	2,578	470			6,808	5,728	1,324	797	529	529	743	2,565					
3A	MANHOLES - INSIDE	2,582	1,063	894	183			4,311	3,734	860	517	345	345	477	1,648					
3B	MANHOLES - OUTSIDE	2,246	269	225	41			577	501	116	70	46	46	65	224					
3	MANHOLES - JOINT	15,895	6,544	5,508	1,006			24,812	21,493	4,949	2,977	1,985	1,985	2,745	9,487					
3A	VALVES AND VALVE BOXES - INSIDE	88,448						615	533	123	74	49	49	89	298					
3B	VALVES AND VALVE BOXES - OUTSIDE							16	14	3	2	2	2	2	8					
3	VALVES AND VALVE BOXES - JOINT	2,383	286	240	44			4,168	3,814	835	503	324	324	409	1,618					
3B	STEEL - OUTSIDE	45						464	347	66	40	28	28	71	264					
3B	STEEL - JOINT	16,213	1,938	1,626	297			10	7	1	1	1	1	2	6					
4B	PLASTIC - OUTSIDE	27						14,763	11,092	2,965	1,282	608	608	2,487	8,818					
4B	LANCASTER METER PIT - OUTSIDE		6,873	4,887	745															
4	RELINING	58,196						59,800	5,172	263	14	14	14	2,167						
9A	SERVICES - INSIDE	25,168	18,780	4,078	78															
9B	SERVICES - OUTSIDE	67,520																		

CITY OF LANCASTER - BUREAU OF WATER

PROJECTED COST OF SERVICE FOR THE TWELVE MONTHS ENDING DECEMBER 31, 2022

ALLOCATED TO RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OTHER WATER UTILITIES AND FIRE SERVICE CUSTOMER CLASSIFICATIONS

ACCOUNT (1)	FACTOR REF (2)	COST OF SERVICE (3)	INSIDE-CITY				OUTSIDE-CITY				PUBLIC FIRE (15)				
			RESIDENTIAL (4)	COMMERCIAL (5)	INDUSTRIAL (6)	PRIVATE FIRE (7)	RESIDENTIAL (9)	COMMERCIAL (10)	INDUSTRIAL (11)	LARGE INDUSTRIAL (12)		OTHER UTILITIES (13)	PRIVATE FIRE (14)		
METERS - INSIDE	8A	1,970	1,303	645	22	-	-	37,904	-	12,263	970	118	-	-	-
METERS - OUTSIDE	8B	51,332	-	-	-	-	-	-	-	-	-	-	-	-	-
HYDRANTS - INSIDE	7A	9,031	-	-	-	-	9,031	-	-	-	-	-	-	-	-
HYDRANTS - OUTSIDE	7B	12,059	-	-	-	-	-	-	-	-	-	-	-	-	-
OFFICE FURNITURE	13	121,168	20,284	10,408	1,515	848	2,351	44,202	21,062	4,650	2,847	1,868	1,418	12,059	8,857
TRANSPORTATION EQUIPMENT	13	59,360	9,940	5,101	742	410	1,152	21,862	10,777	2,245	1,395	614	695	4,341	1,395
STORES EQUIPMENT	13	167	28	14	2	1	3	61	30	6	4	4	2	12	12
SHOP EQUIPMENT	13	41	7	4	1	0	1	15	7	2	1	1	0	3	3
TOOLS AND WORK EQUIPMENT	13	25,263	4,234	2,173	316	177	491	9,227	4,591	956	504	390	268	1,849	1,849
COMMUNICATION EQUIPMENT	13	19,082	3,164	1,639	239	134	370	6,961	3,463	721	448	264	223	1,395	1,395
MISCELLANEOUS EQUIPMENT	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL DEPRECIATION		4,583,260	556,225	424,830	73,710	35,040	84,243	1,452,605	1,115,011	245,853	148,256	99,107	74,405	273,974	273,974
UTILITY INCOME AVAILABLE FOR RETURN - INSIDE	16A	4,083,922	1,811,684	1,446,525	247,077	171,116	307,828	4,040,100	3,110,189	674,333	407,942	-	286,051	1,037,057	1,037,057
UTILITY INCOME AVAILABLE FOR RETURN - OUTSIDE	16B	9,820,927	-	-	-	-	-	10,503,711	7,240,070	1,592,783	890,339	654,880	487,774	2,083,345	2,083,345
TOTAL COST OF SERVICE		32,952,837	4,749,932	3,250,538	546,991	279,784	573,849	10,503,711	7,240,070	1,592,783	890,339	654,880	487,774	2,083,345	2,083,345
LESS OTHER OPERATING REVENUE		-	-	-	-	-	-	-	-	-	-	-	-	-	-
LIEN INTERESTS AND COST	17	1,016	148	100	17	0	18	324	223	49	31	20	15	64	64
RENTAL INCOME	17B	319,593	-	-	-	-	-	142,539	98,243	21,604	13,423	8,885	6,616	28,264	28,264
SEWER REIMB - METER READING INSIDE	11A	90,294	78,134	17,287	338	3,535	-	-	1,754	98	4	-	-	-	-
SEWER REIMB - METER READING OUTSIDE	11B	19,978	-	-	-	-	-	-	-	-	-	-	-	-	-
SEWER REIMB - METER REPAIRS INSIDE	8A	64,839	42,739	21,163	737	-	-	17,635	3,107	248	30	20	481	481	
SEWER REIMB - METER REPAIRS OUTSIDE	8B	13,005	-	-	-	-	-	9,603	10,241	2,951	1,403	20	690	690	
MISC. REVENUE	17	46,815	6,717	4,568	774	398	811	14,885	10,241	2,951	1,403	20	690	2,946	2,946
STATE AID FOR PENSION EXPENSE	14	285,493	46,584	28,751	4,282	1,513	4,225	100,579	57,127	12,619	9,166	5,262	2,294	15,916	15,916
TOTAL OTHER OPERATING REVENUE		848,833	174,301	89,887	6,148	5,453	5,054	285,546	170,680	36,888	23,936	15,140	10,343	47,111	47,111
TOTAL COST OF SERVICE RELATED TO SALE OF WATER		32,103,005	4,574,731	3,180,841	540,444	274,331	588,765	10,218,168	7,089,375	1,555,915	967,284	638,740	477,431	2,030,235	2,030,235
REALLOCATION OF PUBLIC FIRE - INSIDE	19	-	376,087	188,223	6,484	-	(588,765)	1,505,592	487,271	38,088	4,683	-	-	(2,030,235)	(2,030,235)
REALLOCATION OF PUBLIC FIRE - OUTSIDE	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL		\$ 32,103,005	\$ 4,950,818	\$ 3,369,064	\$ 546,928	\$ 274,331	\$ -	\$ 11,723,759	\$ 7,555,646	\$ 1,594,804	\$ 971,967	\$ 639,740	\$ 477,431	\$ -	\$ -

NEWTOWN ARTESIAN WATER COMPANY  
Newtown, Pennsylvania 18940

Supplement No. 140  
To  
WATER-PA. P.U.C. No. 9  
Twenty-Sixth Revised Page No. 5  
Canceling  
Twenty-Fifth Revised Page No. 5

SCHEDULE OF METER RATES

Application

This schedule is applicable to metered domestic, commercial, industrial, and public customers.

Meter Rates

Per 1,000 Gallons

All water used \$6.635

Minimum Charges

Each metered customer shall pay a quarterly service charge based upon the size of the meter required to render adequate service.

Size of Meter

Quarterly  
Service  
Charge

5/8 inch	\$ 22.71
3/4 inch	34.11
1 inch	56.82
1 1/2 inch	113.64
2 inch	181.80
3 inch	340.92
4 inch	568.23
6 inch	1,136.49
8 inch	1,818.33
10 inch	2,613.87

Purchased Water Adjustment Clause

A Purchased Water Adjustment Clause of \$0.2698 per 1,000 gallons is applied to metered sales.

(I) Indicates increase

Supplement No. 91  
To Tariff – Water Pa. P.U.C. No. 7  
Third Revised Page No. 6D  
Cancelling Second Revised Page No. 6D

THE COLUMBIA WATER COMPANY  
SCHEDULE OF RATES APPLICABLE TO MARIETTA RATE DISTRICT  
FORMERLY MARIETTA GRAVITY WATER COMPANY SYSTEM

**SCHEDULE OF METERED RATES**

APPLICATION

THIS SCHEDULE IS APPLICABLE TO ALL METERED CUSTOMERS

METER RATES FOR ALL WATER USAGE

	<u>BASE RATES PER 1,000 GALLONS</u>	
FIRST 1,000 GALLONS PER MONTH	\$8.86	(I)(C)
1,001 – 5,000 GALLONS PER MONTH	\$5.54	(I)(C)
5,001 – 50,000 GALLONS PER MONTH	\$2.10	(I)(C)
OVER 50,000 GALLONS PER MONTH	\$1.86	(I)(C)

CUSTOMER CHARGE

IN ADDITION, ALL METERED CUSTOMERS SHALL PAY A MONTHLY CUSTOMER CHARGE BASED ON THE REQUIRED SIZE OF METER TO RENDER ADEQUATE SERVICE. (C)

<u>SIZE OF METER</u>	<u>CUSTOMER CHARGE PER MONTH</u>	
5/8 OR 5/8 x 3/4 INCH	\$8.20	(I)
3/4 INCH	\$12.30	(I)
1 INCH	\$20.50	(I)
1 1/2 INCH	\$41.00	(I)
2 INCH	\$65.60	(I)
3 INCH	\$123.00	(I)
4 INCH	\$205.00	(I)
6 INCH	\$410.00	(I)
8 INCH	\$738.00	(I)
10 INCH	\$943.00	(I)

(I) Indicates Increase (D) Indicates Decrease (C) Indicates Change

Issued: March 7, 2018

Effective: March 8, 2018



AQUA PENNSYLVANIA, INC.

SUPPLEMENT NO. 4  
 TARIFF WATER-PA P.U.C. NO. 2  
 FIRST REVISED PAGE 12.1  
 CANCELING ORIGINAL PAGE 12.1

---

SCHEDULE OF RATES

## METERED AND UNMETERED SERVICE CHARGE

The rates under this schedule apply to all customer classes in the territories served subject to the Rate Zones as noted in the Description of Territories Served section under this tariff unless otherwise specifically identified below.

MONTHLY SERVICE CHARGE

Customer Charge (\$)	Rate Zone 1 Main Division	Rate Zone 2	Rate Zone 3	Bunker Hill Division	Sun Valley Division
Fixed (per Customer)				\$ 8.00	
<u>Meter Size:</u>					
5/8 inch	\$ 18.00	\$ 18.00	\$ 28.00		
3/4 inch	30.90	23.90	28.00		
1 inch	52.50	39.40	52.50		
1-1/2 inch	101.10	63.70	101.10		
2 inch	143.90	89.50	143.90		
3 inch	289.00	125.00	289.00		
4 inch	470.00	287.50	470.00		
6 inch	970.00	970.00	970.00		
8 inch	1,697.00	1,697.00	1,697.00		
10 inch	2,508.00	2,508.00	2,508.00		
12 inch	3,037.50				(C)
Unmetered Charge	\$ 65.52	\$ 65.52	\$ 65.52		\$ 19.50

Supplement No. 27 to  
 Tariff Water-PA P.U.C. No. 5  
 First Revised Page 16  
 Canceling Original Page 16

**PENNSYLVANIA-AMERICAN WATER COMPANY****SCHEDULE OF RATES**

**RATE ZONE 1 - GENERAL METERED SERVICE**  
**FOR RESIDENTIAL RATE CLASS**  
**(C)**

**APPLICABILITY**

The rates under this schedule apply throughout the territories, unless otherwise noted on the territories served page, served under this tariff for service rendered on and after the Effective Date shown at the bottom of this page.

**AVAILABILITY**

The rates under this schedule are available to customers in the Residential Class.

**METERED SERVICE**

All water supplied by the Company under this rate schedule for any and all purposes shall be metered. All meters shall be read monthly or bimonthly and the water used shall be paid for in accordance with the following schedule of rates.

**RATE****Service Charge For Residential Rate Class**

The following monthly service charge shall apply based on the size of meter required to render adequate service, as determined by the Company:

<u>Size of Meter</u>	<u>Service Charge per Month</u>	
	<u>2021</u>	<u>2022</u>
5/8 inch	\$17.00 (I)	\$17.50 (I)
3/4 inch	\$17.00 (D)	\$17.50 (I)
1 inch	\$17.00 (D)	\$17.50 (I)
1-1/2 inch	\$17.00 (D)	\$17.50 (I)
2 inch	\$111.90 (I)	\$115.20 (I)
3 inch	\$208.70 (I)	\$214.90 (I)
4 inch	\$262.00 (I)	\$269.70 (I)
6 inch	\$392.10 (I)	\$403.70 (I)
8 inch	\$759.20 (I)	\$781.60 (I)

**Consumption Charges For Residential Class:**

The following rates shall apply per 100 gallons:

	<u>2021</u>	<u>2022</u>
All Usage:	\$1.2991 (I)	\$1.3100 (I)

(I) means Increase, (D) means Decrease and (C) means Change

The York Water Company  
York, Pennsylvania

Supplement No. 134  
to  
Water-Pa. P.U.C. No. 14  
Twenty-fifth Revised Page No. 42  
Canceling  
Twenty-fourth Revised Page No. 42

**13. Rate Schedules (Continued)**

**Schedule "A" - Meter Rates (Continued)**

**Gravity System (Continued)**

**RATES**

**Customer Charges**

**Size of Meter**

**All Classes**

5/8"	\$16.25	(I) ↓
3/4"	22.30	
1"	31.50	
1-1/2"	48.50	
2"	63.00	
3"	151.80	
4"	225.90	
6"	250.90	
8"	481.40	
10"	619.50	
12"	762.70	

**Output Charges**

**Rate per 1,000 Gallons**

	<b>Residential</b>		<b>Commercial</b>		<b>Industrial</b>	
Up to 5,000 Gallons Per Month	\$5.012	(I)	\$4.554	(I)	\$4.554	(I)
Next 45,000 Gallons Per Month	5.012	(I)	3.261	(I)	3.261	(I)
Next 1,950,000 Gallons Per Month	5.012	(I)	2.541	(I)	2.831	(I)
Over 2,000,000 Gallons Per Month	5.012	(I)	2.541	(I)	2.437	(I)

(I) Indicates Increase

Supplement No. 55 to:  
Water – Pa. P.U.C. No. 7  
Tenth Revised Page 6

SUEZ WATER PENNSYLVANIA INC.

Cancelling Eighth and Ninth Revised Page 6

**SCHEDULE OF METER RATES**

Application:

To all residential customers residing in all territories served by SUEZ Water Pennsylvania.

Volume Charges:

All consumption at \$0.90510 per 100 gallons (I)

Customer Service Charges:

<u>Meter Size</u>	<u>Per Month</u>	
5/8" – 3/4" (C)	\$14.50	(I)
1"	30.05	
1 1/2"	60.11	
2"	102.96	
3"	193.12	
4"	321.90	
6"	643.80	
8"	1,030.16	
10"	1,480.85	

Conditions of Contract:

The rate will consist of the total of (A) the Volume Charge and (B) the Customer Service charge. The volume charge is based on all metered water for the billing period.

Terms of Payment:

All bills shall be rendered monthly. Bills rendered will show a due date of twenty (20) days after the date the bill is mailed for residential customers and fifteen (15) days after the date the bill is mailed for commercial/public authority, industrial, sales for resale, public fire and private fire customers, except as provided by law for governmental entities. Payment received by the Company more than five (5) days after the due date will be charged a penalty of 1.50%, and such penalty will be calculated monthly thereafter only on the overdue portion of the bill. In no event shall the penalty charged exceed 18% annually.

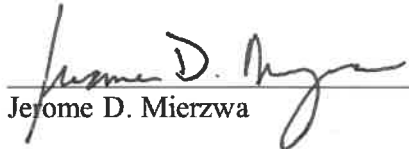
BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Re: Pennsylvania Public Utility Commission :  
v. : Docket No. R-2021-3026682  
City of Lancaster – Water Department :

VERIFICATION

I, Jerome D. Mierzwa, hereby state that the facts above set forth in my Surrebuttal Testimony, OCA Statement 4SR, are true and correct and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: January 28, 2022  
\*323372

Signature:   
Jerome D. Mierzwa

Consultant Address: Exeter Associates, Inc.  
10480 Little Patuxent Parkway  
Suite 300  
Columbia, MD 21044-3575

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY  
COMMISSION

v.

CITY OF LANCASTER – WATER

:  
:  
:  
:  
:  
:  
:  
:  
:  
:

Docket No. R-2021-3026682

SURREBUTTAL TESTIMONY

OF

TERRY L. FOUGHT

ON BEHALF OF

PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

JANUARY 28, 2022

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.**

2 A. Terry L. Fought, 780 Cardinal Drive, Harrisburg, Pennsylvania, 17111.

3

4 **Q. MR. FOUGHT, HAVE YOU ALREADY SUBMITTED TESTIMONY IN THIS**  
5 **PROCEEDING ON BEHALF OF THE OFFICE OF CONSUMER ADVOCATE?**

6 A. Yes. I submitted direct testimony.

7

8 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

9 A. The purpose of my surrebuttal testimony is to respond to portions of the rebuttal  
10 testimony by Stephen Campbell, City of Lancaster Statement No. 2R, regarding  
11 unaccounted for water (UFW), customer water quality complaints, pressure  
12 surveys, fire hydrants, isolation valves, flushing the distribution system and  
13 customer complaints.

14

15 **UNACCOUNTED FOR WATER (UFW)**

16 **Q. WHAT IS THE CITY'S POSITION ON UFW?**

17 A. Mr. Campbell states that as part of its next water base rate case filing, the City  
18 agrees to: (1) provide a schedule showing then-current UFW levels, (2) describe  
19 its leak protection program, and the success of that program; (3) the use of the  
20 PUC methodology; and (4) equip all of its transmission and distribution department  
21 crews with the necessary gauges to track water lost in flushing of mains. The  
22 Bureau of Water has provided a copy of its 2020 AWWA Audit, as requested.<sup>1</sup>

---

<sup>1</sup> City of Lancaster Statement No. 2R, pp. 2-5.

1 **Q. DO YOU AGREE WITH THE CITY'S POSITION ON UFW STATED ABOVE?**

2 A. Yes. The City has adopted my recommendation.

3

4 **CUSTOMER WATER QUALITY COMPLAINT LOG**

5 **Q. WHAT IS THE CITY'S POSITION ON CUSTOMER WATER QUALITY**  
6 **COMPLAINT LOG?**

7 A. Mr. Campbell states that one of my concerns about the City's Customer Complaint  
8 Log was based on "two complaints about water irritating the skin" and the  
9 Complaint Log only addressed the final disposition of only one of the two  
10 complaints. He further testified that the complainants were neighbors and the City  
11 provided both neighbors with satisfactory water quality test results.<sup>2</sup>

12

13 **Q. HAS MR. CAMPBELL'S EXPLANATION AS STATED ABOVE SATISFIED**  
14 **YOUR CONCERNS ABOUT THAT ISSUE?**

15 A. Yes.

16

17 **Q. DID THE CITY AGREE TO OTHER ISSUES REGARDING THE COMPLAINT**  
18 **LOG?**

19 A. Yes, Mr. Campbell testified that the City's Complaint Log is: (1) already in Excel  
20 format; (2) includes the final disposition of each complaint; and (3) and that the  
21 City has no objection to implementing OCA's recommendations with respect to its  
22 Complaint Log moving forward.<sup>3</sup>

---

<sup>2</sup> City of Lancaster Statement No. 2R, pp. 13-14.

<sup>3</sup> City of Lancaster Statement No. 2R, pp. 14-15.



1 **Q. DO YOU AGREE WITH THE CITY'S POSITION ON THE CUSTOMER**  
2 **COMPLAINT LOG AS STATED ABOVE?**

3 A. Yes, with the understanding that the OCA's recommendations includes identifying  
4 the complainant as either a City or jurisdictional customer and that the following  
5 categories be included so that the data can be sorted: date; location; dirty water;  
6 rusty water; water taste, odor, or color; staining (of laundry or plumbing fixtures);  
7 pressure<sup>4</sup>, request for water testing; customer property damage; incomplete  
8 surface restoration; and health issues.<sup>5</sup> Also, the City should provide the complaint  
9 log in the live Excel format in its next case.

10

## 11 **PRESSURE SURVEYS**

12 **Q. WHAT IS THE CITY'S POSITION ON PRESSURE SURVEYS?**

13 A. Mr. Campbell states that the City complies with the requirements of 52 Pa. Code  
14 §§ 65.6 (a) and (d) because: (1) it has a SCADA system which utilizes pressure  
15 transducers at the pump stations and tanks throughout its water distribution  
16 territory in every pressure zone; (2) it monitors the pressure transducers and if the  
17 pressures go below a certain point, an alert is automatically sent to the operator;  
18 (3) a hydraulic model is used to see theoretical pressure fluctuations in the system  
19 and is calibrated every five years based on actual billing data collected from the  
20 year; (4) the calibration of the hydraulic model is also checked with hydrant flow  
21 tests; (5) a pressure transducer is available that can be connected to a fire hydrant

---

<sup>4</sup> Assuming that the City wants to substitute SCADA systems and hydraulic computer models for Pressure Surveys.

<sup>5</sup> OCA Statement 5, pp. 15-16.

1 when responding to pressure complaints; and (6) it has not identified any location  
2 where the average pressure goes below 25 psig.

3 In future rate cases, the City agrees to either: (1) submit a pressure survey for each  
4 of its three pressure zones, or (2) clearly indicate why it is in compliance with 52  
5 Pa. Code §§ 65.6(a) and (d) and include a complaint log that includes all customer  
6 complaints regarding pressure.<sup>6</sup>

7  
8 **Q. DO YOU AGREE WITH THE CITY'S POSITION ON PRESSURE SURVEYS AS**  
9 **STATED ABOVE?**

10 A. Yes, the City's procedure using its existing SCADA system and its hydraulic  
11 computer model as described above is a sufficient substitute for pressure surveys  
12 assuming the complaint log includes all customer pressure complaints.

13  
14 **FIRE HYDRANTS**

15 **Q. WHAT IS THE CITY'S POSITION ON FIRE HYDRANTS?**

16 A. Mr. Campbell testified that the Bureau of Water would be willing to adopt my  
17 recommendation to mark the 34 hydrants that cannot provide the minimum fire  
18 flow so they will only be used for flushing, and to also notify the relevant  
19 boroughs/municipalities in which they are located so that they may update their  
20 records accordingly, i.e., that those hydrants are not available to be used for  
21 firefighting purposes.<sup>7</sup>

22  

---

<sup>6</sup> City of Lancaster Statement No. 2R, pp. 15-16.

<sup>7</sup> City of Lancaster Statement No. 2R, p. 16.

1 **Q. DO YOU AGREE WITH THE CITY'S POSITION ON FIRE HYDRANTS AS**  
2 **STATED ABOVE?**

3 A. Yes, with the understanding that the City reports to the OCA and other parties  
4 when the marking of the hydrants are complete.

5

6 **EXERCISING ISOLATION VALVES**

7 **Q. WHAT IS THE CITY'S POSITION ON EXERCISING ISOLATION VALVES?**

8 A. Mr. Campbell stated that: (1) it is simply not possible for the City to commit to  
9 exercising all the 9,700 valves in the PUC-jurisdictional area over a 5-year period;  
10 (2) the City is not aware of any legal requirement that the valve exercising must be  
11 done over a five-year schedule; and (3) the City has an alternate plan for exercising  
12 valves that it is willing to implement.<sup>8</sup>

13

14 **Q. DO YOU HAVE ANY COMMENTS REGARDING THE CITY'S REQUIREMENT**  
15 **TO EXERCISE ISOLATION VALVES?**

16 A. Yes, (1) the PUC requires the City to properly maintain all its water facilities and  
17 (2) the City has not presented any evidence indicating that it has properly  
18 maintained its isolation valves.

---

<sup>8</sup> City of Lancaster Statement No. 2R, pp. 16-17.

1 **Q. WHAT IS THE CITY'S ALTERNATIVE PLAN FOR EXERCISING ISOLATION**  
2 **VALVES THAT IT IS WILLING TO IMPLEMENT?**

3 A. The City believes that it can reasonably commit to exercising approximately 1,300  
4 valves (ten percent (10%) of its total valves) annually. This will mean that all valves  
5 (both inside the City and the PUC jurisdictional area) will be exercised in a 10-year  
6 period. The valve exercise plan will be based on the pressure zones in its  
7 distribution system, with the City exercising the largest valves in a zone first,  
8 followed by the smaller valves in the zone. Any plan that has exercising of valves  
9 on a more frequent or based on an increased volume of the valves exercised is  
10 simply not feasible based upon the City's existing resources and would require  
11 additional capital outlay and likely the hiring of additional employees dedicated  
12 almost exclusively to exercising efforts.<sup>9</sup>

13  
14 **Q. DO YOU HAVE ANY COMMENTS, SUGGESTIONS AND/OR**  
15 **RECOMMENDATIONS REGARDING THE CITY'S ALTERNATIVE PLAN FOR**  
16 **EXERCISING ISOLATION VALVES?**

17 A. Yes. It is important that a plan for the exercising isolation valves will result in all  
18 the valves becoming fully operable in a cost-effective manner – i.e., one that  
19 reduces the total number of valves that must be repaired and/or replaced. In  
20 selecting which valves should be exercised first, the City should consider: (1) the  
21 size of the valve; (2) is it a critical valve, i.e., one needed to prevent a water outage  
22 of a hospital, school, major customer, etc. from a nearby water main break; (3)

---

<sup>9</sup> City of Lancaster Statement No. 2R, p. 17.

1 when the valve was last operated; and (4) its importance in any proposed water  
2 main replacement.

3 The City's Alternative Plan proposes to exercise all its 13,000 isolation valves  
4 (3,300 in the City and 9,700 in jurisdictional areas) at a rate of 1,300 valves per  
5 year. This Alternative Plan should be considered an acceptable plan with the  
6 following conditions: (1) each year approximately 25% of the total valves  
7 exercised are located in the City and 75% are located in the jurisdictional areas;  
8 (2) the City annually submits a Maintenance Log as described below; (3) during  
9 the next rate case, the Plan may be adjusted based on the City's experience of  
10 exercising the valves and (4) after each valve has been exercised, the City will  
11 continue to maintain it in operating condition.

12 The Maintenance Log should be submitted to the OCA and other parties on April  
13 15 of each year and include the following information on each valve attempted to  
14 be exercised the previous year: (1) date attempted to exercise; (2) location and  
15 size; (3) in the City or Jurisdictional area; and (4) was the exercise successful or  
16 unsuccessful.

17 Critical isolation valves that could not be exercised should be repaired or replaced  
18 as soon as practicable after the time they are found to be inoperable. If any non-  
19 critical valves are not repaired shortly after the time they were found to be  
20 inoperable, the Maintenance Log should contain a schedule of when they will be  
21 repaired or replaced.

1 **OTHER COMPLAINTS – INFORMAL, FORMAL, PIH**

2 **Q. WHAT IS THE CITY’S POSITION ON FORMAL COMPLAINTS?**

3 A. Mr. Campbell testified that the formal complaints in this rate proceeding: (1) do not  
4 concern “quality of service” issues; (2) the six formal complaints filed with respect  
5 to the current rate proceeding all take the position that the City’s rate increase is  
6 unnecessary and/or too high.<sup>10</sup>

7  
8 **Q. DO YOU AGREE WITH THE CITY’S POSITION ON FORMAL COMPLAINTS?**

9 A. Yes, my Direct Testimony did not specifically request the City to address any  
10 Formal Complaints.

11  
12 **Q. WHAT IS THE CITY’S POSITION ON INFORMAL COMPLAINTS?**

13 A. Mr. Campbell states that City has insufficient information to provide a response to  
14 the Informal Complaints included in my Direct Testimony because the City was not  
15 provided any identifying information other than identifying the road and town for  
16 two of the three informal complaints.<sup>11</sup>

17  
18 **Q. DO YOU HAVE ANY COMMENTS CONCERNING THE CITY’S POSITION ON  
19 INFORMAL COMPLAINTS?**

20 A. Yes. The OCA will provide copies of the informal complaints to the City so that the  
21 quality of service issues can be further addressed by the City.

22  

---

<sup>10</sup> City of Lancaster Statement No. 2R, pp. 17-18.

<sup>11</sup> City of Lancaster Statement No. 2R, pp. 17-18.

1 **Q. DOES THIS COMPLETE YOUR WRITTEN SURREBUTTAL TESTIMONY?**

2 A. Yes, at this time. I reserve the right to supplement this testimony either in writing  
3 or orally if additional relevant information is received.

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

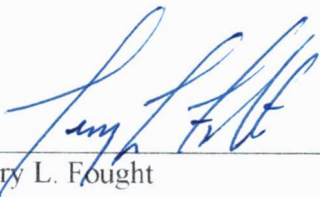
Re: Pennsylvania Public Utility Commission :  
v. : Docket No. R-2021-3026682  
City of Lancaster – Water Department :

VERIFICATION

I, Terry L. Fought, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement 5SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: January 28, 2022  
\*323373

Signature:

  
Terry L. Fought

Consultant Address: 780 Cardinal Drive  
Harrisburg, PA 17111