

# APPENDIX A-5.1 (AUS)

**Jerome C. Weinert**

Principal & Director

**AUS Consultants****Depreciation and Valuation**

8555 West Forest Home Avenue

Suite 201

Greenfield, WI 53228

Telephone 414-529-5755

Fax 414-529-5750

E-Mail [weinertj@auswest.net](mailto:weinertj@auswest.net)

June 2, 2020

Mr. Scott D. Fogelsanger  
Senior Manager - Business Development  
Pennsylvania-American Water Company  
852 Wesley Drive  
Mechanicsburg, PA 17055

RE: UVE Market Value Appraisal of Royersford Borough's Wastewater Collection and Treatment System

Enclosed is AUS Consultants' fair market value appraisal report for Royersford Borough's wastewater collection and treatment system (System) as of December 10, 2019 prepared for Pennsylvania American Water Company (PAWC). The report was prepared based on the 2020-2021 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes (PA CS) Paragraph 1329 "Valuation of acquired water and wastewater systems", collectively referred to as Act 12 of the 2016 Pennsylvania legislative session (Act 12). The intended users of this appraisal are Pennsylvania American Water Company and the Pennsylvania Public Utility Commission.

Based on our appraisal the Fair Market Value of Royersford Borough's wastewater collection and treatment system's property, plant, and equipment operating as a Pennsylvania rate regulated wastewater utility is \$13,769,801 determined based on the cost, income, and market approaches to value, as detailed in the following table:

# APPENDIX A-5.1 (AUS)

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Fair Market Value Appraisal**

Appraisal Approach	Investor-owned Utility	Weight	Wtd Valuation Indications
<b>Cost Approach</b>			
<b>Financials' Net Book (3-31-2019)</b>			
Gross Book	6,883,116		
Accumulated Depreciation	(2,337,417)		
Net Book	4,545,699		
<b>Inventory of Assets (7-2019)</b>			
Original Cost (\$OC)	7,666,492		
Depreciated Original Cost (\$OCLD)	5,173,559		
<b>Replacement Cost (9-30-2019)</b>			
Replacement Cost New (COR)	40,821,536		
Depreciated Replacement Cost New (CORLD)	\$ 13,376,109		
Cost Approach Conclusion	<b>13,376,109</b>	<b>50%</b>	<b>6,688,055</b>
<b>Income Approach</b>			
Required Rate Increases: 30% period 1, 26% period 3, 26% period 6, 24% period 9 and 6% every 3rd year beginning in period 12 (Input 6)			
	14,486,081		
Income Approach Conclusion	<b>14,486,081</b>	<b>40%</b>	<b>5,794,432</b>
<b>Market Approach</b>			
<b>Market Comparables (to)</b>			
OCLD	8,602,767		
CORLD	12,873,137		
<b>Market Financials (to)</b>			
OCLD	10,916,210		
Market Approach Conclusion	<b>12,873,137</b>	<b>10%</b>	<b>1,287,314</b>
Appraisal Conclusion	\$ 13,769,801	<b>100%</b>	<b>13,769,801</b>
Conclusion (cost approach)	\$ 13,376,109		

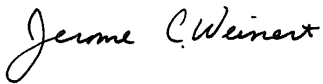

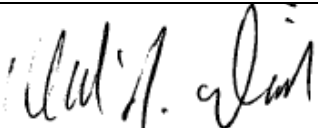
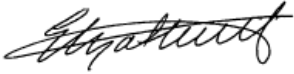
**AUS CONSULTANTS**

## APPENDIX A-5.1 (AUS)

As the purpose of this appraisal was to fulfill the requirements of Act 12 in the establishment of value for rate making of the Royersford Borough's wastewater collection and treatment system's property, plant and equipment the appraisal's conclusion of \$13,769,801 is consistent with the purpose of this appraisal. As the cost approach work papers detail our value conclusion by National Association of Regulatory Utility Commissioners' (NARUC) Uniform System of Accounts (USOA) for the wastewater industry account classifications and the installation year of the property this detail can be used to allocate the appraisal conclusion to establish the booked value for future accounting and rate making.

Respectfully Submitted,  
AUS Consultants, Depreciation & Valuation  
June 2, 2020

By:

	
Jerome C. Weinert, AM, P.E., CDP Principal and Director	David A. Sheffer Principal
	
Michael J. Diedrich, ASA, P.E., CDP Certified General Appraiser Principal	Elizabeth A. Weinert Associate

ASA: Accredited Senior Appraiser in the Machinery and Equipment (Public Utilities) discipline of the American Society of Appraisers

AMA: Accredited Member Appraiser in the Machinery and Equipment (Public Utilities) discipline of the American Society of Appraisers

P.E.: Registered Professional Engineer State of Wisconsin

CDP: Certified Depreciation Professionals in the Society of Depreciation Professionals

**AUS CONSULTANTS**

**Royersford Borough's (Pennsylvania) Wastewater Collection  
and Treatment System**

**Fair Market Value Appraisal Report  
As of December 10, 2019  
for  
Pennsylvania American Water Company**

**AUS Consultants  
Depreciation and Depreciation  
8555 West Forest Home Avenue Suite 201  
Greenfield, Wisconsin 53228  
Office: 414-529-5755  
Cell: 414-698-8371  
E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

**AUS CONSULTANTS**

# APPENDIX A-5.1 (AUS)

## TABLE OF CONTENTS

### NARRATIVE REPORT

EXECUTIVE SUMMARY .....	Page 1
PURPOSE AND SCOPE OF WORK .....	Page 17
WATER/WASTEWATER INDUSTRY NATIONALLY AND IN PENNSYLVANIA WORK .....	Page 19
ROYERSFORD BOROUGH, PENNSYLVANIA'S WASTEWATER FACILITIES .....	Page 20
APPRAISAL PROCEDURES AND RESULTS .....	Page 21
Cost Approach .....	Page 22
Income Approach.....	Page 32
Market Approach .....	Page 37
Value Conclusion.....	Page 44

### COMPLIANCE WITH UNIFORM STANDARD OF PROFESSIONAL APPRAISAL PRACTICES (2020-2021)

### SUPPORTING EXHIBITS AND WORKPAPERS

VALUATION SUMMARY (TAB)	
COST APPROACH (TAB)	
Replacement Cost New	
Replacement Cost New Less Depreciation	
Depreciated Original Cost	
Depreciation & Obsolescence	
INCOME APPROACH (TAB)	
Discounted Cash Flow (DCF)	
Analysis of Financial Statements	
MARKET APPROACH (TAB)	
Comparable Sales	
COST INDICES	
DEPRECIATION & OBSOLESCENCE	
COST OF CAPITAL / REQUIRED RETURN	
Value Line Investment Survey Water Industry Market Ratio Sales analysis	
2020 Stocks, Bonds, Bills, and Inflation (S&P) Yearbook, Duff & Phelps	
Report on the Quarterly Earnings of Jurisdictional Utilities for Year Ended September 30, 2019	
Bureau of Technical Utility Services – Pennsylvania Public Utility Commission	
VALUE LINE INVESTMENT SURVEY	
ROYERSFORD BOROUGH FINANCIALS 2015-2018 AND BUDGETS 2018-2020	
ENGINEER'S ASSESSMENT (TAB) – Pennoni Associates, Inc.'s Engineers Assessment of Royersford	
Borough's Wastewater System – Inventory as of April 23, 2020	
ROYERSFORD BOROUGH WASTEWATER SYSTEM INSPECTIONS	
PAWC-ROYERSFORD ASSET PURCHASE AGREEMENT	
PAWC – AUS CONSULTANTS UVE CONTRACT	

# APPENDIX A-5.1 (AUS)

June 2, 2020

Pennsylvania American Water Company  
Mechanicsburg, Pennsylvania

## **AUS Consultants**

### **Depreciation and Valuation**

8555 West Forest Home Avenue

Suite 201

Greenfield, WI 53228

Telephone 414-529-5755

Fax 414-529-5750

Cell 414-698-8371

E-Mail [weinertj@auswest.net](mailto:weinertj@auswest.net)

RE: UVE Market Value Appraisal of Royersford Borough's Wastewater Collection and Treatment System

Enclosed is AUS Consultants' fair market value appraisal report of the Royersford Borough's (Pennsylvania) wastewater collection and treatment system as of December 10, 2019 prepared for our client Pennsylvania American Water Company (PAWC). The report was prepared based on the 2020-2021 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated (PA CS) Statutes Section 1329 "Valuation of acquired water and wastewater systems", collectively referred to as Act 12 of the 2016 Pennsylvania legislative session (Act 12). The intended users of this appraisal are Pennsylvania American Water Company and the Pennsylvania Public Utility Commission.

Based on our appraisal, the Fair Market Value of the Royersford Borough's (Pennsylvania) wastewater collection and treatment system's property, plant, and equipment operating as Pennsylvania rate regulated wastewater utility is \$13,769,801 determined based on the cost, income, and market approaches to value, as detailed in the following table:

**AUS CONSULTANTS**

# APPENDIX A-5.1 (AUS)

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Fair Market Value Appraisal**

Appraisal Approach	Investor-owned Utility	Weight	Wtd Valuation Indications
<b>Cost Approach</b>			
<b>Financials' Net Book (3-31-2019)</b>			
Gross Book	6,883,116		
Accumulated Depreciation	(2,337,417)		
Net Book	4,545,699		
<b>Inventory of Assets (7-2019)</b>			
Original Cost (\$OC)	7,666,492		
Depreciated Original Cost (\$OCLD)	5,173,559		
<b>Replacement Cost (9-30-2019)</b>			
Replacement Cost New (COR)	40,821,536		
Depreciated Replacement Cost New (CORLD)	\$ 13,376,109		
Cost Approach Conclusion	<b>13,376,109</b>	<b>50%</b>	<b>6,688,055</b>
<b>Income Approach</b>			
Required Rate Increases: 30% period 1, 26% period 3, 26% period 6, 24% period 9 and 6% every 3rd year beginning in period 12 (Input 6)			
	14,486,081		
Income Approach Conclusion	<b>14,486,081</b>	<b>40%</b>	<b>5,794,432</b>
<b>Market Approach</b>			
<b>Market Comparables (to)</b>			
OCLD	8,602,767		
CORLD	12,873,137		
<b>Market Financials (to)</b>			
OCLD	10,916,210		
Market Approach Conclusion	<b>12,873,137</b>	<b>10%</b>	<b>1,287,314</b>
Appraisal Conclusion	\$ 13,769,801	<b>100%</b>	<b>13,769,801</b>
Conclusion (cost approach)	\$ 13,376,109		

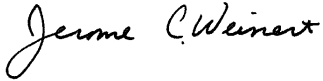


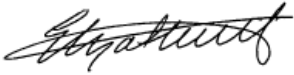
**AUS CONSULTANTS**

## APPENDIX A-5.1 (AUS)

As the purpose of this appraisal was to fulfill the requirements of Section 1329 of the PA CS in the establishment of value for rate making of the Royersford Borough's wastewater collection and treatment system's property, plant and equipment this appraisal's conclusion of \$13,769,801 is consistent with the purpose of the appraisal. As the cost approach work papers detail our value conclusion by National Association of Regulatory Utility Commissioners' (NARUC) Uniform System of Accounts (USOA) for the wastewater industry account classifications and the installation year of the property, this detail can be used to allocate the appraisal conclusion to establish the booked value for future accounting and rate making.

Respectfully Submitted,  
AUS Consultants, Depreciation & Valuation  
June 2, 2020

By:

	
Jerome C. Weinert, AM, P.E., CDP Principal and Director	David A. Sheffer Principal
	
Michael J. Diedrich, ASA, P.E., CDP Certified General Appraiser Principal	Elizabeth A. Weinert Associate

ASA: Accredited Senior Appraiser in the Machinery and Equipment (Public Utilities) discipline of the American Society of Appraisers

AMA: Accredited Member Appraiser in the Machinery and Equipment (Public Utilities) discipline of the American Society of Appraisers

P.E.: Registered Professional Engineer State of Wisconsin

CDP: Certified Depreciation Professionals in the Society of Depreciation Professionals

**AUS CONSULTANTS**



# APPENDIX A-5.1 (AUS)

APPRAISAL CERTIFICATION  
for the Fair Market Appraisal of  
The Royersford Borough Pennsylvania's Wastewater Collection and Treatment System  
As of December 10, 2019  
Prepared for  
Pennsylvania American Water Company

AUS Consultants, Depreciation & Valuation, certifies that, to the best of its knowledge and belief:

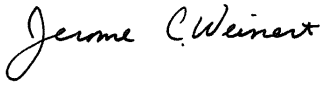

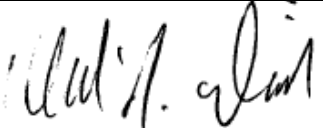

- The statements of fact contained in this report are true and correct.
- Over the last three years, AUS Consultants has appraised these properties.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, opinions, and conclusions.
- Neither AUS Consultants, Depreciation & Valuation, nor its professional staff has no present or prospective interest in the property that is the subject of this report and has no personal interest with respect to the parties involved.
- Neither AUS Consultants, Depreciation & Valuation, nor its professional staff has any bias with respect to the property that is the subject of this report or to the parties involved.
- Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
- Our analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice 2020-2021 Edition.
- The signers of this report has made personal inspections of the property that is the subject of this report.
- No individuals provided significant professional assistance to the persons signing this report. However, Scott Fogelsanger of Pennsylvania American Wastewater Company provided assistance in obtaining information and data from the Royersford Borough, Pennsylvania and the Engineer's Assessment report prepared by Pennoni Associates, Inc. which was the inventory starting point of the Cost Approach.

**AUS CONSULTANTS**

# APPENDIX A-5.1 (AUS)

AUS Consultants, Depreciation & Valuation  
June 2, 2020

By:

	
Jerome C. Weinert, AM, P.E., CDP Principal and Director	David A. Sheffer Principal
	
Michael J. Diedrich, ASA, P.E., CDP Certified General Appraiser Principal	Elizabeth A. Weinert Associate

ASA: Accredited Senior Appraiser in the Machinery and Equipment (Public Utilities) discipline of the American Society of Appraisers

AMA: Accredited Member Appraiser in the Machinery and Equipment (Public Utilities) discipline of the American Society of Appraisers

P.E.: Registered Professional Engineer State of Wisconsin

CDP: Certified Depreciation Professions in the Society of Depreciation Professionals

**AUS CONSULTANTS**

**NARRATIVE REPORT**

## EXECUTIVE SUMMARY

The purpose of this value appraisal is the determination of the fair market value of the property plant and equipment of the Royersford Borough's wastewater collection and treatment system (System) for our client Pennsylvania American Water Company (PAWC). The report was prepared based on the 2020-2021 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes Paragraph 1329: "Valuation of acquired water and wastewater systems", collectively referred to as Act 12 of the 2016 Pennsylvania legislative session (Act 12) and the Pennsylvania Public Utility Commission's Final Implementation Order M-2016-2543193 adopted October 27, 2016. The intended users of this appraisal are Pennsylvania American Water Company and the Pennsylvania Public Utility Commission (PA PUC).

The value established in this appraisal was based on the definition of Market Value as:

*"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress." The Appraisal of Real Estate, 14<sup>th</sup> Edition, page 58.*

In arriving at our opinion of value of the System's property, plant, and equipment as it is operated as an investor-owned Pennsylvania PUC rate regulated wastewater utility the cost, income, and market approaches to value were considered. Detailed explanations of each approach to value are included below in the section "Appraisal Procedures and Results". The following summarizes the data, analysis and conclusions of each of those valuation approaches.

Cost Approach - The philosophy in the cost approach to value is that the maximum value of a property's tangible assets is established by the cost to acquire or build a similar property. In this appraisal, the cost approach to value was analyzed using reproduction/replacement cost approach.

## APPENDIX A-5.1 (AUS)

Reproduction cost and replacement cost are defined as:

Reproduction cost – “Reproduction cost is the estimated cost to construct, as of the effective appraisal date, an exact duplicate or replica of the building [property] being appraised, insofar as possible, using the same materials, construction standards, design, layout, and quality of workmanship and embodying all the deficiencies, super-adequacies, and obsolescence of the subject improvements [property].”<sup>1</sup>

Replacement cost – “Replacement cost is the estimated cost to construct, as of the effective appraisal date, a substitute for the building [property] being appraised using contemporary materials, standards, design and layout. When this cost basis is used, some existing obsolescence in the property may be cured. Replacement cost may be the only alternative if reproduction cost cannot be estimated”<sup>2</sup>

In the wastewater industry the property’s reproduction costs and replacement costs are quite similar; therefore, the property’s cost new was determined based on its replacement cost new estimated by the trended original cost and the inventory-unit cost methods.

The trended original cost method was utilized in preparing the replacement cost new. “Trending is a method of estimating a property’s replacement cost new in which an *index* or *trend factor* is applied to the property’s *historical costs* to convert the known historical costs into an indication of current (appraisal date) costs. Simply put, trending reflects the movement of price over time.”<sup>3</sup> In the trended original cost method, Royersford Borough’s investment in wastewater collection plant and equipment is restated to costs reflective of the appraisal date, by the application of cost trends to the property’s original investment. AUS Consultants utilized the Engineer’s Assessment performed by Pennoni Associates, Inc. (Engineer’s Assessment tab) as the starting point of the Cost Approach. Utilizing the Engineer’s Assessment AUS Consultants developed the System’s original cost less depreciation (OCLD) and replacement cost new less depreciation (CORLD) in property, plant and equipment at December 10, 2019 (Cost Approach tab).

The cost trends were applied to each of the System’s various investment categories (NARUC plant accounts) by original year of placement for that investment. The cost

---

<sup>1</sup> The Appraisal of Real Estate, 14<sup>th</sup> Edition. pages 569-570

<sup>2</sup> Ibid, page 570

<sup>3</sup> Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Third Edition. Page 50

# APPENDIX A-5.1 (AUS)

indexes used in these studies were the Handy-Whitman Index of Public Utility Construction Costs for the water industry in the northeastern region of the United States which includes the Commonwealth of Pennsylvania, the AUS General Plant Indexes, and various United States Bureau of Labor Statistics (US BLS) indexes as detailed in the following table:

1	2	3	4	5	6	7
<b>Pennsylvania American Water Company</b> <b>Royersford Borough</b> <b>Wastewater Collection and Treatment System</b> <b>Investor-Owned Utility</b> <b>December 10, 2019</b>						
Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies						
(1)	(2)	(3)			(3d)	(3e)
Account Number	Description	Costing Parameters		Reproduction to Replacement Cost Factor		
		Index Series	Table	Line Reference	Lookup	AUS Input
353.20	Land & Land Rights - Collection	USBLS	PPI	1.00	USBLS1	1.00
353.30	Land & Land Rights - Pumping	USBLS	PPI	1.00	USBLS1	1.00
353.40	Land & Land Rights - Treatment	USBLS	PPI	1.00	USBLS1	1.00
354.30	Structures & Improvements - Pumping	HW	W-1	8.00	HWW-18	1.00
354.40	Structures & Improvements - Treatment	HW	W-1	15.00	HWW-115	1.00
355.30	Generating Equipment - Pumping	USBLS	PPI	4.00	USBLS4	1.00
355.40	Generating Equipment - Treatment	USBLS	PPI	4.00	USBLS4	1.00
360.20	Collection Sewers - Force - Mains	HW	W-1	44.00	HWW-144	1.00
361.21	Collection Sewers - Gravity - Mains	HW	W-1	44.00	HWW-144	1.00
361.22	Collection Sewers - Gravity - Mains Relining	HW	W-1	44.00	HWW-144	1.00
361.23	Collection Sewers - Gravity - Manholes	HW	W-1	45.00	HWW-145	1.00
363.20	Service Laterals	HW	W-1	39.00	HWW-139	1.00
364.30	Flow Measuring Devices - Pumping	HW	W-1	40.00	HWW-140	1.00
364.40	Flow Measuring Devices - WWTP	HW	W-1	40.00	HWW-140	1.00
371.40	Pumping Equipment - Treatment	HW	W-1	9.00	HWW-19	1.00
380.40	Treatment and Disposal Equipment	HW	W-1	17.00	HWW-117	1.00
390.70	Office Furniture and Equipment	AUS	T-1	15.00	AUST-115	1.00
391.00	Transportation Equipment	AUS	T-1	4.00	AUST-14	1.00
392.00	Stores Equipment	AUS	T-1	7.00	AUST-17	1.00
393.00	Tools, Shop, & Garage Equipment	AUS	T-1	7.00	AUST-17	1.00
394.00	Laboratory Equipment	AUS	T-1	7.00	AUST-17	1.00
395.00	Power Operated Equipment	AUS	T-1	8.00	AUST-18	1.00
396.00	Communications Equipment	USBLS	PPI	2.00	USBLS2	1.00
396.70	Communications Equipment	USBLS	PPI	2.00	USBLS2	1.00
397.00	Miscellaneous Equipment	AUS	T-1	8.00	AUST-18	1.00

Using the trended original cost method, the System's investment in plant, property and equipment of \$7,666,492 was determined to have a reproduction cost new of \$40,821,536 as summarized in the following table:

# APPENDIX A-5.1 (AUS)

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019

## Replacement Cost New (RCN)

(1)	(2)	(3)	(9)	(10)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Original Cost	Costing Parameter	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
Input	Input	Input	OC \$s	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt NARUC Code	AUS Input NARUC Code	Asset Description	Eng Assmnt Original Cost	AUS Input Cost Index Table	Translator	RCN	AUS Input COR / RCN Factor	Col (14) * (15) COR
353.20	353.20	LAND AND LAND RIGHTS - COLLECTION	13	USBL51	10.87	141	1.00	141
353.30	353.30	LAND AND LAND RIGHTS - PUMPING	39	USBL51	1.50	59	1.00	59
353.40	353.40	LAND AND LAND RIGHTS - TREATMENT	3,000	USBL51	18.43	55,287	1.00	55,287
354.30	354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	249,437	HWW-18	4.51	1,125,292	1.00	1,125,292
354.40	354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	313,245	HWW-115	32.96	10,324,774	1.00	10,324,774
355.30	355.30	POWER GENERATION - PUMPING	67,239	USBL54	1.40	94,209	1.00	94,209
355.40	355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	303,849	USBL54	1.23	372,215	1.00	372,215
360.20	360.20	COLLECTION SEWERS - FORCE MAINS	31,522	HWW-144	20.98	661,466	1.00	661,466
361.21	361.21	COLLECTION SEWERS - GRAVITY MAINS	322,258	HWW-144	24.92	8,029,623	1.00	8,029,623
361.22	361.22	COLLECTION SEWERS - GRAVITY MAINS - RELINING	742,945	HWW-144	1.11	822,723	1.00	822,723
361.23	361.23	COLLECTION SEWERS - GRAVITY - MANHOLES	42,549	HWW-145	14.72	626,210	1.00	626,210
363.20	363.20	SERVICE TO CUSTOMERS	32,180	HWW-139	40.96	1,318,126	1.00	1,318,126
364.30	364.30	FLOW MEASURING DEVICES - PUMPING	7,997	HWW-140	1.21	9,684	1.00	9,684
364.40	364.40	FLOW MEASURING DEVICES - WWTP	9,930	HWW-140	1.21	12,025	1.00	12,025
371.40	371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	175,929	HWW-19	1.81	317,647	1.00	317,647
380.40	380.40	TREATMENT AND DISPOSAL EQUIPMENT	5,351,760	HWW-117	3.18	17,039,720	1.00	17,039,720
390.70	390.70	EQUIPMENT - GENERAL PLANT	7,325	AUST-115	0.98	7,171	1.00	7,171
396.70	396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	5,275	USBL52	0.98	5,164	1.00	5,164
Grand Total	Grand Total	Grand Total	7,666,492		5.33	40,821,536	1.00	40,821,536

Replacement Cost New Less Depreciation - The replacement cost described above reflects the cost of new property; however, Royersford Borough's wastewater collection system property is not new and has experienced normal depreciation and potentially functional and/or economic obsolescence. These various forms of depreciation are defined as follows:

Normal depreciation/deterioration, akin to physical deterioration, is "loss in value caused by wear, tear, age and use."<sup>4</sup>

Functional obsolescence is "the loss in value or usefulness of a property caused by inefficiencies or inadequacies of the property itself, when compared to a more efficient of less costly replacement property that new technology has developed."<sup>5</sup>

<sup>4</sup> The Dictionary of Real Estate Appraisal, 4<sup>th</sup> Edition

<sup>5</sup> Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition. Page 67.

## APPENDIX A-5.1 (AUS)

Economic, or external, obsolescence is defined as “a loss in value caused by factors outside a property”<sup>6</sup> and is most often indicated by insufficient earning.

Based on our experience in regard to water and wastewater depreciation studies and our analysis of Royersford Borough’s wastewater collection system operating performance; we found that the Royersford Borough’s wastewater utility’s property experiences normal depreciation but not any significant functional obsolescence; economic obsolescence is best evaluated after the results of the income and market approaches to values are determined (see Cost Approach Revisited).

The service lives used in the depreciation and functional obsolescence calculations were developed based on the property and its use, AUS Consultants’ experience in developing depreciation studies for the water and wastewater industries and depreciation studies filed with PAWC and Aqua America rate cases. With each of their recent rate case filings PAWC and Aqua America have filed depreciation studies in support of their depreciation service lives and associated depreciation expenses contained within their revenue requirements. The depreciation studies were prepared by Gannett Fleming Rate Consultants a recognized firm in the depreciation consulting area. AUS Consultants has reviewed the PAWC studies which are summarized in the following table:

---

<sup>6</sup> The Appraisal of Real Estate, 13<sup>th</sup> Edition, page 442.



# APPENDIX A-5.1 (AUS)

9 10 11 12 13  
**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**December 10, 2019**

Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies

(1)	(2)	(4)	(5)	(6)	(6b)
Account Number	Description	(4a)	(4b)	(5)	(6a)
		Iowa Survivor / Retirement Curve	Normal Service Life	Economic Obsolescence	Tax Depreciation
			years	% of CORLD	Table
					Life
353.20	Land & Land Rights - Collection	ZNonDep	0.00	0.00% Non-Depr	0.00
353.30	Land & Land Rights - Pumping	ZNonDep	0.00	0.00% Non-Depr	0.00
353.40	Land & Land Rights - Treatment	ZNonDep	0.00	0.00% Non-Depr	0.00
354.30	Structures & Improvements - Pumping	R4.0	45.00	0.00% MACRS	25.00
354.40	Structures & Improvements - Treatment	R4.0	55.00	0.00% MACRS	25.00
355.30	Generating Equipment - Pumping	R3.0	35.00	0.00% MACRS	25.00
355.40	Generating Equipment - Treatment	R3.0	35.00	0.00% MACRS	25.00
360.20	Collection Sewers - Force - Mains	R3.0	75.00	0.00% MACRS	25.00
361.21	Collection Sewers - Gravity - Mains	R2.5	80.00	0.00% MACRS	25.00
361.22	Collection Sewers - Gravity - Mains Relining	R2.5	60.00	0.00% MACRS	25.00
361.23	Collection Sewers - Gravity - Manholes	R2.5	80.00	0.00% MACRS	25.00
363.20	Service Laterals	R3.0	45.00	0.00% MACRS	25.00
364.30	Flow Measuring Devices - Pumping	S2.0	30.00	0.00% MACRS	25.00
364.40	Flow Measuring Devices - WWTP	S2.0	30.00	0.00% MACRS	25.00
371.40	Pumping Equipment - Treatment	R3.0	35.00	0.00% MACRS	25.00
380.40	Treatment and Disposal Equipment	R2.0	45.00	0.00% MACRS	25.00
390.70	Office Furniture and Equipment	R3.0	12.00	0.00% MACRS	12.00
391.00	Transportation Equipment	R3.0	10.00	0.00% MACRS	10.00
392.00	Stores Equipment	R3.0	35.00	0.00% MACRS	25.00
393.00	Tools, Shop, & Garage Equipment	R3.0	35.00	0.00% MACRS	25.00
394.00	Laboratory Equipment	R3.0	20.00	0.00% MACRS	20.00
395.00	Power Operated Equipment	R3.0	15.00	0.00% MACRS	15.00
396.00	Communications Equipment	R3.0	12.00	0.00% MACRS	12.00
396.70	Communications Equipment	R3.0	12.00	0.00% MACRS	12.00
397.00	Miscellaneous Equipment	R3.0	20.00	0.00% MACRS	20.00

Normal Depreciation – The extent of the normal depreciation in the property was evaluated using age-life depreciation techniques. In age-life depreciation, the property’s depreciation or condition is estimated using the following formulas:

$$\text{Depreciation (\%)} = \frac{\text{Age (years)} \times 100\%}{\text{Service Life (years)}}$$

$$\text{Condition (\%)} = \frac{\text{Remaining Life (years)} \times (100\%)}{\text{Service Life (years)}}$$

where: the property’s Service Life = Age + Remaining Life and  
 Remaining Life = f(Survival Characteristic, Service Life, and Age)

However, due to the age of some of the assets the extent of the depreciation was limited to 85% of the asset’s original cost and its replacement cost new.

# APPENDIX A-5.1 (AUS)

When the above depreciation lives are used to quantify the property's depreciation is applied to the replacement cost new (COR) of \$40,821,536 the resultant COR less normal depreciation (CORLD) was found to be \$13,376,109 detailed as follows:

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019

**Replacement Cost New less Depreciation (RCNLD)**

(18)	(19)	(21)	(22)	(23)	(24)	(28)	(29)	(30)	(31)
Account	Description	Age at December 10, 2019 Appraisal Date	Replacement Cost New (COR)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (COR less Normal Depreciation)
Input	Input	years	COR \$s	Input	years	years	years	% of COR	CORLD \$s
Eng Assmnt	Pennoni Associates, Inc.'s Royersford Engineers Assessment	Calculation	Calculation	Input	Input	Calculation	Calculation	Calculation	Calculation
Account	Description	Age	RCN	Iowa	NL	Rem Life	Total Life	Condition	CORLD
353.20	LAND AND LAND RIGHTS - COLLECTION	67.89	141	ZNonDep	-	-	-	-	141
353.30	LAND AND LAND RIGHTS - PUMPING	19.50	59	ZNonDep	-	-	-	-	59
353.40	LAND AND LAND RIGHTS - TREATMENT	84.50	55,287	ZNonDep	-	-	-	-	55,287
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	51.93	1,125,292	R4.0	45.00	13.09	65.02	0.29	323,362
354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	83.42	10,324,774	R4.0	55.00	8.67	92.10	0.16	1,627,280
355.30	POWER GENERATION - PUMPING	16.55	94,209	R3.0	35.00	19.77	36.32	0.55	51,463
355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	11.50	372,215	R3.0	35.00	24.00	35.50	0.68	251,638
360.20	COLLECTION SEWERS - FORCE MAINS	80.11	661,466	R3.0	75.00	13.42	93.53	0.17	114,219
361.21	COLLECTION SEWERS -GRAVITY MAINS	71.88	8,029,623	R2.5	76.99	23.20	95.08	0.28	2,280,870
361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING	5.52	822,723	R2.5	60.00	54.79	60.30	0.91	747,466
361.23	COLLECTION SEWERS -GRAVITY - MANHOLES	80.55	626,210	R2.5	80.00	19.64	100.19	0.20	125,978
363.20	SERVICE TO CUSTOMERS	83.02	1,318,126	R3.0	45.00	6.91	89.94	0.15	201,771
364.30	FLOW MEASURING DEVICES - PUMPING	8.50	9,684	S2.0	30.00	21.72	30.22	0.72	6,960
364.40	FLOW MEASURING DEVICES - WWTP	8.50	12,025	S2.0	30.00	21.72	30.22	0.72	8,643
371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	8.85	317,647	R3.0	35.00	26.57	35.42	0.75	238,419
380.40	TREATMENT AND DISPOSAL EQUIPMENT	40.86	17,039,720	R2.0	45.00	20.05	60.91	0.43	7,334,772
390.70	EQUIPMENT - GENERAL PLANT	4.50	7,171	R3.0	12.00	7.69	12.19	0.63	4,524
396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	4.50	5,164	R3.0	12.00	7.69	12.19	0.63	3,258
Grand Total	Grand Total	59.38	40,821,536		54.88	17.82	77.09	0.33	13,376,109

The preliminary cost approach to value of Royersford Borough's wastewater system property was found to \$13,376,109.

## Income Approach

The income approach to value establishes the value of the property based on its economic returns. There are two generally accepted procedures in performing an income analysis: the direct capitalization of anticipated income, and the discounted cash flow procedures.

## APPENDIX A-5.1 (AUS)

In the direct capitalization approach, anticipated earnings are capitalized directly into value using a market-required capitalization rate. The Royersford Borough's wastewater system's operation will be moving from a municipal operation, wherein economic returns are not the primary objective of the operation to a private (investor owned) rate regulated sewer utility operation in which economic returns are one of the objectives of the operation; therefore, the direct capitalization of earnings approach was not utilized in this appraisal.

In the discounted cash flow (DCF) approach, the property's economic returns are forecast for future periods. The cash flows (debt-free after-tax net cash flows) from operations are discounted to the appraisal date using a market derived discount rate resulting in the DCF approach's income indicator of value. Use of the DCF approach allows the appraiser to address the property's historical operating experience and its migration, in future periods, to an operation as a rate regulated income taxed (local, state, and federal) operation; thus, making the DCF approach preferable in this case.

In preparing this appraisal's DCF analysis (Income Approach tab), first the results from the Royersford Borough's wastewater system's operations were evaluated based on an analysis of historical operating performances over the period 2015 through 2018 and budgets for 2018-2020 (Financials tab) resulting in operating statistics such as revenues and their growth, various operating expenses stated as function of their typical drivers (revenues, plant investment, income from operations, etc.). Next, the results of future periods operations were forecast for a period of 20 years based on the migration of the Royersford Borough's historical operations over time to operations of the wastewater operation similar to a public investor-owned water/wastewater utility. Finally, the resultant cash flows from future period operations on the System were discounted to the appraisal date using a market derived discount rate for a public investor-owned water/wastewater utility. The following table details the market discount rate developed using the weighted average cost of capital (WACC) of the market debt and equity:

# APPENDIX A-5.1 (AUS)

## Water and Wastewater Cost of Capital First Quarter 2020 (1-1-2020)

### As an Investor-Owned Utility

#### Weighted Cost of Capital (Discount Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital	Type of Data	Capital Cost	Type of Data	Tax Rate	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3)*(4a)
	AUS Input		AUS Input				
Debt	26%	Market	3.23%	Market	28.89%	71.11%	0.60%
Equity	74%	Market	9.95%	Market	0.0%	100.0%	7.36%
<b>Total Capital r</b>	<b>100.0%</b>						<b>7.96%</b>
Growth (g)							<b>1.82%</b>
<b>Rate without Growth: [(1+r)/(1+g)]-1</b>							<b>6.03%</b>

The following table presents the results of the discounted cash flow analysis:

**Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Potential Purchaser: Investor-Owned Utility  
As of December 10, 2019  
Discounted Cash Flow Analysis**

Discount Rate:			7.96%											
Capitalization Rate:			6.03%											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
Period	Age	Revenues	O&M Expenses	Tax Depreciation	Cash Flow from Operations	Taxable Income before State & Federal Taxes	State and Federal Taxes @ 28.89%	Capital Expenditures	Change in Working Capital	Net Cash Flows	Period Present Worth Factor (PW)	PW of Cashflow	Accumulated PW of Cashflows	
					(3)-(4)	(6)-(5)	(7) *28.89%			(3)-(4)-(8)-(9)-(10)		(11)*(12)	Sum (13)	
1	0.5	1,122,000	717,929	746,706	404,071	(342,635)	(98,987)	214,549	14,688	273,821	0.962	263,416	263,416	
2	1.5	1,144,440	733,088	756,382	411,352	(345,030)	(99,679)	217,769	1,212	292,050	0.891	260,217	523,633	
3	2.5	1,464,883	748,693	766,393	716,190	(50,203)	(14,504)	221,035	17,303	492,356	0.826	406,686	930,319	
4	3.5	1,494,181	764,752	776,748	729,429	(47,319)	(13,670)	224,350	1,583	517,166	0.765	395,632	1,325,951	
5	4.5	1,524,065	781,281	787,455	742,784	(44,671)	(12,905)	227,716	1,613	526,360	0.708	372,663	1,698,614	
6	5.5	1,950,803	798,283	798,522	1,152,520	353,998	102,270	231,132	23,045	796,073	0.656	522,224	2,220,838	
7	6.5	1,989,819	815,771	738,384	1,174,048	435,664	125,863	85,124	2,106	960,955	0.608	584,261	2,805,099	
8	7.5	2,029,615	832,472	738,542	1,197,143	458,601	132,490	86,239	2,149	976,265	0.563	549,637	3,354,736	
9	8.5	2,557,315	849,690	738,797	1,707,625	968,828	279,894	87,371	28,496	1,311,864	0.522	684,793	4,039,529	
10	9.5	2,608,461	867,442	739,153	1,741,019	1,001,866	289,439	88,520	2,762	1,360,298	0.483	657,024	4,696,553	
11	10.5	2,660,630	885,733	739,608	1,774,897	1,035,289	299,095	89,683	2,817	1,383,302	0.447	618,336	5,314,889	
12	11.5	2,873,480	904,577	740,167	1,968,903	1,228,736	354,982	90,863	11,494	1,511,564	0.414	625,787	5,940,676	
13	12.5	2,930,950	923,990	723,808	2,006,960	1,283,152	370,703	92,060	3,103	1,541,094	0.384	591,780	6,532,456	
14	13.5	2,989,569	943,988	724,492	2,045,581	1,321,089	381,663	93,275	3,165	1,567,478	0.356	558,022	7,090,478	
15	14.5	3,228,735	964,579	725,283	2,264,156	1,538,873	444,581	94,507	12,916	1,712,152	0.329	563,298	7,653,776	
16	15.5	3,293,310	985,775	423,915	2,307,535	1,883,620	544,178	237,184	3,487	1,522,686	0.305	464,419	8,118,195	
17	16.5	3,359,176	1,008,820	429,553	2,350,356	1,920,803	554,920	240,743	3,556	1,551,137	0.283	438,972	8,557,167	
18	17.5	3,627,910	1,032,494	435,326	2,595,416	2,160,090	624,050	244,353	14,512	1,712,501	0.262	448,675	9,005,842	
19	18.5	3,700,468	1,056,810	441,238	2,643,658	2,202,420	636,279	248,019	3,918	1,755,442	0.242	424,817	9,430,659	
20 and beyond	19.5	3,774,477	1,081,780	447,291	2,692,697	2,245,406	648,698	251,738 3,366,230	3,997	1,788,264	2.827	5,055,422	14,486,081	
Age					19.5									
PW(Age) = 1/(1+Discount Rate) <sup>(Age)</sup>					0.225					11,818,696				
PW to Perpetuity = 1/Capitalization Rate					12.563					(2,453,954)				
PW <sub>(20and beyond)</sub> = PW to Perpetuity * PW Factor <sub>(19.5)</sub>					2.827					9,364,742	0.225	2,107,067	11,537,726	
								Net Plant ADIT						
								Rate Base Annual Plant Construction						
								Inflation Rate		0.0422 Input				
								Plant Inflation over 19.5 years		21,405,098	0.225	4,816,147	14,246,806	
								PP	13,000,000					
								OCLD	5,173,559					
								PP/OCLD	2,513					
								RCNLD	13,376,109					
								RCNLD/PP		1.028931465				
										9,635,678.16	0.225	2,168,028	11,598,687	
								Average					12,967,325	

## APPENDIX A-5.1 (AUS)

Based on the above described discounted cash flow analysis, the Income Approach to value of the System's property operating as a rate regulated wastewater utility under the regulation of the Pennsylvania Public Utility Commission (PA PUC) was determined to be \$14,486,081. To ensure that the above described forecast captured the entire economic returns of the property an additional 40-year period beyond the original 20-year forecast was made. This additional forecast indicated the reasonableness of the initial forecast results.

### Market Approach

The market or comparable sales approach to value looks to market sales of comparable properties in order to arrive at value. In this appraisal, the market approach was addressed from a comparable sales approach of Pennsylvania water and wastewater systems and market value to book value ratios based on investor owned water utilities' financial performance as reported in Value Line Investment Survey (January 10, 2020).

Market Sales – In the comparable sale market approach, the sales of Pennsylvania municipal water and wastewater systems to investor owned water/wastewater utilities were used to insure comparability. As the purpose of this appraisal is to define the value of Royersford Borough's wastewater collection system under Section 1329 of the PA CS the market comparable sales were limited to sales subsequent to the passage of Section 1329 in 2016. The following sales were considered:

# APPENDIX A-5.1 (AUS)

Approximate Date	Buyer	Seller	County	Type of Facility	Purchase Price	Number of Total Customers	OCA Market Value per customer	Relationship to the passage of Section 1329	Average Purchase Price per Customer	AUS Market Value per customer	
20	6/1/2016	PA American Water	City of McKeesport	Allegheny	Wastewater Collection and Treatment	159,000,000	21,953	7,197	Post	7,242.75	7,243
21	8/1/2016	Aqua PA	New Garden Twp. SA	Chester	Wastewater Collection and Paid for and Owned Treatment	29,500,000	2,106	14,008	Post	14,007.60	14,008
22	12/1/2017	Aqua PA	Limerick Township	Montgomery	Wastewater Collection and paid for treatment Capacity	64,373,000	5,434	11,846	Post	9,264	11,846
23	12/10/2017	Aqua PA	East Bradford Township	Chester	Water Treatment and Distribution System	5,000,000	1,248	4,006	Post	4,006.41	4,006
24		SUEZ	Mahoning	Carbon	Wastewater Collection and Treatment	4,734,800	2,806	-	Post		1,687
25		SUEZ	Mahoning	Carbon	Wastewater Collection and Treatment	4,765,200	2,806	-	Post		1,698
26	6/1/2018	Aqua PA	Cheltenham	Montgomery	Water Distribution and Treatment	50,250,000	10,500	-	Post	4,785.71	4,786
27	11/14/2018	PA American Water	Steelton	Dauphin	Wastewater Collection	22,500,000	2,325	-	Post	9,677.42	9,677
28		PA American Water	Sadsbury	Chester	Wastewater Collection and Treatment	9,250,000	998	-	Post	9,268.54	9,269
29	5/28/2018	PA American Water	Exeter	Berks	Wastewater Collection	96,000,000	9,000	-	Post	10,666.67	10,667
30	10/29/2018	Aqua PA	East Norriton	Montgomery	Wastewater Collection and Treatment	21,000,000	4,950	-	Post	4,242.42	
31	9/30/2018	PA American	Kane	McKean	Wastewater Collection and Treatment	17,560,000	2006	-	Post	8,753.74	

In order to arrive at a measure of comparability these system sales were analyzed in relationship of the purchase price to the properties' depreciated original cost (OCLD) and depreciated replacement cost (CORLD) (Market Approach tab).

Financial Market Ratios – In the market approach based on market financial ratios the market data of companies (nine) in the water/wastewater industry as reported in Value Line Investment Surveys (January 2020) were analyzed. In the analysis the companies' stock (market) and debt (book value) per share are compared as a ratio to the book investment value per share.

The following table summarizes both the comparable sales and financial market ratio analysis and the Market Approach conclusion of this appraisal:

# APPENDIX A-5.1 (AUS)

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Market Approach Summary**

Comparable Sales	OCLD / RCNLD	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Replacement Cost New less Depreciation (RCNLD)				
Measures of Central Tendency (PP/RCNLD)		Simple Mean	Purchase Price Weighted Mean	
Mean		0.8220	0.931393289	
Standard Deviation		0.1944	0.11	
Median		0.9065	0.9639	
Mode		0.9919	0.9919	
PP/RCNLD (Average)	13,376,109.04	0.8643	0.9624	12,873,137
Average				
Original Cost less Depreciation (OCLD)				
Measures of Central Tendency (PP/OCLD)		Simple Mean	Purchase Price Weighted Mean	
Mean		1.8306	1.8396	
Standard Deviation		0.6246	0.1781	
Median		1.5745	1.5888	
Mode		1.5601	1.5601	
PP/OCLD (Average)	5,173,559.13	1.7026	1.6628	8,602,767
Average				
Market Value per Share to Book Value per Share				
Financial Markets				
Market to Book (equity)		3.40		
Market to Book (equity and debt)		2.11		
Use (equity and debt)		2.11	Input	
Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)				
Market Conclusion				
Royersford Borough				
AUS Depreciated Original Cost		5,173,559.13	2.11	10,916,210
<b>Market Approach Summary</b>				Indicated Valus \$s
Minimum				8,602,767
Mean				10,797,371
Median				10,916,210
Maximum				12,873,137
Use (RCNLD)				12,873,137

The market approach conclusion of this appraisal was determined to be \$12,873,137.

Cost Approach Revisited – Before concluding this appraisal’s fair market value, the preliminary cost approach conclusion of \$13,376,109 needs to be reviewed in light of the above described income and market analyses in order to evaluate if external

## APPENDIX A-5.1 (AUS)

obsolescence exists in the preliminary replacement cost new less depreciation conclusion. The appraisal literature in regard to developing a cost approach states:

“The last step in the implementation of the cost approach is to estimate *economic obsolescence*. Economic obsolescence (sometimes called “external obsolescence”) has been previously defined as the loss in value or usefulness of a property caused by factors external to the asset. These factors include increased cost of raw materials, labor, utilities (without an offsetting increase in product price); reduced demand for the product; increased competition; environmental or other regulations; or similar factors.

The difficulty in measuring the full effect of economic obsolescence is one of the weaknesses of the cost approach. Because economic obsolescence is usually a function of outside influences that affect an entire business (i.e., all tangible and intangible assets) rather than individual assets or isolated groups of assets, it is sometimes measured using the income approach or by using the income approach to help identify the existence of economic influences on value. However, the cost approach can be used to measure some forms of economic obsolescence.”<sup>7</sup>

The above described income approach value conclusion of \$14,486,081 and the market approach conclusion of \$12,873,137 for the Royersford Borough’s future wastewater system compared to the preliminary cost approach conclusion of \$13,769,109 indicates no significant external obsolescence exists in the cost approach conclusion of \$13,769,109 detailed as follows:

---

<sup>7</sup> Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition, pp. 96-97.



# APPENDIX A-5.1 (AUS)

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019

## Fair Market Value

(36)	(37)	(39)	(40)	(41)
Account	Description	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
		CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
Input	Input	Calculation	Input	Calculation
Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
Account	Description	Prelim CORLD	EO%	FMV
353.20	LAND AND LAND RIGHTS - COLLECTION	141	0.00%	141
353.30	LAND AND LAND RIGHTS - PUMPING	59	0.00%	59
353.40	LAND AND LAND RIGHTS - TREATMENT	55,287	0.00%	55,287
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	323,362	0.00%	323,362
354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	1,627,280	0.00%	1,627,280
355.30	POWER GENERATION - PUMPING	51,463	0.00%	51,463
355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	251,638	0.00%	251,638
360.20	COLLECTION SEWERS - FORCE MAINS	114,219	0.00%	114,219
361.21	COLLECTION SEWERS -GRAVITY MAINS	2,280,870	0.00%	2,280,870
361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING	747,466	0.00%	747,466
361.23	COLLECTION SEWERS -GRAVITY - MANHOLES	125,978	0.00%	125,978
363.20	SERVICE TO CUSTOMERS	201,771	0.00%	201,771
364.30	FLOW MEASURING DEVICES - PUMPING	6,960	0.00%	6,960
364.40	FLOW MEASURING DEVICES - WWTP	8,643	0.00%	8,643
371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	238,419	0.00%	238,419
380.40	TREATMENT AND DISPOSAL EQUIPMENT	7,334,772	0.00%	7,334,772
390.70	EQUIPMENT - GENERAL PLANT	4,524	0.00%	4,524
396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	3,258	0.00%	3,258
Grand				
Total	Grand Total	13,376,109	0.00%	13,376,109

## Value Conclusion

The Fair Market Value of the Royersford Borough's wastewater collection and treatment system's property, plant and equipment and its operation was determined to be \$13,769,801 as follows:

# APPENDIX A-5.1 (AUS)

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Fair Market Value Appraisal**

Appraisal Approach	Investor-owned Utility	Weight	Wtd Valuation Indications
<b>Cost Approach</b>			
<b>Financials' Net Book (3-31-2019)</b>			
Gross Book	6,883,116		
Accumulated Depreciation	(2,337,417)		
Net Book	4,545,699		
<b>Inventory of Assets (7-2019)</b>			
Original Cost (\$OC)	7,666,492		
Depreciated Original Cost (\$OCLD)	5,173,559		
<b>Replacement Cost (9-30-2019)</b>			
Replacement Cost New (COR)	40,821,536		
Depreciated Replacement Cost New (CORLD)	\$ 13,376,109		
Cost Approach Conclusion	<b>13,376,109</b>	<b>50%</b>	<b>6,688,055</b>
<b>Income Approach</b>			
Required Rate Increases: 30% period 1, 26% period 3, 26% period 6, 24% period 9 and 6% every 3rd year beginning in period 12 (Input 6)			
	14,486,081		
Income Approach Conclusion	<b>14,486,081</b>	<b>40%</b>	<b>5,794,432</b>
<b>Market Approach</b>			
<b>Market Comparables (to)</b>			
OCLD	8,602,767		
CORLD	12,873,137		
<b>Market Financials (to)</b>			
OCLD	10,916,210		
Market Approach Conclusion	<b>12,873,137</b>	<b>10%</b>	<b>1,287,314</b>
Appraisal Conclusion	\$ 13,769,801	<b>100%</b>	<b>13,769,801</b>
Conclusion (cost approach)	\$ 13,376,109		

## APPENDIX A-5.1 (AUS)

As the purpose of this appraisal was to fulfill the requirements of Section 1329 of the PA CS in the establishment of value for rate making of the Royersford Borough's property, plant and equipment this appraisal's conclusion of \$13,769,225 is consistent with the purpose of the appraisal. As the cost approach work papers detail our value conclusion by National Association of Regulatory Utility Commissioners' (NARUC) Uniform System of Accounts (USOA) for the wastewater industry account classifications and the installation year of the property this detail it can be used to allocate the appraisal conclusion to establish the booked value for future accounting and rate making.

## PURPOSE AND SCOPE OF WORK

The purpose of this appraisal of the Royersford Borough's wastewater collection and treatment system is the determination of the fair market value of the property plant and equipment of wastewater utility. The report was prepared based on the 2018-2019 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes (PA CS) Paragraph 1329: Valuation of acquired water and wastewater systems, collectively referred to as Act 12 of the 2016 Pennsylvania legislative session (Act 12). The intended users of this appraisal are our client Pennsylvania American Water Company and the Pennsylvania Public Utility Commission.

The value established in this appraisal was based on the definition of Market Value as:

*"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress." The Appraisal of Real Estate, 14<sup>th</sup> Edition, page 58.*

In conducting this appraisal, we utilized several sources of data:

- Annual (year-ending December 31) Borough of Royersford (Pennsylvania) wastewater collection and treatment operational financial statements cover the period 2015 through 2018 and budgetary 2018-2020 results.
- The Pennoni Associates, Inc.'s Engineer's Assessment and inventory of the Royersford Borough's wastewater system's property at April 23, 2020.
- The Handy-Whitman (water industry) Index of Public Utilities Construction Costs for northeastern United States, AUS Consultant General Plant Cost Indexes for the period 1912 through January 1, 2020, and various cost indexes published by the United States Bureau of Labor Statistics (US BLS).

## APPENDIX A-5.1 (AUS)

In preparing this fair market value appraisal of the System's property, plant and equipment, and its operations: the cost, income, and market approaches to value were considered. Primary reliance was placed on the cost approach for the property, plant and equipment, with the income approach and market approaches being utilized to confirm the overall value of the sewer system's operation. A detailed explanation of each approach to value is included below in the section "Appraisal Procedures and Results".

WATER/WASTEWATER INDUSTRY NATIONALLY AND IN PENNSYLVANIA  
AND  
THE BOROUGH OF ROYERSFORD'S WASTEWATER COLLECTION AND  
TREATMENT SYSTEM FACILITIES

Water/wastewater Industry

The water and wastewater industry in the United States consist of both municipal authorities (literally thousands) and private investor owned companies. Of the investor owned there are nine which are large enough to be tracked by Value Line Investment Surveys, of which, two are major players in the northeast portion of the United States, American Water Works Company, Inc. and Aqua America, Inc. (on February 3, 2020 Aqua's name changed to Essential Utilities, Inc.) American and Aqua have been particularly active in the acquisition of municipal water and wastewater systems.

Pennsylvania Water / Wastewater Industry

The water and wastewater industry in Pennsylvania also consist of both municipal and investor owned systems. Over last several years the need for infrastructure improvements has led the Pennsylvania legislature to pass legislation facilitating the acquisition of municipal water and/or wastewater authorities' systems to a private investor owned rate regulated companies such as American Water and Aqua America. This legislation was Act 12 of the Pennsylvania legislator's 2016 legislative session (Act 12). The Act 12 legislation added a section (1329) modifying Title 66 (Public Utilities) of the Pennsylvania Consolidated Statues (PA CS) adding Section 1329: Valuation of acquired water and wastewater systems, collectively referred to as Act 12. This appraisal was developed to meet the valuation criteria established by Section 1329 and the PA PUC Implementation Orders in the valuation of acquired water and wastewater systems.

### Borough of Royersford's Wastewater Collection and Treatment System Facilities, its Property and Operations<sup>8</sup>

The Borough of Royersford, Montgomery County, PA (Borough) borders Limerick Township to the north; Upper Providence to the east and Chester County to the south and west. The Borough is primarily residential homes; however, the township zoning ordinance allows for a number of other land uses including institutional, office-resident, central business, highway business, industrial, and adaptive reuse. The size of the entire Borough is approximately 0.8 square miles. Sixteen (16) Upper Providence residents tie directly into the existing sewer main along the Upper Providence - Royersford boundary. There are a 103 Limerick residential accounts that tie into the system adjacent to the northwest corner of the borough.

The wastewater system in the Borough consists of approximately 69,990 LF of sewage gravity conveyance piping, 4,180 LF of force mains, two (2) pump stations (10th Avenue and Green Street), and the Royersford Wastewater Treatment Plant which the Borough owns and operates. The WWTP is permitted for 0.7 MGD. The conveyance system consists of mostly 8-inch, 10-inch, 12-inch and 15-inch vitrified clay sewer mains. The two pump stations are owned and operated by the Borough. The 10<sup>th</sup> Avenue pump station is rated for 450 GPM and Green Street pump station is rated for 350 GPM.

---

<sup>8</sup> Extracted from Engineer's Assessment page 4

## APPRAISAL PROCEDURES AND RESULTS

The purpose of this appraisal of the Borough of Royersford's wastewater collection and treatment system is the determination of the fair market value of the wastewater's property plant and equipment as of December 10, 2019. The report was prepared based on the 2020-2021 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes (PS CS) Section 1329: Valuation of acquired water and wastewater systems, collectively referred to as Act 12 of the Pennsylvania legislator's 2016 legislative session (Act 12). The intended users of this appraisal are Pennsylvania American Water Company and the Pennsylvania Public Utility Commission (PA PUC).

The value established in this appraisal was based on the definition of Market Value as:

*"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress." The Appraisal of Real Estate, 14<sup>th</sup> Edition, page 58.*

In conducting this appraisal, we utilized several sources of data:

- Annual (year-ending December 31) Borough of Royersford's wastewater system's operational financial statements cover the period 2015 through 2018 and budgets for 2018-2020.
- The Pennoni Associates Inc.'s Engineer's Assessment of the Borough of Royersford's wastewater system inventory and original cost study dated April 23, 2020.
- The Handy-Whitman (water industry) Index of Public Utilities Construction Costs for northeastern United States, AUS Consultant General Plant Cost Indexes for the period 1912 through January 1, 2020, and various cost indexes published by the United States Bureau of Labor Statistics (US BLS).



In preparing this fair market value appraisal of the System's wastewater system's property, plant and equipment, and its operations; the cost, income, and market approaches to value were considered. Primary reliance was placed on the cost approach for the property, plant and equipment, with the income approach and market approaches being utilized to confirm the overall value of the sewer system's operation. Detailed explanation of each approach to value is included below.

Cost Approach (Cost Approach tab) - The philosophy in the cost approach to value is that the maximum value of a property's tangible assets is established by the cost to acquire or build a similar property. In this appraisal, the cost approach to value was analyzed using reproduction/replacement cost approach.

Reproduction cost and replacement cost are defined as:

Reproduction cost – “The estimated cost to construct, at current prices as of the effective date of the appraisal, an exact duplicate or replica of the [property] being appraised, using the same materials, construction standards, design, layout, and quality of workmanship and embodying all the deficiencies, super-adequacies, and obsolescence of the subject [property].”<sup>9</sup>

Replacement cost – “The estimated cost to construct, at current prices as of the effective appraisal date, a substitute for the [property] being appraised using modern materials and current standards, design and layout.”<sup>10</sup>

In the wastewater industry the property's reproduction costs and replacement costs are quite similar; therefore, the property's cost new was determined based on its replacement cost new.

The trended original cost method was utilized in preparing the replacement cost new. “Trending is a method of estimating a property's replacement cost new in which an *index* or *trend factor* is applied to the property's *historical cost* to convert the known cost into an indication of current cost. Simply put, trending reflects the movement of price over

---

<sup>9</sup> The Appraisal of Real Estate, 13<sup>th</sup> Edition. Page 385

<sup>10</sup> *ibid*

## APPENDIX A-5.1 (AUS)

time.”<sup>11</sup> In the trended original cost method, the System’s investment in wastewater plant and equipment is restated to costs reflective of the appraisal date, by the application of cost trends to the property’s original investment. AUS Consultants utilized the Engineer’s Assessment performed by Pennoni Associates, Inc. (Engineer’s Assessment tab) as the starting point of the Cost Approach. Utilizing the Engineer’s Assessment of the System’s original cost in property, plant and equipment AUS Consultants developed the plant’s depreciated original cost (OCLD) and depreciated replacement cost (RCNLD) at December 10, 2019 (Cost Approach tab).

The cost trends are applied to each of the various investment categories (NARUC plant accounts) by original year of placement for that investment. The cost indexes used in these studies were the Handy-Whitman Index of Public Utility Construction Costs for the water industry of the northeastern region of the United States which includes the Commonwealth of Pennsylvania (HW), the AUS Consultants of General Plant Indexes (AUS), and various United States Bureau of Labor Statistics (US BLS) indexes. The following table details the costing parameters using in the trending costing procedures:

---

<sup>11</sup> Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition. Page 59

# APPENDIX A-5.1 (AUS)

1  
**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**December 10, 2019**

Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies

(1)	(2)	(3a)	(3b)	(3c)	(3d)	(3e)
Account Number	Description	Costing Parameters				Reproduction to Replacement Cost Factor
		Index Series	Table	Line Reference	Lookup	AUS Input
353.20	Land & Land Rights - Collection	USBLS	PPI	1.00	USBLS1	1.00
353.30	Land & Land Rights - Pumping	USBLS	PPI	1.00	USBLS1	1.00
353.40	Land & Land Rights - Treatment	USBLS	PPI	1.00	USBLS1	1.00
354.30	Structures & Improvements - Pumping	HW	W-1	8.00	HWW-18	1.00
354.40	Structures & Improvements - Treatment	HW	W-1	15.00	HWW-115	1.00
355.30	Generating Equipment - Pumping	USBLS	PPI	4.00	USBLS4	1.00
355.40	Generating Equipment - Treatment	USBLS	PPI	4.00	USBLS4	1.00
360.20	Collection Sewers - Force - Mains	HW	W-1	44.00	HWW-144	1.00
361.21	Collection Sewers - Gravity - Mains	HW	W-1	44.00	HWW-144	1.00
361.22	Collection Sewers - Gravity - Mains Relining	HW	W-1	44.00	HWW-144	1.00
361.23	Collection Sewers - Gravity - Manholes	HW	W-1	45.00	HWW-145	1.00
363.20	Service Laterals	HW	W-1	39.00	HWW-139	1.00
364.30	Flow Measuring Devices - Pumping	HW	W-1	40.00	HWW-140	1.00
364.40	Flow Measuring Devices - WWTP	HW	W-1	40.00	HWW-140	1.00
371.40	Pumping Equipment - Treatment	HW	W-1	9.00	HWW-19	1.00
380.40	Treatment and Disposal Equipment	HW	W-1	17.00	HWW-117	1.00
390.70	Office Furniture and Equipment	AUS	T-1	15.00	AUST-115	1.00
391.00	Transportation Equipment	AUS	T-1	4.00	AUST-14	1.00
392.00	Stores Equipment	AUS	T-1	7.00	AUST-17	1.00
393.00	Tools, Shop, & Garage Equipment	AUS	T-1	7.00	AUST-17	1.00
394.00	Laboratory Equipment	AUS	T-1	7.00	AUST-17	1.00
395.00	Power Operated Equipment	AUS	T-1	8.00	AUST-18	1.00
396.00	Communications Equipment	USBLS	PPI	2.00	USBLS2	1.00
396.70	Communications Equipment	USBLS	PPI	2.00	USBLS2	1.00
397.00	Miscellaneous Equipment	AUS	T-1	8.00	AUST-18	1.00

The following table presents the development of the cost approach for a portion of account 361.21 Collection Mains – Gravity (mains) this example will be used to describe the entire cost approach process:

# APPENDIX A-5.1 (AUS)

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)	
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation	
Eng Assmnt	AUS Input	Pennoni Associates, Inc.'s Royersford Engineers Assessment	Eng Assmnt Service Date	AUS Input Year Installed	Eng Assmnt Original Cost	AUS Input Cost Index Table	Cost Indices Lookup Col(10) & Col(11) & Study YR	YearIndex	APPCostIndex	Col (12) / (11) Translator	Col (5) * (13) RCN	AUS Input COR / RCN Factor	Col (14) * (15) COR
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR	
COLLECTION SEWERS - GRAVITY MAINS													
361.21	361.21	VCP - 8-inch		1935	1935	101,181	HWW-144	21.4	616.2	28.794	2,913,415	1.000	2,913,415
361.22	361.22	VCP - 8-inch Relined in 2013 Qty 2,003 LF		1935	1935	6,790	HWW-144	21.4	616.2	28.794	195,506	1.000	195,506
361.22	361.22	VCP - 8-inch Relined in 2014 Qty 1,024 LF		1935	1935	3,472	HWW-144	21.4	616.2	28.794	99,984	1.000	99,984
361.22	361.22	VCP - 8-inch Relined in 2016 Qty 2,432 LF		1935	1935	8,244	HWW-144	21.4	616.2	28.794	237,392	1.000	237,392
361.21	361.21	VCP - 10-inch		1935	1935	-	HWW-144	21.4	616.2	28.794	-	1.000	-
361.22	361.22	VCP - 10-inch relined in 2013 Qty 910 LF		1935	1935	4,737	HWW-144	21.4	616.2	28.794	136,397	1.000	136,397
361.21	361.21	VCP - 12-inch		1935	1935	11,449	HWW-144	21.4	616.2	28.794	329,674	1.000	329,674
361.22	361.22	VCP - 12-inch relined in 2015 Qty 335 LF		1935	1935	2,261	HWW-144	21.4	616.2	28.794	65,092	1.000	65,092
361.21	361.21	VCP - 15-inch		1935	1935	19,273	HWW-144	21.4	616.2	28.794	554,941	1.000	554,941
361.22	361.22	VCP - 15-inch relined in 2014 Qty 1,642 LF		1935	1935	14,187	HWW-144	21.4	616.2	28.794	408,497	1.000	408,497
361.22	361.22	VCP - 15-inch relined in 2015 Qty 138 LF		1935	1935	1,192	HWW-144	21.4	616.2	28.794	34,332	1.000	34,332
361.21	361.21	CIP - 15-inch		1935	1935	1,920	HWW-144	21.4	616.2	28.794	55,284	1.000	55,284
361.21	361.21	VCP - 8-inch		1936	1936	73,210	HWW-144	22.5	616.2	27.387	2,005,002	1.000	2,005,002
361.21	361.21	VCP - 10-inch		1936	1936	1,754	HWW-144	22.5	616.2	27.387	48,031	1.000	48,031
361.22	361.22	VCP - 10-inch relined in 2013 Qty 208 LF		1936	1936	1,084	HWW-144	22.5	616.2	27.387	29,693	1.000	29,693
361.21	361.21	VCP - 12-inch		1936	1936	8,213	HWW-144	22.5	616.2	27.387	224,929	1.000	224,929
361.21	361.21	VCP - 15-inch		1936	1936	20,759	HWW-144	22.5	616.2	27.387	568,527	1.000	568,527
361.21	361.21	VCP - 8-inch		1955	1955	1,136	HWW-144	54	616.2	11.411	12,963	1.000	12,963
361.21	361.21	VCP - 8-inch		1972	1972	3,228	HWW-144	97.5	616.2	6.320	20,401	1.000	20,401
361.21	361.21	PVC - 8-inch		1994	1994	7,173	HWW-144	284.7	616.2	2.328	16,699	1.000	16,699
361.21	361.21	PVC - 8-inch		1990	1990	9,984	HWW-144	268.4	616.2	2.296	22,923	1.000	22,923
361.21	361.21	PVC - 8-inch		1992	1992	15,463	HWW-144	253.3	616.2	2.433	37,621	1.000	37,621
361.21	361.21	PVC - 8-inch		1995	1995	5,547	HWW-144	277.5	616.2	2.221	12,320	1.000	12,320
Subtotal													
361.21		COLLECTION SEWERS - GRAVITY MAINS				322,258				24.917	8,029,623	1.000	8,029,623

Using the trended original cost method, Royersford Borough's investment in this example of mains account of \$322,258 was determined to have a replacement cost new of \$8,029,623.

When the trended cost method is applied to each of Royersford Borough's investment in plant, property and equipment of \$7,666,492 was determined to have a replacement cost new of \$40,821,536 detailed as follows.

# APPENDIX A-5.1 (AUS)

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019

## Replacement Cost New (RCN)

(1)	(2)	(3)	(9)	(10)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Original Cost	Costing Parameter	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt NARUC Code	AUS Input NARUC Code	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt) Asset Description	Eng Assmnt Original Cost	AUS Input Cost Index Table	Translator	RCN	AUS Input COR / RCN Factor	Col (14) * (15) COR
353.20	353.20	LAND AND LAND RIGHTS - COLLECTION	13	USBLS1	10.87	141	1.00	141
353.30	353.30	LAND AND LAND RIGHTS - PUMPING	39	USBLS1	1.50	59	1.00	59
353.40	353.40	LAND AND LAND RIGHTS - TREATMENT	3,000	USBLS1	18.43	55,287	1.00	55,287
354.30	354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	249,437	HWW-18	4.51	1,125,292	1.00	1,125,292
354.40	354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	313,245	HWW-115	32.96	10,324,774	1.00	10,324,774
355.30	355.30	POWER GENERATION - PUMPING	67,239	USBLS4	1.40	94,209	1.00	94,209
355.40	355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	303,849	USBLS4	1.23	372,215	1.00	372,215
360.20	360.20	COLLECTION SEWERS - FORCE MAINS	31,522	HWW-144	20.98	661,466	1.00	661,466
361.21	361.21	COLLECTION SEWERS -GRAVITY MAINS	322,258	HWW-144	24.92	8,029,623	1.00	8,029,623
361.22	361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING	742,945	HWW-144	1.11	822,723	1.00	822,723
361.23	361.23	COLLECTION SEWERS -GRAVITY - MANHOLES	42,549	HWW-145	14.72	626,210	1.00	626,210
363.20	363.20	SERVICE TO CUSTOMERS	32,180	HWW-139	40.96	1,318,126	1.00	1,318,126
364.30	364.30	FLOW MEASURING DEVICES - PUMPING	7,997	HWW-140	1.21	9,684	1.00	9,684
364.40	364.40	FLOW MEASURING DEVICES - WWTP	9,930	HWW-140	1.21	12,025	1.00	12,025
371.40	371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	175,929	HWW-19	1.81	317,647	1.00	317,647
380.40	380.40	TREATMENT AND DISPOSAL EQUIPMENT	5,351,760	HWW-117	3.18	17,039,720	1.00	17,039,720
390.70	390.70	EQUIPMENT - GENERAL PLANT	7,325	AUST-115	0.98	7,171	1.00	7,171
396.70	396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	5,275	USBLS2	0.98	5,164	1.00	5,164
Grand	Grand							
Total	Total	Grand Total	7,666,492		5.33	40,821,536	1.00	40,821,536

Replacement Cost New less Depreciation - The replacement cost described above reflects the cost of new property; however, the Royersford Borough's wastewater system property is not new and has experienced normal depreciation and potentially functional and or economic obsolescence. These various forms of depreciation are defined as follows:

Normal depreciation/deterioration, akin to physical deterioration, is "loss in value caused by wear, tear, age and use."<sup>12</sup>

Functional obsolescence is "the loss in value or usefulness of a property caused by inefficiencies or inadequacies of the property itself, when compared to a more efficient of less costly replacement property that new technology has developed."<sup>13</sup>

<sup>12</sup> The Dictionary of Real Estate Appraisal, 4<sup>th</sup> Edition

<sup>13</sup> Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition. Page 67.

# APPENDIX A-5.1 (AUS)

Economic, or external, obsolescence is defined as “A loss in value caused by factors outside a property”<sup>14</sup> and is most often indicated by insufficient earning.

## Wastewater Depreciation Service Life Experience in Pennsylvania

The service lives used in the depreciation and functional obsolescence calculations were developed based on the property and its use, AUS Consultants’ experience in developing depreciation studies for the water and wastewater industries and depreciation studies filed with PAWC and Aqua America rate cases. With each of their recent rate case filings PAWC and Aqua America have filed depreciation studies in support of their depreciation service lives and associated depreciation expenses contained within their revenue requirements. The depreciation studies were prepared by Gannett Fleming Rate Consultants a recognized firm in the depreciation consulting area. AUS Consultants has reviewed the PAWC studies which are summarized in the following table:

Summary of PAWC Depreciation Studies Prepared for Rate Case						Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies									
Account	Account Description	Iowa Curves		Service Life		Remaining Life		(1)	(2)	(4)	(4b)	(5)	(6)	(6a)	(6b)
		12/31/2016	12/31/2019	12/31/2016	12/31/2019	12/31/2016	12/31/2019								
354.30	STRUCTURES AND IMPROVEMENTS - COLLECTION	R3	R3	45	45	39.1	33.3								
354.30	STRUCTURES AND IMPROVEMENTS - SPP	R2.5	S0	50	55	45.2	32.6								
354.40	STRUCTURES AND IMPROVEMENTS - TDP	R2	S0	65	55	56.6	31.7	354.00	Structures & Improvements	R4.0	55.00	0.00%	MACRS	25.00	
354.70	STRUCTURES AND IMPROVEMENTS - GENERAL	S1	S1	35	35	33.3	23.2								
355.00	POWER GENERATION EQUIPMENT	R2.5	S0.5	35	35	29.7	19.3	355.00	Power Generation Equipment						
360.10	COLLECTION SEWERS - FORCE MAINS	S2	R3	70	75	53.1	52.5	360.00	Collection Mains - Force	R2.0	75.00	0.00%	MACRS	25.00	
361.10	COLLECTION SEWERS - GRAVITY MAINS	R2.5	R2.5	70	80	56.9	54.8	361.00	Collection Mains - Gravity	R2.5	80.00	0.00%	MACRS	25.00	
									Collection Mains - Gravity - Relining	R2.5	60.00	0.00%	MACRS	25.00	
361.20	MANHOLES	S1.5	S2.5	50	50	41.3	32.2	361.10	Manholes	S2.0	75.00	0.00%	MACRS	25.00	
363.00	SERVICES	R3	R3	38	47	22.9	30.2	363.00	Service Laterals	R3.0	45.00	0.00%	MACRS	25.00	
364.00	FLOW MEASURING DEVICES	L3	L2.5	20	15	13.3	5.1	364.00	Flow Measuring Devices	L2.5	25.00	0.00%	MACRS	25.00	
365.00	FLOW MEASURING INSTALLATIONS	S1.5	S2	30	25	23.1	10.8	365.00	Flow Measuring Installations	S2.0	30.00	0.00%	MACRS	25.00	
370.00	RECEIVING WELLS	R3	R3	50	50	42.7	33.7								
371.00	PUMPING EQUIPMENT	S0	S0.5	40	30	35.5	18.2	371.00	Pumping Equipment	R3.0	35.00	0.00%	MACRS	25.00	
380.00	TREATMENT EQUIPMENT	S-82	S1.5	45	35	37.1	20.1	380.00	Treatment and Disposal Equipment	R2.0	45.00	0.00%	MACRS	25.00	
381.00	PLANT SEWERS	R3	R3	50	50	43.1	32.7	381.00	Plant Sewers	R3.0	45.00	0.00%	MACRS	25.00	
382.00	OUTFALL SEWER LINES	R3	R3	50	50	37.8	28.3								
389.10	OTHER PLANT AND MISCELLANEOUS EQUIPMENT - INTANGIBLES	S2.5	S2.5	20	20	13.6	11.3	389.00	Other Plant & Misc Equip	R3.0	45.00	0.00%	MACRS	25.00	
389.60	OTHER PLANT AND MISCELLANEOUS EQUIPMENT - CPS	SQ	SQ	20	5	12.3	3.5								
390.00	OFFICE FURNITURE AND EQUIPMENT	L4	SQ	15	20	9.5	10.1	391.00	Office Furniture and Equipment	R3.0	20.00				
391.00	TRANSPORTATION EQUIPMENT	SQ	L4	25	14	19.9	9.8	391.00	Transportation Equipment	R3.0	15.00	0.00%	MACRS	10.00	
392.00	STORES EQUIPMENT	SQ	SQ	20	25	16.4	17.2	392.00	Stores Equipment	R3.0	35.00	0.00%	MACRS	25.00	
393.00	TOOLS, SHOP AND GARAGE EQUIPMENT	SQ	SQ	15	20	11.3	15.4	393.00	Tools, Shop, & Garage Equipment	R3.0	25.00	0.00%	MACRS	25.00	
394.00	LABORATORY EQUIPMENT	L2.5	SQ	16	15	8.7	10.4	394.00	Laboratory Equipment	R3.0	20.00	0.00%	MACRS	20.00	
395.00	POWER OPERATED EQUIPMENT	SQ	R2	15	22	10.3	13.2	395.00	Power Operated Equipment	R3.0	15.00	0.00%	MACRS	15.00	
396.00	COMMUNICATION EQUIPMENT	SQ	SQ	15	15	9.6	6.9	396.00	Communications Equipment	R3.0	15.00	0.00%	MACRS	12.00	
397.00	MISCELLANEOUS EQUIPMENT	SQ	SQ	15	15	12.8		397.00	Miscellaneous Equipment	R3.0	20.00	0.00%	MACRS	20.00	
398.00	OTHER TANGIBLE PLANT														
	TOTAL DEPRECIABLE PLANT														
	NONDEPRECIABLE PLANT														
352.10	FRANCHISES							352.00	Franchises	Non-Depr	0.00	0.00%	Non-Depr	0.00	
353.20	LAND AND LAND RIGHTS - COLLECTION							353.00	Land & Land Rights	Non-Depr	0.00	0.00%	Non-Depr	0.00	

It is of particular importance in the above table the service life extension of the mains plant categories between the 2016 and the 2020 studies. The mains service lives increased as follows:

<sup>14</sup> The Appraisal of Real Estate, 13<sup>th</sup> Edition, page 442.

## APPENDIX A-5.1 (AUS)

Account	Description	Service Life	
		2016	2020
360.10	COLLECTION SEWERS - FORCE MAINS	70	75
361.10	COLLECTION SEWERS - GRAVITY MAINS	70	80

AUS Consultants believe this increase in service lives is attributable to the widespread use of relining older mains instead of replacing mains which are in need of repair. The practice of relining mains with a cured in place plastic liner not only repairs specific main but has the effect of extending the life of the original mains by the length of time which the relining can be expected to last. Most relining vendors warranty their product and procedure for 50 years. Thus, in essence the original main's service life will be extended by 50 plus years at the date the relining occurred. Royersford Borough has already begun the process of relining many of its older mains, in the period 2012-2016 Royersford Borough expended \$742,945 in relining mains. Most of Royersford Borough's mains were placed in 1935 and 1936 making those mains 77 to 81-years-old at the time of relining and as such the original mains can expect a service life of 127 to 131 years. Considering PAWC's commitment to \$1 million in capital improvement over the five years following acquisition it is likely that all the mains circa 1935 and 1936 will be relined and will experience a 130-year service life. For those mains associated with relining their installation date was established at the date of their relining and their depreciation parameters were established the same as the depreciation parameters of the relining, i.e., R2.5 – 60 years.

The following table details the lives used in the depreciation portion of the replacement cost new less depreciation analysis:

# APPENDIX A-5.1 (AUS)

9  
**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**December 10, 2019**

11 12 13

Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies

(1) Account Number	(2) Description	(4)		(5)	(6)	(6b) Life
		(4a) Iowa Survivor / Retirement Curve	(4b) Normal Service Life years	(5) Economic Obsolescence % of CORLD	(6) (6a) Tax Depreciation Table	
353.20	Land & Land Rights - Collection	ZNonDep	0.00	0.00%	Non-Depr	0.00
353.30	Land & Land Rights - Pumping	ZNonDep	0.00	0.00%	Non-Depr	0.00
353.40	Land & Land Rights - Treatment	ZNonDep	0.00	0.00%	Non-Depr	0.00
354.30	Structures & Improvements - Pumping	R4.0	45.00	0.00%	MACRS	25.00
354.40	Structures & Improvements - Treatment	R4.0	55.00	0.00%	MACRS	25.00
355.30	Generating Equipment - Pumping	R3.0	35.00	0.00%	MACRS	25.00
355.40	Generating Equipment - Treatment	R3.0	35.00	0.00%	MACRS	25.00
360.20	Collection Sewers - Force - Mains	R3.0	75.00	0.00%	MACRS	25.00
361.21	Collection Sewers - Gravity - Mains	R2.5	80.00	0.00%	MACRS	25.00
361.22	Collection Sewers - Gravity - Mains Relining	R2.5	60.00	0.00%	MACRS	25.00
361.23	Collection Sewers - Gravity - Manholes	R2.5	80.00	0.00%	MACRS	25.00
363.20	Service Laterals	R3.0	45.00	0.00%	MACRS	25.00
364.30	Flow Measuring Devices - Pumping	S2.0	30.00	0.00%	MACRS	25.00
364.40	Flow Measuring Devices - WWTP	S2.0	30.00	0.00%	MACRS	25.00
371.40	Pumping Equipment - Treatment	R3.0	35.00	0.00%	MACRS	25.00
380.40	Treatment and Disposal Equipment	R2.0	45.00	0.00%	MACRS	25.00
390.70	Office Furniture and Equipment	R3.0	12.00	0.00%	MACRS	12.00
391.00	Transportation Equipment	R3.0	10.00	0.00%	MACRS	10.00
392.00	Stores Equipment	R3.0	35.00	0.00%	MACRS	25.00
393.00	Tools, Shop, & Garage Equipment	R3.0	35.00	0.00%	MACRS	25.00
394.00	Laboratory Equipment	R3.0	20.00	0.00%	MACRS	20.00
395.00	Power Operated Equipment	R3.0	15.00	0.00%	MACRS	15.00
396.00	Communications Equipment	R3.0	12.00	0.00%	MACRS	12.00
396.70	Communications Equipment	R3.0	12.00	0.00%	MACRS	12.00
397.00	Miscellaneous Equipment	R3.0	20.00	0.00%	MACRS	20.00

As the above table demonstrates, the depreciation lives selected for the AUS Consultants appraisal are consistent with the depreciation studies' finding for wastewater plant.

Normal Depreciation – The extent of the depreciation in the property was evaluated using age-life depreciation techniques. In age-life depreciation, the property's depreciation or condition is estimated using the following formulas:

$$\text{Depreciation (\%)} = \frac{\text{Age (years)} \times 100\%}{\text{Service Life (years)}}$$



# APPENDIX A-5.1 (AUS)

$$\text{Condition (\%)} = \frac{\text{Remaining Life (years)} \times (100\%)}{\text{Service Life (years)}}$$

where: the property's Service Life = Age + Remaining Life  
and Remaining Life = f(Survival Characteristic, Service Life, Age)

However due to the age of some of the property the extent of the depreciation was limited to 85% of the assets original cost and its replacement cost new.

When the above depreciation lives are used to quantify the property's depreciation is applied to the replacement cost new of the example mains account of \$8,029,623, the replacement cost new less depreciation was determined to be \$2,280,870 detailed as follows:

Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Investor-Owned Utility  
As of December 10, 2019

(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)
Account	Description	Placement Year	Age at December 10, 2019 Appraisal Date	Replacement Cost New (COR) \$s	Retirement Dispersion Iowa-type	Normal Service Life (NSL) years	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (COR less Normal Depreciation) CORLD \$s
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation
AUS Input	Eng Assmnt	Eng Assmnt	2020-((20)+0.5)	Col (16)	AUS Input	AUS Input	Col (21) / (24)	Col (23) & (25)	Lookup Iowa Curves Life Tables @ col (26)	Col (24) * (27)	Col (21) + (28)	Col (28) / (29)	Col (22) * (30)
Account	Description	Year1	Age	RCN	Iowa	NLife	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	CORLD
COLLECTION SEWERS -GRAVITY MAINS													
361.21	VCP - 8-inch	1935	84.50	2,913,415	R2.5	80.0	106	R2.5106	0.21298	17.04	101.54	16.781564%	488,916.55
361.22	VCP - 8-inch Relined in 2013 Qty 2,003 LF	2013	6.50	195,506	R2.5	60.0	11	R2.5011	0.89711	53.83	60.33	89.225924%	174,442.38
361.22	VCP - 8-inch Relined in 2014 Qty 1,024 LF	2013	6.50	99,984	R2.5	60.0	11	R2.5011	0.89711	53.83	60.33	89.225924%	89,211.31
361.22	VCP - 8-inch Relined in 2016 Qty 2,432 LF	2013	6.50	237,392	R2.5	60.0	11	R2.5011	0.89711	53.83	60.33	89.225924%	211,814.81
361.21	VCP - 10-inch	1935	84.50	-	R2.5	80.0	106	R2.5106	0.21298	17.04	101.54	16.781564%	-
361.22	VCP - 10-inch relined in 2013 Qty 910 LF	2013	6.50	136,397	R2.5	60.0	11	R2.5011	0.89711	53.83	60.33	89.225924%	121,701.64
361.21	VCP - 12-inch	1935	84.50	329,674	R2.5	80.0	106	R2.5106	0.21298	17.04	101.54	16.781564%	55,324.46
361.22	VCP - 12-inch relined in 2015 Qty 335 LF	2015	4.50	65,092	R2.5	60.0	8	R2.5008	0.92492	55.50	60.00	92.500000%	60,209.84
361.21	VCP - 15-inch	1935	84.50	554,941	R2.5	80.0	106	R2.5106	0.21298	17.04	101.54	16.781564%	93,127.78
361.22	VCP - 15-inch relined in 2014 Qty 1,642 LF	2014	5.50	408,497	R2.5	60.0	9	R2.5009	0.91563	54.94	60.44	90.900068%	371,324.06
361.22	VCP - 15-inch relined in 2015 Qty 138 LF	2015	4.50	34,332	R2.5	60.0	8	R2.5008	0.92492	55.50	60.00	92.500000%	31,756.79
361.21	CIP - 15-inch	1935	84.50	55,284	R2.5	80.0	106	R2.5106	0.21298	17.04	101.54	16.781564%	9,277.60
361.21	VCP - 8-inch	1936	83.50	2,005,002	R2.5	80.0	104	R2.5104	0.22128	17.70	101.20	17.490119%	350,677.28
361.21	VCP - 10-inch	1936	83.50	48,031	R2.5	80.0	104	R2.5104	0.22128	17.70	101.20	17.490119%	8,400.73
361.22	VCP - 10-inch relined in 2013 Qty 208 LF	1936	83.50	29,693	R2.5	60.0	139	R2.5139	0.15000	9.00	92.50	15.000000%	4,453.95
361.21	VCP - 12-inch	1936	83.50	224,929	R2.5	80.0	104	R2.5104	0.22128	17.70	101.20	17.490119%	39,340.42
361.21	VCP - 15-inch	1936	83.50	568,527	R2.5	80.0	104	R2.5104	0.22128	17.70	101.20	17.490119%	99,436.00
361.21	VCP - 8-inch	1955	64.50	12,963	R2.5	80.0	81	R2.5081	0.34133	27.31	91.81	29.746215%	3,855.97
361.21	VCP - 8-inch	1972	47.50	20,401	R2.5	80.0	59	R2.5059	0.49155	39.32	86.82	45.289104%	9,239.41
361.21	PVC - 8-inch	1985	34.50	16,599	R2.5	80.0	43	R2.5043	0.61677	49.34	83.84	58.850191%	9,827.24
361.21	PVC - 8-inch	1990	29.50	22,923	R2.5	80.0	37	R2.5037	0.66661	53.33	82.83	64.384885%	14,759.11
361.21	PVC - 8-inch	1992	27.50	37,621	R2.5	80.0	34	R2.5034	0.69207	55.37	82.87	66.815494%	25,136.98
361.21	PVC - 8-inch	1995	24.50	12,320	R2.5	80.0	31	R2.5031	0.71785	57.43	81.93	70.096424%	8,635.80
Subtotal													
361.21	COLLECTION SEWERS -GRAVITY MAINS		71.88	8,029,623	R2.5	76.99				23.20	95.08	28.405693%	2,280,870

When the above depreciation lives are used to quantify the property's depreciation is applied to each of the Royersford Borough's investment in plant,

# APPENDIX A-5.1 (AUS)

property and equipment the replacement cost new (RCN) of \$40,821,536 the resultant RCN less depreciation (RCNLD) was found to be \$13,376,109 detailed as follows:

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019

**Replacement Cost New less Depreciation (RCNLD)**

(18)	(19)	(21)	(22)	(23)	(24)	(28)	(29)	(30)	(31)
Account	Description	Age at December 10, 2019 Appraisal Date	Replacement Cost New (COR)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (COR less Normal Depreciation)
		years	COR \$s		years	years	years	% of COR	CORLD \$s
Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Calculation	Calculation
Eng Assmnt	Pennoni Associates, Inc.'s Royersford Engineers Assessment		Col (16)	AUS Input	AUS Input		Col (21) + (28)	Col (28) / (29)	Col (22) * (30)
Account	Description	Age	RCN	Iowa	NL	Rem Life	Total Life	Condition	CORLD
353.20	LAND AND LAND RIGHTS - COLLECTION	67.89	141	ZNonDep	-	-	-	-	141
353.30	LAND AND LAND RIGHTS - PUMPING	19.50	59	ZNonDep	-	-	-	-	59
353.40	LAND AND LAND RIGHTS - TREATMENT	84.50	55,287	ZNonDep	-	-	-	-	55,287
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	51.93	1,125,292	R4.0	45.00	13.09	65.02	0.29	323,362
354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	83.42	10,324,774	R4.0	55.00	8.67	92.10	0.16	1,627,280
355.30	POWER GENERATION - PUMPING	16.55	94,209	R3.0	35.00	19.77	36.32	0.55	51,463
355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	11.50	372,215	R3.0	35.00	24.00	35.50	0.68	251,638
360.20	COLLECTION SEWERS - FORCE MAINS	80.11	661,466	R3.0	75.00	13.42	93.53	0.17	114,219
361.21	COLLECTION SEWERS -GRAVITY MAINS	71.88	8,029,623	R2.5	76.99	23.20	95.08	0.28	2,280,870
361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING	5.52	822,723	R2.5	60.00	54.79	60.30	0.91	747,466
361.23	COLLECTION SEWERS -GRAVITY - MANHOLES	80.55	626,210	R2.5	80.00	19.64	100.19	0.20	125,978
363.20	SERVICE TO CUSTOMERS	83.02	1,318,126	R3.0	45.00	6.91	89.94	0.15	201,771
364.30	FLOW MEASURING DEVICES - PUMPING	8.50	9,684	S2.0	30.00	21.72	30.22	0.72	6,960
364.40	FLOW MEASURING DEVICES - WWTP	8.50	12,025	S2.0	30.00	21.72	30.22	0.72	8,643
371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	8.85	317,647	R3.0	35.00	26.57	35.42	0.75	238,419
380.40	TREATMENT AND DISPOSAL EQUIPMENT	40.86	17,039,720	R2.0	45.00	20.05	60.91	0.43	7,334,772
390.70	EQUIPMENT - GENERAL PLANT	4.50	7,171	R3.0	12.00	7.69	12.19	0.63	4,524
396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	4.50	5,164	R3.0	12.00	7.69	12.19	0.63	3,258
Grand									
Total	Grand Total	59.38	40,821,536		54.88	17.82	77.09	0.33	13,376,109

The preliminary cost approach to value of the Royersford Borough's wastewater utility property was found to be \$13,376,109.

### Income Approach (Income Approach tabs)

The income approach to value establishes the value of the property based on its economic returns. There are two generally accepted procedures in performing an income analysis: the direct capitalization of anticipated income, and the discounted cash flow procedures.

In the direct capitalization approach, anticipated earnings are capitalized directly into value using a market-required capitalization rate. The Royersford Borough's wastewater operation will be moving from a municipal operation, wherein economic returns are not the primary objective of the operation to a private (investor owned) rate regulated sewer utility operation in which economic returns are one of the objectives of the operation; therefore, the direct capitalization of earnings approach was not utilized in this appraisal.

In the discounted cash flow (DCF) approach, the property's economic returns are forecast for future periods. The cash flows (debt-free after-tax net cash flows) from operations are discounted to the appraisal date using a market derived discount rate resulting in the DCF approach's income indicator of value. Use of the DCF approach allows the appraiser to address the property's historical operating experience and its migration, in future periods, to an operation as a rate regulated income taxed (local, state and federal) operation; thus, making the DCF approach preferable in this case.

In preparing this appraisal's DCF analysis first the results from the Royersford Borough's wastewater utility's operations was evaluated based on an analysis of historical operating performances over the period 2013 through 2019 (Financials tab). In this analysis operating statistics such as revenues and their growth, various operating expenses were stated as function of their typical drivers (revenues, plant investment, income from operations, etc.) were analyzed. Details are provided in Income Approach tab. Using the above described analyses, the results of future periods operations were forecast based on the migration of the Royersford Borough's of historical operations type experience over time to operations of the wastewater operation similar to a public investor-owned water/wastewater utilities. These forecasts are detailed in the Income Approach tab.

## APPENDIX A-5.1 (AUS)

In this appraisal, future operating results were forecasted as follows:

Revenues
Operating Expenses
Operating and Maintenance Expense
Depreciation & Amortization
Total Operating Expenses
Operating Income (Revenues less Operating Expenses)
Taxes
Property
Income (state & federal)
Total Taxes
After Tax Income (Operating Income less Total Taxes)
Net Cash Flows
Plus: After Tax Income
Plus: Depreciation
Less: Capital Expenditures
Plus/less: Change in Working Capital
Equals: Debt-free after-tax net cash flows

In the above described table, the depreciation expense (both book and tax) and the capital expenditures were forecast based on the investment in property plant and equipment at the appraisal date and in subsequent periods. The initial investment in the plant and depreciation forecast were based on the criteria established in Section 1329 for the acquisition and subsequent regulation (rate base) of the acquired property by the acquiring investor owned utility company. The following table details the forecasts of plant investment, book depreciation, tax depreciation forecast, and the resultant net plant investment and rate base as follows:

Plant Investment
Initial Investment/ Beginning Plant Balance
Additions (Capital Expenditures)
Retirements
Ending Plant Balance

### Depreciation (book)

- Initial Book Depreciation Reserve / Beginning Book Reserve Balance
- Book Depreciation & Amortization
- Retirements
- Ending Book Reserve Balance

### Depreciation (tax)

- Initial Tax Reserve / Beginning Tax Reserve
- Tax Depreciation
- Retirement
- Ending Tax Reserve Balance

In these forecasts, the initial plant investment was based on the preliminary cost approach of \$13,376,109. Initially, the Cost Approach results are utilized as the initial investment by category of plant (NARUC account). The Cost Approach results also define the property's ages and remaining lives of the various plant investment categories. Using these inputs, the future periods book and tax depreciation can be forecast, as well as the accumulated deferred taxes and resulting rate base.

With a forecast of the future rate base and an estimate of the Pennsylvania Commission's authorized return on rate base, the future return on rate base can be estimated which along with the forecast operating expenses (operating expenses, depreciation, and taxes) the future period revenue requirement forecasts can be made. An estimate of the PA Commission return on rate base is detailed as follows:

# APPENDIX A-5.1 (AUS)

## Water and Wastewater Cost of Capital First Quarter 2020 (1-1-2020)

As an Investor-Owned Utility

### Weighted Cost of Capital (Rate of Return on Rate Base)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	Required Return on Rate Base (2)*(3)
Debt	45%	Embedded	3.23%	Embedded	Not Applicable	Not Applicable	1.45%
Equity	55%	Embedded	9.95%	Market	Not Applicable	Not Applicable	5.47%
<b>Total Capital r</b>	<b>100.0%</b>						<b>6.92%</b>
Growth (g)						Not Applicable	<b>0.00%</b>
Rate without Growth: $[(1+r)/(1+g)]-1$							<b>6.92%</b>

Based on a comparison of the forecast revenues and the forecast of the estimated revenue requirement, future period rate increases were forecast. The criteria in making future period rate adjustments was to bring the forecast achieved return in line with the required return. Based on this process the results of future operations were forecast for the next 21-year period. Period 21 of the forecast was treated in the discounted cash flow as the forecast for period 21 through perpetuity.

Finally, the resultant cash flows from future period operations of the System were discounted to the appraisal date using a market derived discount rate for a public investor-owned water/wastewater utility (Cost of Capital / Required Return tab). The following table details the market discount rate developed using the weighted average cost of capital (WACC) of the market debt and equity:

## Water and Wastewater Cost of Capital First Quarter 2020 (1-1-2020)

As an Investor-Owned Utility

### Weighted Cost of Capital (Discount Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3)*(4a)
Debt	26%	Market	3.23%	Market	28.89%	71.11%	0.60%
Equity	74%	Market	9.95%	Market	0.0%	100.0%	7.36%
<b>Total Capital r</b>	<b>100.0%</b>						<b>7.96%</b>
Growth (g)							<b>1.82%</b>
Rate without Growth: $[(1+r)/(1+g)]-1$							<b>6.03%</b>

## APPENDIX A-5.1 (AUS)

The market cost of debt was developed based on market returns for utilities debt as reported in the Value Line Investment Survey. The market cost of equity was developed using the capital asset pricing model (CAPM) and the dividend-growth model (DGM). Input to these equity costing models were developed based on Value Line Investment Surveys for the water industry published for January 10, 2020 consisting of the following nine companies:

Company	
American States Water (NYSE-AWR)	Consolidated Water Company (NDQ-CWCO)
American Water ((NYSE-AWK)	Middlesex Water (NDQ-MSEX)
Aqua America (NYSE-WTR)	SJW Corporation (NYSE-SJW)
California Water (NYSE-CWT)	York Water (NDQ-YORW)
In the January 2020 Issue Value Line dropped Connecticut Water (NDQ-CTWS) out of its list of Water Utility Industry companies	

The Value Line data was also used to develop the market capital structure used in the WACC determination. The market required return analysis can be found in the Cost of Capital / Required Return tab.

The following table presents the results of the discounted cash flow analysis:

# APPENDIX A-5.1 (AUS)

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Potential Purchaser: Investor-Owned Utility**  
**As of December 10, 2019**  
**Discounted Cash Flow Analysis**

Discount Rate:		7.96%											
Capitalization Rate:		6.03%											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Period	Age	Revenues	O&M Expenses	Tax Depreciation	Cash Flow from Operations	Taxable Income before State & Federal Taxes	State and Federal Taxes @ 28.89%	Capital Expenditures	Change in Working Capital	Net Cash Flows	Period Present Worth Factor (PW)	PW of Cashflow	Accumulated PW of Cashflows
					(3)-(4)	(6)-(5)	(7) *28.89%			(3)-(4)-(8)-(9)-(10)		(11)*(12)	Sum (13)
1	0.5	1,122,000	717,929	746,706	404,071	(342,635)	(98,987)	214,549	14,688	273,821	0.962	263,416	263,416
2	1.5	1,144,440	733,088	756,382	411,352	(345,030)	(99,679)	217,769	1,212	292,050	0.891	260,217	523,633
3	2.5	1,464,883	748,693	766,393	716,190	(50,203)	(14,504)	221,035	17,303	492,356	0.826	406,686	930,319
4	3.5	1,494,181	764,752	776,748	729,429	(47,319)	(13,670)	224,350	1,583	517,166	0.765	395,632	1,325,951
5	4.5	1,524,065	781,281	787,455	742,784	(44,671)	(12,905)	227,716	1,613	526,360	0.708	372,663	1,698,614
6	5.5	1,950,803	798,283	798,522	1,152,520	353,998	102,270	231,132	23,045	796,073	0.656	522,224	2,220,838
7	6.5	1,989,819	815,771	738,384	1,174,048	435,664	125,863	85,124	2,106	960,955	0.608	584,261	2,805,099
8	7.5	2,029,615	832,472	738,542	1,197,143	458,601	132,490	86,239	2,149	976,265	0.563	549,637	3,354,736
9	8.5	2,557,315	849,690	738,797	1,707,625	968,828	279,894	87,371	28,496	1,311,864	0.522	684,793	4,039,529
10	9.5	2,608,461	867,442	739,153	1,741,019	1,001,866	289,439	88,520	2,762	1,360,298	0.483	657,024	4,696,553
11	10.5	2,660,630	885,733	739,608	1,774,897	1,035,289	299,095	89,683	2,817	1,383,302	0.447	618,336	5,314,889
12	11.5	2,873,480	904,577	740,167	1,968,903	1,228,736	354,982	90,863	11,494	1,511,564	0.414	625,787	5,940,676
13	12.5	2,930,950	923,990	723,808	2,006,960	1,283,152	370,703	92,060	3,103	1,541,094	0.384	591,780	6,532,456
14	13.5	2,989,569	943,988	724,492	2,045,581	1,321,089	381,663	93,275	3,165	1,567,478	0.356	558,022	7,090,478
15	14.5	3,228,735	964,579	725,283	2,264,156	1,538,873	444,581	94,507	12,916	1,712,152	0.329	563,298	7,653,776
16	15.5	3,293,310	985,775	423,915	2,307,535	1,883,620	544,178	237,184	3,487	1,522,686	0.305	464,419	8,118,195
17	16.5	3,359,176	1,008,820	429,553	2,350,356	1,920,803	554,920	240,743	3,556	1,551,137	0.283	438,972	8,557,167
18	17.5	3,627,910	1,032,494	435,326	2,595,416	2,160,090	624,050	244,353	14,512	1,712,501	0.262	448,675	9,005,842
19	18.5	3,700,468	1,056,810	441,238	2,643,658	2,202,420	636,279	248,019	3,918	1,755,442	0.242	424,817	9,430,659
20 and beyond	19.5	3,774,477	1,081,780	447,291	2,692,697	2,245,406	648,698	251,738	3,997	1,788,264	2.827	5,055,422	14,486,081
Age	19.5							3,366,230					
PW(Age) = 1/(1+Discount Rate) <sup>Age</sup>					0.225					11,818,696			
PW to Perpetuity = 1/Capitalization Rate					12.563					(2,453,954)			
PW <sub>(20and Beyond)</sub> = PW to Perpetuity * PW Factor <sub>(19.5)</sub>					2.827					9,364,742	0.225	2,107,067	11,537,726
Rate Base													
Annual Plant Construction													
Inflation Rate										0.0422	Input		
Plant Inflation over 19.5 years										21,405,098	0.225	4,816,147	14,246,806
PP		13,000,000											
OCLD		5,173,559											
PP/OCLD		2,513											
RCNLD		13,376,109											
RCNLD/PP										1.028931465			
										9,635,678.16	0.225	2,168,028	11,598,687
Average													12,967,325

Based on the above described discounted cash flow analysis, the Income Approach to value of the System's wastewater property and its operations was determined to be \$14,486,081. To ensure that the above described forecast captured the entire economic returns of the property an additional 40-year period beyond the original 20-year forecast was made. This additional forecast indicated the reasonableness of the initial forecast results.

## Market Approach (Market Approach tab)

The market or comparable sales approach to value looks to market sales of comparable properties in order to arrive at value. In this appraisal, the market approach was addressed from a comparable sales approach using Pennsylvania water and wastewater



# APPENDIX A-5.1 (AUS)

systems and market value to book value ratios based on investor owned water utilities reported in Value Line Investment Survey.

Market Sales – In the comparable sales market approach the sales of Pennsylvania municipal water and wastewater systems to investor owned water/wastewater utilities following the passage of Section 1329 were used to insure comparability. The following sales were considered:

Approximate Date	Buyer	Seller	County	Type of Facility	Purchase Price	Number of Total Customers	OCA Market Value per customer	Relationship to the passage of Section 1329	Average Purchase Price per Customer	AUS Market Value per customer	
20	6/1/2016	PA American Water	City of McKeesport	Allegheny	Wastewater Collection and Treatment	159,000,000	21,953	7,197	Post	7,242.75	7,243
21	8/1/2016	Aqua PA	New Garden Twp. SA	Chester	Wastewater Collection and Owned Treatment	29,500,000	2,106	14,008	Post	14,007.60	14,008
22	12/1/2017	Aqua PA	Limerick Township	Montgomery		64,373,000	5,434	11,846	Post	9,264	11,846
23	12/10/2017	Aqua PA	East Bradford Township	Chester	Wastewater Collection and paid for treatment Capacity	5,000,000	1,248	4,006	Post	4,006.41	4,006
24		SUEZ	Mahoning	Carbon	Water Treatment and Distribution System	4,734,800	2,806	-	Post		1,687
25		SUEZ	Mahoning	Carbon	Wastewater Collection and Treatment	4,765,200	2,806	-	Post		1,698
26	6/1/2018	Aqua PA	Cheltenham	Montgomery	Wastewater Collection	50,250,000	10,500	-	Post	4,785.71	4,786
27	11/14/2018	PA American Water	Steelton	Dauphin	Water Distribution and Treatment	22,500,000	2,325	-	Post	9,677.42	9,677
28		PA American Water	Sadsbury	Chester	Wastewater Collection	9,250,000	998	-	Post	9,268.54	9,269
29	5/28/2018	PA American Water	Exeter	Berks	Wastewater Collection and Treatment	96,000,000	9,000	-	Post	10,666.67	10,667
30	10/29/2018	Aqua PA	East Norriton	Montgomery	Wastewater Collection	21,000,000	4,950		Post	4,242.42	
31	9/30/2018	PA American	Kane	McKean	Wastewater Collection and Treatment	17,560,000	2,006		Post	8,753.74	

In order to arrive at a measure of comparability these system sales were analyzed in relationship of the purchase price to the properties' depreciated original cost (OCLD) and depreciated replacement cost (RCNLD) (Market Approach tab).

The following table details the market sales analysis:

# APPENDIX A-5.1 (AUS)

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019

## Comparable Sales Approach

### Market Sales Basis

Description	New Garden Wastewater System	McKeesport Wastewater System	Limerick Wastewater System	Mahoning Water System	Mahoning Wastewater System	East Bradford Wastewater Collection System	Sadsbury Wastewater Collection System	Exeter Wastewater Collection System	Steeltown Water System	Cheltenham Wastewater Collection System	East Norriton Wastewater	Kane Wastewater Treatment	Simple Average / Standard Deviation	Weighted Average	Use
System Description	Wastewater	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Water Treatment & Distribution	Wastewater Collection & Treatment	Wastewater Collection Only	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection Only	Wastewater Collection Only	Wastewater Collection Only	Wastewater Collection & Treatment			
Type of System	Wastewater	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Water Treatment & Distribution	Wastewater Collection & Treatment	Wastewater Collection Only	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection Only	Wastewater Collection Only	Wastewater Collection Only	Wastewater Collection & Treatment			
System Attributes	Collection & Treatment	Collection & Treatment	Collection & Treatment	Treatment & Distribution	Collection & Treatment	Collection Only	Collection & Treatment	Collection & Treatment	Collection Only	Collection Only	Collection Only	Collection & Treatment			
Purchase Price	29,500,000	159,000,000	75,100,000	4,734,800	4,765,200	5,000,000	9,250,000	96,000,000	22,500,000	50,250,000	21,000,000	17,540,000		494,640,000	
Proportion of Purchase Price to Total	6%	32%	15%	1%	1%	1%	2%	19%	5%	10%	4%	4%		100%	
Proportion of Purchase Price to Outlier Adjusted Total Acquirer	Aqua-PA Aug-16	PA-American Sep-16	Aqua-PA	SUEZ PA	SUEZ PA	Aqua-PA 20-Dec-17	PA-American	PA-American 29-May-18	PA-American 14-Nov-18	Aqua-PA Jun-18	Aqua-PA Oct-18	PA-American Sep-19			
Customers															
Original Cost						5,383,591	6,128,876	40,057,634	14,431,435	15,784,463	8,407,007	12,070,455		268,902,130	
Depreciated Original Cost (AUS Consultants) OCLD	18,507,728	101,915,080	46,153,807			5,383,591	6,128,876	40,057,634	14,431,435	15,784,463	8,407,007	12,070,455		268,902,130	
Purchase Price to OCLD	1.9888	1.5601	1.6372			0.9817	1.0092	2.3965	1.3389	1.8825	2.4979	1.4548		1.8306	1.8396
Variance to Simple Mean	-0.2418	-0.2705	-0.2034			-0.9919	-0.3214	0.5659	-0.2717	1.3529	0.6673	-0.3758		0.6246	0.1781
Variance to Wtd Mean	-0.2508	-0.2795	-0.2124			-0.9109	-0.3304	0.5569	-0.2807	1.3439	0.6583	-0.3848		1.5745	1.8888
Replacement Cost New Less Depreciation RCNLD	30,615,430	160,301,491	86,086,756	8,899,336	7,991,234	9,236,581	8,517,587	99,389,819	23,921,473	49,940,486	27,461,356	29,015,055		541,576,584	
Purchase Price to RCNLD	0.9656	0.9919	0.8724	0.532	0.6963	0.5413	1.086	0.964	0.9606	1.0842	0.7947	0.8852		0.8220	0.93193289 0.9319393
Variance to Simple Mean	0.4616	0.1699	0.0504	-0.29	-0.257	-0.2807	0.264	0.142	0.1186	0.1842	-0.0573	-0.2168		0.1944	0.1100
Variance to Wtd Mean	0.022206711	0.060506711	-0.08993289	-0.399393289	-0.35093289	-0.390093289	0.154606711	0.032606711	0.009206711	0.074806711	-0.166693289	-0.326193289		0.9065	0.9639
Variance Squared	0.000397272	0.00361062	0.008480208	0.159514999	0.112287512	0.152172774	0.022993235	0.001063198	8.47636E-05	0.005996044	0.027786653	0.106402062		0.9919	0.9919
Customers	2,100	20,000	5,434			1,248	984								

Financial Market Ratios – In the market approach based on market financial ratios the market data of companies (nine) in the water industry as reported in Value Line Investment Surveys (January 2020) were analyzed. In the analysis the companies' stock (market) and debt (book) per share are compared as a ratio to the book value per share which is detailed in the following table:

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 December 10, 2019

## Comparable Sales Approach

### Financial Basis<sup>1</sup>

	Industry Averages	American & Aqua Averages	American Water	American Water	Aqua America	California Water	Consol. Water Co.	Middlesex Water	SIW Corp	York
Price per Share			87.33	123.05	47.08	51.52	16.46	63.56	71.79	46.38
Book value per share			16.1	34.4	18	15.85	10.95	15.7	31.2	10.4
Market to Book Equity Ratio			5.42	3.58	2.62	3.25	1.5	4.05	2.3	4.46
Minimum	1.5	2.62								
Mean	3.40	3.1		3.58	2.62					
Standard Deviation	1.18	0.480								
Weighted Market to Debt Ratio	3.41		20,013.22	112,367.28	34,710.24	11,207.07	371.03	5,481.74	5,874.18	3,135.10
Median	3.415	3.1								
Maximum	5.42	3.58								
Debt (Total) \$s millions			475.3	9,143.0	3,086.4	967.9	-	294.0	511.1	100.7
Outstanding Shares (millions)			36.84	180.78	215.84	48.15	15.03	16.67	28.46	12.98
Debt per share			12.9	50.58	14.3	20.1	0	17.64	17.96	7.76
Equity (Total) \$s millions			3,217.18	22,244.51	10,161.78	2,480.43	247.35	1,059.52	2,042.89	602.24
Total Capital (Debt + Equity)			3,692.48	31,387.51	13,248.18	3,448.33	247.35	1,353.52	2,553.99	702.94
			0.07	0.55	0.23	0.06	-	0.02	0.05	0.01
Market Value per Share (Equity+Debt)			100.23	173.63	61.38	71.62	16.46	81.2	89.75	54.14
Book Value per Share (Equity+Debt)			29	84.98	32.3	35.95	10.95	33.34	49.16	18.16
Market to Book (Total Capital) Ratio			3.46	2.04	1.9	1.99	1.5	2.44	1.83	2.98
Minimum	1.5	1.9								
Mean	2.27	1.97		2.04	1.9					
Standard Deviation	0.61	0.070								
Weighted Market to Book (Debt&Equity) Ratio	2.11		12,775.97	64,030.52	25,171.55	6,862.18	371.03	3,302.58	4,673.80	2,094.75
Variance to Wtd Mean	0.1392		1.35	(0.07)	(0.21)	(0.12)	(0.61)	0.33	(0.28)	0.87
Median	2.015	1.97								
Maximum	3.46	2.04								

1. Value Line Investment Survey January 10, 2020  
 2. Value Line dropped Connecticut Water in its January 10, 2020 publication

# APPENDIX A-5.1 (AUS)

The following table summarizes both the comparable sales and financial market ratio analysis and the Market Approach conclusion of this appraisal:

Pennsylvania American Water Company Royersford Borough Wastewater Collection and Treatment System Investor-Owned Utility As of December 10, 2019 Market Approach Summary				
Comparable Sales	OCND / RCNLD	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Replacement Cost New less Depreciation (RCNLD)				
Measures of Central Tendency (PP/RCNLD)		Simple Mean	Purchase Price Weighted Mean	
Mean		0.8220	0.931393289	
Standard Deviation		0.1944	0.11	
Median		0.9065	0.9639	
Mode		0.9919	0.9919	
PP/RCNLD (Average)	13,376,109.04	0.8643	0.9624	12,873,137
Average				
Original Cost less Depreciation (OCLD)				
Measures of Central Tendency (PP/OCLD)		Simple Mean	Purchase Price Weighted Mean	
Mean		1.8306	1.8396	
Standard Deviation		0.6246	0.1781	
Median		1.5745	1.5888	
Mode		1.5601	1.5601	
PP/OCLD (Average)	5,173,559.13	1.7026	1.6628	8,602,767
Average				
Financial Markets				
Market to Book (equity)		3.40		
Market to Book (equity and debt)		2.11		
Use (equity and debt)		2.11	Input	
Market Conclusion				
Royersford Borough				
AUS Depreciated Original Cost		5,173,559.13	2.11	10,916,210
Market Approach Summary				
Minimum				Indicated Valus \$s
Mean				8,602,767
Median				10,797,371
Maximum				10,916,210
Use (RCNLD)				12,873,137

The market approach conclusion of this appraisal was determined to be \$12,873,137.

Cost Approach Revisited – Before concluding this appraisal’s fair market value, the preliminary cost approach conclusion of \$13,376,109 needs to be evaluated to determine if external obsolescence exists in the preliminary replacement cost new less depreciation conclusion of \$13,376,109. The appraisal literature regarding developing a cost approach state:

“The last step in the implementation of the cost approach is to estimate *economic obsolescence*. Economic obsolescence (sometimes called “external obsolescence”) has been previously defined as the loss in value or usefulness of a property caused by factors external to the asset. These factors include increased cost of raw materials, labor, utilities (without an offsetting increase in product price); reduced demand for the product; increased competition; environmental or other regulations; or similar factors.

The difficulty in measuring the full effect of economic obsolescence is one of the weaknesses of the cost approach. Because economic obsolescence is usually a function of outside influences that affect an entire business (i.e., all tangible and intangible assets) rather than individual assets or isolated groups of assets, it is sometimes measured using the income approach or by using the income approach to help identify the existence of economic influences on value. However, the cost approach can be used to measure some forms of economic obsolescence.”<sup>15</sup>

The above described income approach value conclusion of \$14,486,081 and the market approach conclusion of \$12,873,137 for the Royersford Borough’s future wastewater system compared to the preliminary cost approach conclusion of \$13,376,109 indicates no significant external obsolescence exists in the cost approach conclusion of \$13,376,109 detailed as follows:

---

<sup>15</sup> Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition, pp. 96-97.

# APPENDIX A-5.1 (AUS)

**Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Investor-Owned Utility  
As of December 10, 2019**

(36)	(37)	(38)	(39)	(40)	(41)
Account	Description	Placement Year	Preliminary Cost Approach CORLD \$s	Economic Obsolescence % of Preliminary Cost Approach	Fair Market Value Appraisal Date Value \$s
Input	Input	Input	Calculation	Input	Calculation
AUS Input	Eng Assmnt	Eng Assmnt	CORLD	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
Account	Description	Year	Prelim CORLD	EO%	FMV
<b>COLLECTION SEWERS -GRAVITY MAINS</b>					
361.21	VCP - 8-inch	1935	488,916.55	0.00%	488,916.55
361.22	VCP - 8-inch Relined in 2013 Qty 2,003 LF	2013	174,442.38	0.00%	174,442.38
361.22	VCP - 8-inch Relined in 2014 Qty 1,024 LF	2013	89,211.31	0.00%	89,211.31
361.22	VCP - 8-inch Relined in 2016 Qty 2,432 LF	2013	211,814.81	0.00%	211,814.81
361.21	VCP - 10-inch	1935	-	0.00%	-
361.22	VCP - 10-inch relined in 2013 Qty 910 LF	2013	121,701.64	0.00%	121,701.64
361.21	VCP - 12-inch	1935	55,324.46	0.00%	55,324.46
361.22	VCP - 12-inch relined in 2015 Qty 335 LF	2015	60,209.84	0.00%	60,209.84
361.21	VCP - 15-inch	1935	93,127.78	0.00%	93,127.78
361.22	VCP - 15-inch relined in 2014 Qty 1,642 LF	2014	371,324.06	0.00%	371,324.06
361.22	VCP - 15-inch relined in 2015 Qty 138 LF	2015	31,756.79	0.00%	31,756.79
361.21	CIP - 15-inch	1935	9,277.60	0.00%	9,277.60
361.21	VCP - 8-inch	1936	350,677.28	0.00%	350,677.28
361.21	VCP - 10-inch	1936	8,400.73	0.00%	8,400.73
361.22	VCP - 10-inch relined in 2013 Qty 208 LF	1936	4,453.95	0.00%	4,453.95
361.21	VCP - 12-inch	1936	39,340.42	0.00%	39,340.42
361.21	VCP - 15-inch	1936	99,436.00	0.00%	99,436.00
361.21	VCP - 8-inch	1955	3,855.97	0.00%	3,855.97
361.21	VCP - 8-inch	1972	9,239.41	0.00%	9,239.41
361.21	PVC - 8-inch	1985	9,827.24	0.00%	9,827.24
361.21	PVC - 8-inch	1990	14,759.11	0.00%	14,759.11
361.21	PVC - 8-inch	1992	25,136.98	0.00%	25,136.98
361.21	PVC - 8-inch	1995	8,635.80	0.00%	8,635.80
Subtotal					
361.21	COLLECTION SEWERS -GRAVITY MAINS		2,280,870	0.00%	2,280,870

Therefore, the preliminary cost approach conclusion of \$13,376,109 can be considered the final cost approach conclusion as follows:

# APPENDIX A-5.1 (AUS)

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019

## Fair Market Value

(36)	(37)	(39)	(40)	(41)
Account	Description	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
		CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
		Input	Input	Calculation
Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
Account	Description	Prelim CORLD	EO%	FMV
353.20	LAND AND LAND RIGHTS - COLLECTION	141	0.00%	141
353.30	LAND AND LAND RIGHTS - PUMPING	59	0.00%	59
353.40	LAND AND LAND RIGHTS - TREATMENT	55,287	0.00%	55,287
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	323,362	0.00%	323,362
354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	1,627,280	0.00%	1,627,280
355.30	POWER GENERATION - PUMPING	51,463	0.00%	51,463
355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	251,638	0.00%	251,638
360.20	COLLECTION SEWERS - FORCE MAINS	114,219	0.00%	114,219
361.21	COLLECTION SEWERS -GRAVITY MAINS	2,280,870	0.00%	2,280,870
361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING	747,466	0.00%	747,466
361.23	COLLECTION SEWERS -GRAVITY - MANHOLES	125,978	0.00%	125,978
363.20	SERVICE TO CUSTOMERS	201,771	0.00%	201,771
364.30	FLOW MEASURING DEVICES - PUMPING	6,960	0.00%	6,960
364.40	FLOW MEASURING DEVICES - WWTP	8,643	0.00%	8,643
371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	238,419	0.00%	238,419
380.40	TREATMENT AND DISPOSAL EQUIPMENT	7,334,772	0.00%	7,334,772
390.70	EQUIPMENT - GENERAL PLANT	4,524	0.00%	4,524
396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	3,258	0.00%	3,258
Grand Total		13,376,109	0.00%	13,376,109

# APPENDIX A-5.1 (AUS)

## Value Conclusion

The Fair Market Value of the Borough of Royersford's, Pennsylvania's wastewater property, plant and equipment and its operation were determined to be \$13,769,801 as follows:

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Fair Market Value Appraisal**

Appraisal Approach	Investor-owned Utility	Weight	Wtd Valuation Indications
<b>Cost Approach</b>			
Financials' Net Book (3-31-2019)			
Gross Book	6,883,116		
Accumulated Depreciation	(2,337,417)		
Net Book	4,545,699		
Inventory of Assets (7-2019)			
Original Cost (\$OC)	7,666,492		
Depreciated Original Cost (\$OCLD)	5,173,559		
Replacement Cost (9-30-2019)			
Replacement Cost New (COR)	40,821,536		
Depreciated Replacement Cost New (CORLD)	\$ 13,376,109		
Cost Approach Conclusion	13,376,109	50%	6,688,055
<b>Income Approach</b>			
Required Rate Increases: 30% period 1, 26% period 3, 26% period 6, 24% period 9 and 6% every 3rd year beginning in period 12 (Input 6)			
	14,486,081		
Income Approach Conclusion	14,486,081	40%	5,794,432
<b>Market Approach</b>			
Market Comparables (to)			
OCLD	8,602,767		
CORLD	12,873,137		
Market Financials (to)			
OCLD	10,916,210		
Market Approach Conclusion	12,873,137	10%	1,287,314
Appraisal Conclusion	\$ 13,769,801	100%	13,769,801
Conclusion (cost approach)	\$ 13,376,109		

As the purpose of this appraisal was to fulfill the requirements of Section 1329 of the PA CS in the establishment of value for rate making of the Royersford Borough's

## APPENDIX A-5.1 (AUS)

wastewater collection and treatment system's property, plant and equipment this appraisal's conclusion of \$13,769,801 is consistent with the purpose of the appraisal. As the cost approach work papers detail our value conclusion by National Association of Regulatory Utility Commissioners' (NARUC) Uniform System of Accounts (USOA) for the water industry account classifications and the installation year of the property, this detail can be used to allocate the appraisal conclusion to establish the booked value for future accounting and rate making.



**Compliance with Uniform Standards of Professional  
Appraisal Practice (USPAP) 2020-2021  
Fulfillment of Requirements for a Personal Property Appraisal  
and Report**

- State the identity of the client and any intended users, by name or type:  
*Pennsylvania American Water Company and the Pennsylvania Public Utility Commission*
- State the intended use of the appraisal  
*To establish the Fair Market Value of Royersford (PA) Borough's Wastewater Collection and Treatment System (System).*

- Describe information sufficient to identify the property, real, personal, and intangible, involved in the appraisal, including the physical and economic property characteristics relevant to the assignment.

*The system consists of collection mains and laterals of various sizes and types and wastewater treatment structures, improvements and equipment. The property is in good condition based on physical inspections and reviews or operating statements. The property is an operating wastewater system the economics of which were analyzed based on seven years of operating financials which were incorporated into the income approach to value analysis in this appraisal.*

- State the real property interests appraised  
*The system's \$3,052 of land and land rights agreements necessary to access its property.*
- State the type and definition of value and cite the source of the definition, including whether the opinion of value is in terms of cash or of financing terms equivalent to cash, or based on non-market financing or financing with unusual conditions or incentives
  - *Market Value definition:*  
*"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress." The Appraisal of Real Estate, 12<sup>th</sup> Edition, page 22.*
- State the effective date of the appraisal and the date of the report  
*The effective date of the appraisal is December 10, 2019 and the appraisal report date is May 20, 2020.*
- Describe sufficient information to disclose to the client and any other intended users of the appraisal the scope of work used to develop the appraisal  
*The appraisal considered all three approaches to value: the cost, income and market. Briefly the scopes of work for each are as follows:*

**Compliance with Uniform Standards of Professional  
Appraisal Practice (USPAP) 2020-2021  
Fulfillment of Requirements for a Personal Property Appraisal  
and Report**

*Cost Approach – The cost approach utilized the trended cost method utilizing the investment inventory developed by Pennoni’s Engineers Assessment. The Handy Whitman Index of Public Utility Construction Costs for the water industry were used in the trending. Depreciation was assessed based on straight line age-life depreciation method based on service life expectation for each of the various account categories.*

*Income Approach – The income approach utilized the discounted cash flow (DCF) method that facilitates the development of cash flows from operations as the property migrates from municipal operation to a regulated investor owned operation. The Borough’s operating experience was analyzed (2015-2018) and budgets (2018-2020) in order to estimate the initial cash flows. Future customer tariff rates address the rates agreed to by the parties in the Asset Purchase Agreement between the parties. The operations were forecast for 19 periods in the future and a 20<sup>th</sup> period which is intended to reflect operation beyond that time. The discount rate was developed based on market debt and equity rates at the appraisal date.*

*Market Approach – The market approach was developed based on market comparable sales of Pennsylvania wastewater properties and market to book ratios developed for the water industry based on information published by Value Line Investment Surveys at the appraisal date.*

*Valuation Approaches Reconciliation - The appraisal conclusion was based on reconciliation of each of the approaches and the intended purpose of the appraisal.*

- Clearly and conspicuously:
  - State all extraordinary assumptions and hypothetical conditions;

*There were no extraordinary assumptions or hypothetical conditions in this appraisal.*

- State that their use might have affected the assignment results

*Not applicable.*

- Clearly and accurately disclose all assumptions, extraordinary assumptions, hypothetical conditions, and limiting conditions used in the assignment

*Not applicable.*

- Describe the information analyzed, the appraisal procedures followed, and the reasoning that supports the analyses, opinions, and conclusions

**Compliance with Uniform Standards of Professional  
Appraisal Practice (USPAP) 2020-2021  
Fulfillment of Requirements for a Personal Property Appraisal  
and Report**

*See scope of work above.*

- State the use of the real estate existing as of the date of value and the use of the real estate reflected in the appraisal – when reporting an opinion of market value, describe the support and rationale for the appraiser's opinion of the highest and best use of the real estate
- State and explain any permitted departures from specific requirements of STANDARD 1 and the reason for excluding any of the usual valuation approaches. The appraisal then becomes a limited appraisal – a limited appraisal report must contain a prominent section that clearly identifies the extent of the appraisal process performed and the departures taken

*No departures for Standard 1 were made.*

- Include a signed certification in accordance with Standards Rule 2-3

*Contained in Narrative Report.*

APPENDIX A-5.1 (AUS)

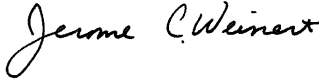
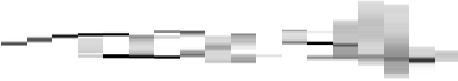
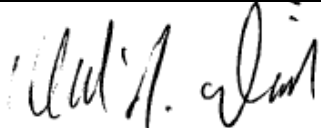

**Compliance with Uniform Standards of Professional  
Appraisal Practice (USPAP) 2020-2021  
Fulfillment of Requirements for a Personal Property Appraisal  
and Report**

AUS Consultants, Valuation and Depreciation Services Group certify that, to the best of its knowledge and belief:

- The statements of fact contained in this report are true and correct.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, opinions, and conclusions.
- AUS Consultants, Valuation and Depreciation Services Group has not performed an appraisal of the Royersford Borough's sanitary wastewater collection and treatment system previously in the last three year.
- AUS Consultants, Valuation and Depreciation Services Group, nor its professional staff has any present or prospective interest in the property that is the subject of this report and has no interest or bias with respect to the parties involved.
- We have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.
- Our engagement in this assignment is not contingent upon developing or reporting predetermined results.
- Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
- Our analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice 2020-2021.
- The signers of this report have made a personal inspection of the property that is the subject of this report.
- Individuals providing significant appraisal assistance to the person signing this certification include: Scott Fogelsanger of Pennsylvania American Wastewater Company provided information obtained from the Royersford Borough and the Engineer's Assessment report prepared by Pennoni Associates, Inc. which was the inventory starting point of the Cost Approach.

**APPENDIX A-5.1 (AUS)**  
**Compliance with Uniform Standards of Professional**  
**Appraisal Practice (USPAP) 2020-2021**  
**Fulfillment of Requirements for a Personal Property Appraisal**  
**and Report**

AUS Consultants, Depreciation & Valuation  
 By:

	
Jerome C. Weinert, AM, P.E., CDP Principal and Director	David A. Sheffer Principal
	
Michael J. Diedrich, ASA, P.E., CDP Certified General Appraiser Principal	Elizabeth A. Weinert Associate

ASA: Accredited Senior Appraiser in the Machinery and Equipment (Public Utilities)  
 discipline of the American Society of Appraisers  
 AMA: Accredited Member Appraiser in the Machinery and Equipment (Public Utilities)  
 discipline of the American Society of Appraisers  
 P.E.: Registered Professional Engineer State of Wisconsin  
 CDP: Certified Depreciation Professions in the Society of Depreciation Professionals

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Valuation Summary**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Fair Market Value Appraisal**

Appraisal Approach	Investor-owned Utility	Weight	Wtd Valuation Indications
<b>Cost Approach</b>			
<b>Financials' Net Book (3-31-2019)</b>			
Gross Book	6,883,116		
Accumulated Depreciation	(2,337,417)		
Net Book	4,545,699		
<b>Inventory of Assets (7-2019)</b>			
Original Cost (\$OC)	7,666,492		
Depreciated Original Cost (\$OCLD)	5,173,559		
<b>Replacement Cost (9-30-2019)</b>			
Replacement Cost New (COR)	40,821,536		
Depreciated Replacement Cost New (CORLD) \$	<b>13,376,109</b>		
Cost Approach Conclusion	<b>13,376,109</b>	50%	<b>6,688,055</b>
<b>Income Approach</b>			
Required Rate Increases: 30% period 1, 26% period 3, 26% period 6, 24% period 9 and 6% every 3rd year beginning in period 12 (Input 6)			
	14,486,081		
Income Approach Conclusion	<b>14,486,081</b>	40%	<b>5,794,432</b>
<b>Market Approach</b>			
<b>Market Comparables (to)</b>			
OCLD	8,602,767		
CORLD	12,873,137		
<b>Market Financials (to)</b>			
OCLD	10,916,210		
Market Approach Conclusion	<b>12,873,137</b>	10%	<b>1,287,314</b>
<b>Appraisal Conclusion</b>	<b>\$ 13,769,801</b>	<b>100%</b>	<b>13,769,801</b>
<b>Conclusion (cost approach)</b>	<b>\$ 13,376,109</b>		

Appraisal Approach	Value Indicator	Weight	Wtd Value Indicator
Cost	13,376,109	50%	6,688,055
Income	14,486,081	40%	5,794,432
Market	12,873,137	10%	1,287,314
Appraisal Conclusion			13,769,801

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Fair Market Value Appraisal**

Appraisal Approach	Investor-owned Utility	Weight	Wtd Valuation Indications
<b>Cost Approach</b>			
<b>Financials' Net Book (3-31-2019)</b>			
Gross Book	6,883,116		
Accumulated Depreciation	(2,337,417)		
Net Book	4,545,699		
<b>Inventory of Assets (7-2019)</b>			
Original Cost (\$OC)	7,666,492		
Depreciated Original Cost (\$OCLD)	5,173,559		
<b>Replacement Cost (9-30-2019)</b>			
Replacement Cost New (COR)	40,821,536		
Depreciated Replacement Cost New (CORLD) \$	13,376,109		
Cost Approach Conclusion	13,376,109	50%	6,688,055
<b>Income Approach</b>			
Customer Growth			
Annual Customer Growth			
Annual Subscriber Growth: All Periods 2.0%			
Periodic Customer Growth			
Periodic Customer Growth: All Periods 5.0%			
Rate Increase Scenario			
No increases (Input 2)			
	1,544,607		
Modest Rate Increases: 6% every 3rd year (Input 4)			
	3,674,103		
Required Rate Increases: 30% period 1, 26% period 3, 26% period 6, 24% period 9 and 6% every 3rd year beginning in period 12 (Input 6)			
	14,486,081		
Income Approach Conclusion	14,486,081	40%	5,794,432
<b>Market Approach</b>			
<b>Market Comparables (to)</b>			
CORLD	12,873,137		
OCLD	8,602,767		
<b>Market Financials (to)</b>			
OCLD	10,916,210		
Market Approach Conclusion	12,873,137	10%	1,287,314
<b>Appraisal Conclusion</b>	<b>\$ 13,769,801</b>	<b>100%</b>	<b>13,769,801</b>
Conclusion (cost approach)	\$ 13,376,109		



**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Cost Approach**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

# APPENDIX A-5.1 (AUS)

\\aus-dc1\shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Replacement Cost New (RCN)**

(1)	(2)	(3)	(9)	(10)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Original Cost	Costing Parameter	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input		OC \$\$			RCN \$\$	COR \$\$ / RCN \$\$	COR \$\$
NARUC Code	NARUC Code	Asset Description	Eng Assmnt	AUS Input Cost Index Table	Translator	RCN	AUS Input COR / RCN Factor	Col (14) * (15)
			Original Cost	Cost Index Table	Translator	RCN	COR	
353.20	353.20	LAND AND LAND RIGHTS - COLLECTION	13	USBLS1	10.87	141	1.00	141
353.30	353.30	LAND AND LAND RIGHTS - PUMPING	39	USBLS1	1.50	59	1.00	59
353.40	353.40	LAND AND LAND RIGHTS - TREATMENT	3,000	USBLS1	18.43	55,287	1.00	55,287
354.30	354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	249,437	HWW-18	4.51	1,125,292	1.00	1,125,292
354.40	354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	313,245	HWW-115	32.96	10,324,774	1.00	10,324,774
355.30	355.30	POWER GENERATION - PUMPING	67,239	USBLS4	1.40	94,209	1.00	94,209
355.40	355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	303,849	USBLS4	1.23	372,215	1.00	372,215
360.20	360.20	COLLECTION SEWERS - FORCE MAINS	31,522	HWW-144	20.98	661,466	1.00	661,466
361.21	361.21	COLLECTION SEWERS - GRAVITY MAINS	322,258	HWW-144	24.92	8,029,623	1.00	8,029,623
361.22	361.22	COLLECTION SEWERS - GRAVITY MAINS - RELINING	742,945	HWW-144	1.11	822,723	1.00	822,723
361.23	361.23	COLLECTION SEWERS - GRAVITY - MANHOLES	42,549	HWW-145	14.72	626,210	1.00	626,210
363.20	363.20	SERVICE TO CUSTOMERS	32,180	HWW-139	40.96	1,318,126	1.00	1,318,126
364.30	364.30	FLOW MEASURING DEVICES - PUMPING	7,997	HWW-140	1.21	9,684	1.00	9,684
364.40	364.40	FLOW MEASURING DEVICES - WWTP	9,930	HWW-140	1.21	12,025	1.00	12,025
371.40	371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	175,929	HWW-19	1.81	317,647	1.00	317,647
380.40	380.40	TREATMENT AND DISPOSAL EQUIPMENT	5,351,760	HWW-117	3.18	17,039,720	1.00	17,039,720
390.70	390.70	EQUIPMENT - GENERAL PLANT	7,325	AUST-115	0.98	7,171	1.00	7,171
396.70	396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	5,275	USBLS2	0.98	5,164	1.00	5,164
Grand Total	Grand Total		7,666,492		5.33	40,821,536	1.00	40,821,536

# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-110-2019 Created 5-20-2020

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**December 10, 2019**

Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies

(1)	(2)	(3)				(3e)
Account Number	Description	Costing Parameters				Reproduction to Replacement Cost Factor
		Index Series	Table	Line Reference	Lookup	AUS Input
353.20	Land & Land Rights - Collection	USBLS	PPI	1.00	USBLS1	1.00
353.30	Land & Land Rights - Pumping	USBLS	PPI	1.00	USBLS1	1.00
353.40	Land & Land Rights - Treatment	USBLS	PPI	1.00	USBLS1	1.00
354.30	Structures & Improvements - Pumping	HW	W-1	8.00	HWW-18	1.00
354.40	Structures & Improvements - Treatment	HW	W-1	15.00	HWW-115	1.00
355.30	Generating Equipment - Pumping	USBLS	PPI	4.00	USBLS4	1.00
355.40	Generating Equipment - Treatment	USBLS	PPI	4.00	USBLS4	1.00
360.20	Collection Sewers - Force - Mains	HW	W-1	44.00	HWW-144	1.00
361.21	Collection Sewers - Gravity - Mains	HW	W-1	44.00	HWW-144	1.00
361.22	Collection Sewers - Gravity - Mains Relining	HW	W-1	44.00	HWW-144	1.00
361.23	Collection Sewers - Gravity - Manholes	HW	W-1	45.00	HWW-145	1.00
363.20	Service Laterals	HW	W-1	39.00	HWW-139	1.00
364.30	Flow Measuring Devices - Pumping	HW	W-1	40.00	HWW-140	1.00
364.40	Flow Measuring Devices - WWTP	HW	W-1	40.00	HWW-140	1.00
371.40	Pumping Equipment - Treatment	HW	W-1	9.00	HWW-19	1.00
380.40	Treatment and Disposal Equipment	HW	W-1	17.00	HWW-117	1.00
390.70	Office Furniture and Equipment	AUS	T-1	15.00	AUST-115	1.00
391.00	Transportation Equipment	AUS	T-1	4.00	AUST-14	1.00
392.00	Stores Equipment	AUS	T-1	7.00	AUST-17	1.00
393.00	Tools, Shop, & Garage Equipment	AUS	T-1	7.00	AUST-17	1.00
394.00	Laboratory Equipment	AUS	T-1	7.00	AUST-17	1.00
395.00	Power Operated Equipment	AUS	T-1	8.00	AUST-18	1.00
396.00	Communications Equipment	USBLS	PPI	2.00	USBLS2	1.00
396.70	Communications Equipment	USBLS	PPI	2.00	USBLS2	1.00
397.00	Miscellaneous Equipment	AUS	T-1	8.00	AUST-18	1.00

# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Replacement Cost New less Depreciation (RCNLD)**

(18)	(19)	(21)	(22)	(23)	(24)	(28)	(29)	(30)	(31)
Account	Description	Age at December 10, 2019 Appraisal Date	Replacement Cost New (COR)	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (COR less Normal Depreciation)
Input	Input	years	COR \$	Input	years	years	years	% of COR	CORLD \$
Eng Assmnt		Calculation	Calculation	Input	Input	Calculation	Calculation	Calculation	Calculation
Account	Description	Age	RCN	lowa	NL	Rem Life	Total Life	Condition	CORLD
			Col (16)	AUS Input	AUS Input	AUS Input	Col (21) + (28)	Col (28) / (29)	Col (22) * (30)
353.20	LAND AND LAND RIGHTS - COLLECTION	67.89	141	ZNonDep	-	-	-	-	141
353.30	LAND AND LAND RIGHTS - PUMPING	19.50	59	ZNonDep	-	-	-	-	59
353.40	LAND AND LAND RIGHTS - TREATMENT	84.50	55,287	ZNonDep	-	-	-	-	55,287
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	51.93	1,125,292	R4.0	45.00	13.09	65.02	0.29	323,362
354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	83.42	10,324,774	R4.0	55.00	8.67	92.10	0.16	1,627,280
355.30	POWER GENERATION - PUMPING	16.55	94,209	R3.0	35.00	19.77	36.32	0.55	51,463
355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	11.50	372,215	R3.0	35.00	24.00	35.50	0.68	251,638
360.20	COLLECTION SEWERS - FORCE MAINS	80.11	661,466	R3.0	75.00	13.42	93.53	0.17	114,219
361.21	COLLECTION SEWERS - GRAVITY MAINS	71.88	8,029,623	R2.5	76.99	23.20	95.08	0.28	2,280,870
361.22	COLLECTION SEWERS - GRAVITY MAINS - RELINING	5.52	822,723	R2.5	60.00	54.79	60.30	0.91	747,466
361.23	COLLECTION SEWERS - GRAVITY - MANHOLES	80.55	626,210	R2.5	80.00	19.64	100.19	0.20	125,978
363.20	SERVICE TO CUSTOMERS	83.02	1,318,126	R3.0	45.00	6.91	89.94	0.15	201,771
364.30	FLOW MEASURING DEVICES - PUMPING	8.50	9,684	S2.0	30.00	21.72	30.22	0.72	6,960
364.40	FLOW MEASURING DEVICES - WWTP	8.50	12,025	S2.0	30.00	21.72	30.22	0.72	8,643
371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	8.85	317,647	R3.0	35.00	26.57	35.42	0.75	238,419
380.40	TREATMENT AND DISPOSAL EQUIPMENT	40.86	17,039,720	R2.0	45.00	20.05	60.91	0.43	7,334,772
390.70	EQUIPMENT - GENERAL PLANT	4.50	7,171	R3.0	12.00	7.69	12.19	0.63	4,524
396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	4.50	5,164	R3.0	12.00	7.69	12.19	0.63	3,258
Grand									
Total	Grand Total	59.38	40,821,536		54.88	17.82	77.09	0.33	13,376,109

Pennoni Associates, Inc.'s Royersford Engineers Assessment

Cost Approach for Report

# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-110-2019 Created 5-20-2020

**Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 December 10, 2019**

Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies

(1) Account Number	(2) Description	(4)		(5)	(6)	(6b) Life
		(4a) Iowa Survivor / Retirement Curve	(4b) Normal Service Life years	Economic Obsolescence % of CORLD	(6a) Tax Depreciation Table	
353.20	Land & Land Rights - Collection	ZNonDep	0.00	0.00%	Non-Depr	0.00
353.30	Land & Land Rights - Pumping	ZNonDep	0.00	0.00%	Non-Depr	0.00
353.40	Land & Land Rights - Treatment	ZNonDep	0.00	0.00%	Non-Depr	0.00
354.30	Structures & Improvements - Pumping	R4.0	45.00	0.00%	MACRS	25.00
354.40	Structures & Improvements - Treatment	R4.0	55.00	0.00%	MACRS	25.00
355.30	Generating Equipment - Pumping	R3.0	35.00	0.00%	MACRS	25.00
355.40	Generating Equipment - Treatment	R3.0	35.00	0.00%	MACRS	25.00
360.20	Collection Sewers - Force - Mains	R3.0	75.00	0.00%	MACRS	25.00
361.21	Collection Sewers - Gravity - Mains	R2.5	80.00	0.00%	MACRS	25.00
361.22	Collection Sewers - Gravity - Mains Relining	R2.5	60.00	0.00%	MACRS	25.00
361.23	Collection Sewers - Gravity - Manholes	R2.5	80.00	0.00%	MACRS	25.00
363.20	Service Laterals	R3.0	45.00	0.00%	MACRS	25.00
364.30	Flow Measuring Devices - Pumping	S2.0	30.00	0.00%	MACRS	25.00
364.40	Flow Measuring Devices - WWTP	S2.0	30.00	0.00%	MACRS	25.00
371.40	Pumping Equipment - Treatment	R3.0	35.00	0.00%	MACRS	25.00
380.40	Treatment and Disposal Equipment	R2.0	45.00	0.00%	MACRS	25.00
390.70	Office Furniture and Equipment	R3.0	12.00	0.00%	MACRS	12.00
391.00	Transportation Equipment	R3.0	10.00	0.00%	MACRS	10.00
392.00	Stores Equipment	R3.0	35.00	0.00%	MACRS	25.00
393.00	Tools, Shop, & Garage Equipment	R3.0	35.00	0.00%	MACRS	25.00
394.00	Laboratory Equipment	R3.0	20.00	0.00%	MACRS	20.00
395.00	Power Operated Equipment	R3.0	15.00	0.00%	MACRS	15.00
396.00	Communications Equipment	R3.0	12.00	0.00%	MACRS	12.00
396.70	Communications Equipment	R3.0	12.00	0.00%	MACRS	12.00
397.00	Miscellaneous Equipment	R3.0	20.00	0.00%	MACRS	20.00

# APPENDIX A-5.1 (AUS)

## Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies

Account	Iowa Curve		Service Life		Remaining Life		(1)	(2)	(4a)	(4b)	(5)	(6)	(6b)
	12/31/2016	12/31/2019	12/31/2016	12/31/2019	12/31/2016	12/31/2019							
Account Description	Account Number	Description	Survivor / Retirement Curve	Normal Service Life years	Economic Obsolescence % of CORLD	Tax Depreciation Table	Life						
354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION	R3	R3	45	39.1	33.3	33.3	33.3						
354.30 STRUCTURES AND IMPROVEMENTS - SPP	R2.5	S0	50	45.2	32.6	32.6	32.6						
354.40 STRUCTURES AND IMPROVEMENTS - TOP	R2	S0	65	56.6	31.7	31.7	31.7						
354.70 STRUCTURES AND IMPROVEMENTS - GENERAL	S1	S1	35	33.3	23.2	23.2	23.2						
355.00 POWER GENERATION EQUIPMENT	R2.5	S0.5	35	29.7	19.3	19.3	19.3						
360.10 COLLECTION SEWERS - FORCE MAINS	S2	R3	70	53.1	52.5	52.5	52.5						
361.10 COLLECTION SEWERS - GRAVITY MAINS	R2.5	R2.5	70	56.9	54.8	54.8	54.8						
361.20 MANHOLES	S1.5	S2.5	50	41.3	32.2	32.2	32.2						
363.00 SERVICES	R3	R3	38	22.9	30.2	30.2	30.2						
364.00 FLOW MEASURING DEVICES	L3	L2.5	20	13.3	5.1	5.1	5.1						
365.00 FLOW MEASURING INSTALLATIONS	S1.5	S2	30	23.1	10.8	10.8	10.8						
370.00 RECEIVING WELLS	R3	R3	50	42.7	33.7	33.7	33.7						
371.00 PUMPING EQUIPMENT	S0	S0.5	40	36.5	18.2	18.2	18.2						
380.00 TREATMENT EQUIPMENT	S-R2	S1.5	45	37.1	20.1	20.1	20.1						
381.00 PLANT SEWERS	R3	R3	50	43.1	32.7	32.7	32.7						
382.00 OUTFALL SEWER LINES	R3	R3	50	37.8	28.3	28.3	28.3						
389.10 OTHER PLANT AND MISCELLANEOUS EQUIPMENT - INTANGIBLES	S2.5	S2.5	20	13.6	11.3	11.3	11.3						
389.60 OTHER PLANT AND MISCELLANEOUS EQUIPMENT - CPS	SQ	SQ	20	12.3	3.5	3.5	3.5						
390.00 OFFICE FURNITURE AND EQUIPMENT	L4	SQ	15	9.5	10.1	10.1	10.1						
391.00 TRANSPORTATION EQUIPMENT	SQ	L4	25	19.9	9.8	9.8	9.8						
392.00 STORES EQUIPMENT	SQ	SQ	20	16.4	17.2	17.2	17.2						
393.00 TOOLS, SHOP AND GARAGE EQUIPMENT	SQ	SQ	15	11.3	15.4	15.4	15.4						
394.00 LABORATORY EQUIPMENT	L2.5	SQ	16	8.7	10.4	10.4	10.4						
395.00 POWER OPERATED EQUIPMENT	SQ	R2	15	22	13.2	13.2	13.2						
396.00 COMMUNICATION EQUIPMENT	SQ	SQ	15	9.6	6.9	6.9	6.9						
397.00 MISCELLANEOUS EQUIPMENT	SQ	SQ	15	12.8	12.8	12.8	12.8						
398.00 OTHER TANGIBLE PLANT	SQ	SQ	25	21.5	21.5	21.5	21.5						
TOTAL DEPRECIABLE PLANT													
NONDEPRECIABLE PLANT													
352.10 FRANCHISES													
353.20 LAND AND LAND RIGHTS - COLLECTION													

## Summary of PAWC Depreciation Studies Prepared for Rate Case

Account	Iowa Curve		Service Life		Remaining Life		(1)	(2)	(4a)	(4b)	(5)	(6)	(6b)
	12/31/2016	12/31/2019	12/31/2016	12/31/2019	12/31/2016	12/31/2019							
Account Description	Account Number	Description	Survivor / Retirement Curve	Normal Service Life years	Economic Obsolescence % of CORLD	Tax Depreciation Table	Life						
354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION	R3	R3	45	39.1	33.3	33.3	33.3						
354.30 STRUCTURES AND IMPROVEMENTS - SPP	R2.5	S0	50	45.2	32.6	32.6	32.6						
354.40 STRUCTURES AND IMPROVEMENTS - TOP	R2	S0	65	56.6	31.7	31.7	31.7						
354.70 STRUCTURES AND IMPROVEMENTS - GENERAL	S1	S1	35	33.3	23.2	23.2	23.2						
355.00 POWER GENERATION EQUIPMENT	R2.5	S0.5	35	29.7	19.3	19.3	19.3						
360.10 COLLECTION SEWERS - FORCE MAINS	S2	R3	70	53.1	52.5	52.5	52.5						
361.10 COLLECTION SEWERS - GRAVITY MAINS	R2.5	R2.5	70	56.9	54.8	54.8	54.8						
361.20 MANHOLES	S1.5	S2.5	50	41.3	32.2	32.2	32.2						
363.00 SERVICES	R3	R3	38	22.9	30.2	30.2	30.2						
364.00 FLOW MEASURING DEVICES	L3	L2.5	20	13.3	5.1	5.1	5.1						
365.00 FLOW MEASURING INSTALLATIONS	S1.5	S2	30	23.1	10.8	10.8	10.8						
370.00 RECEIVING WELLS	R3	R3	50	42.7	33.7	33.7	33.7						
371.00 PUMPING EQUIPMENT	S0	S0.5	40	36.5	18.2	18.2	18.2						
380.00 TREATMENT EQUIPMENT	S-R2	S1.5	45	37.1	20.1	20.1	20.1						
381.00 PLANT SEWERS	R3	R3	50	43.1	32.7	32.7	32.7						
382.00 OUTFALL SEWER LINES	R3	R3	50	37.8	28.3	28.3	28.3						
389.10 OTHER PLANT AND MISCELLANEOUS EQUIPMENT - INTANGIBLES	S2.5	S2.5	20	13.6	11.3	11.3	11.3						
389.60 OTHER PLANT AND MISCELLANEOUS EQUIPMENT - CPS	SQ	SQ	20	12.3	3.5	3.5	3.5						
390.00 OFFICE FURNITURE AND EQUIPMENT	L4	SQ	15	9.5	10.1	10.1	10.1						
391.00 TRANSPORTATION EQUIPMENT	SQ	L4	25	19.9	9.8	9.8	9.8						
392.00 STORES EQUIPMENT	SQ	SQ	20	16.4	17.2	17.2	17.2						
393.00 TOOLS, SHOP AND GARAGE EQUIPMENT	SQ	SQ	15	11.3	15.4	15.4	15.4						
394.00 LABORATORY EQUIPMENT	L2.5	SQ	16	8.7	10.4	10.4	10.4						
395.00 POWER OPERATED EQUIPMENT	SQ	R2	15	22	13.2	13.2	13.2						
396.00 COMMUNICATION EQUIPMENT	SQ	SQ	15	9.6	6.9	6.9	6.9						
397.00 MISCELLANEOUS EQUIPMENT	SQ	SQ	15	12.8	12.8	12.8	12.8						
398.00 OTHER TANGIBLE PLANT	SQ	SQ	25	21.5	21.5	21.5	21.5						
TOTAL DEPRECIABLE PLANT													
NONDEPRECIABLE PLANT													
352.10 FRANCHISES													
353.20 LAND AND LAND RIGHTS - COLLECTION													

# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Fair Market Value**

(36)	(37)	(39)	(40)	(41)
Account	Description	Preliminary Cost Approach	Economic Obsolence	Fair Market Value
Input	Input	CORLD \$	% of Preliminary Cost Approach	Appraisal Date Value \$
Eng Assmnt	Eng Assmnt	Calculation	Input AUS Economic Obsolence Analysis	Calculation
Account	Description	Col (31)	(39) * [1.00-Col (40)]	FMV
		Prelim CORLD	EO%	
353.20	LAND AND LAND RIGHTS - COLLECTION	141	0.00%	141
353.30	LAND AND LAND RIGHTS - PUMPING	59	0.00%	59
353.40	LAND AND LAND RIGHTS - TREATMENT	55,287	0.00%	55,287
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	323,362	0.00%	323,362
354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	1,627,280	0.00%	1,627,280
355.30	POWER GENERATION - PUMPING	51,463	0.00%	51,463
355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	251,638	0.00%	251,638
360.20	COLLECTION SEWERS - FORCE MAINS	114,219	0.00%	114,219
361.21	COLLECTION SEWERS -GRAVITY MAINS	2,280,870	0.00%	2,280,870
361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING	747,466	0.00%	747,466
361.23	COLLECTION SEWERS -GRAVITY - MANHOLES	125,978	0.00%	125,978
363.20	SERVICE TO CUSTOMERS	201,771	0.00%	201,771
364.30	FLOW MEASURING DEVICES - PUMPING	6,960	0.00%	6,960
364.40	FLOW MEASURING DEVICES - WWTP	8,643	0.00%	8,643
371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	238,419	0.00%	238,419
380.40	TREATMENT AND DISPOSAL EQUIPMENT	7,334,772	0.00%	7,334,772
390.70	EQUIPMENT - GENERAL PLANT	4,524	0.00%	4,524
396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	3,258	0.00%	3,258
Grand				
Total	Grand Total	13,376,109	0.00%	13,376,109

Cost Approach for Report

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Determination of the Depreciated Original Cost**

(43)	(44)	(46)	(47)	(48)	(49)	(53)	(54)	(55)	(56)	(57)
Account	Description	Original Costs	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age at December 10, 2019 Appraisal Date	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost
Input	Input	Input	Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
AUS Input	Eng Assmnt	Eng Assmnt	AUS Input	AUS Input	age	Rem Life	Col (46) + (63)	Col (53) / (54)	Col (46) * (65)	Col (46) - (56)
Acct	Descrip	Original Cost	lowa	Normal Life		Rem Life	Total Life	Theo%	Theo Reserve	Net Book
353.20	LAND AND LAND RIGHTS - COLLECTION	13	ZNonDep	-	64.04	-	-	-	-	13
353.30	LAND AND LAND RIGHTS - PUMPING	39	ZNonDep	-	19.50	-	-	-	-	39
353.40	LAND AND LAND RIGHTS - TREATMENT	3,000	ZNonDep	-	84.50	-	-	-	-	3,000
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	249,437	R4.0	45.00	27.37	21.92	49.29	0.52	129,528	119,909
354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	313,245	R4.0	55.00	66.58	15.77	82.34	0.71	223,886	89,359
355.30	POWER GENERATION - PUMPING	67,239	R3.0	35.00	15.68	20.55	36.23	0.43	28,947	38,292
355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	303,849	R3.0	35.00	11.50	24.00	35.50	0.32	98,429	205,420
360.20	COLLECTION SEWERS - FORCE MAINS	31,522	R3.0	75.00	75.06	15.91	90.97	0.80	25,258	6,264
361.21	COLLECTION SEWERS -GRAVITY MAINS	322,258	R2.5	77.40	67.19	26.60	93.78	0.68	217,960	104,298
361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING	742,945	R2.5	60.00	5.51	54.79	60.30	0.09	67,902	675,043
361.23	COLLECTION SEWERS -GRAVITY - MANHOLES	42,549	R2.5	80.00	60.45	33.01	93.47	0.62	26,533	16,016
363.20	SERVICE TO CUSTOMERS	32,180	R3.0	45.00	69.08	10.91	79.99	0.76	24,532	7,648
364.30	FLOW MEASURING DEVICES - PUMPING	7,997	S2.0	30.00	8.50	21.72	30.22	0.28	2,249	5,748
364.40	FLOW MEASURING DEVICES - WWTP	9,930	S2.0	30.00	8.50	21.72	30.22	0.28	2,793	7,137
371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	175,929	R3.0	35.00	8.19	27.20	35.39	0.23	40,627	135,302
380.40	TREATMENT AND DISPOSAL EQUIPMENT	5,351,760	R2.0	45.00	16.04	32.64	48.67	0.30	1,599,637	3,752,123
390.70	EQUIPMENT - GENERAL PLANT	7,325	R3.0	12.00	4.50	7.69	12.19	0.37	2,704	4,621
396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	5,275	R3.0	12.00	4.50	7.69	12.19	0.37	1,947	3,328
Grand										
Total	Grand Total	7,666,492		47.72	19.94	32.68	52.59	0.33	2,492,933	5,173,559



**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Income Approach**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail:**

# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Potential Purchaser: Investor-Owned Utility  
As of December 10, 2019  
Discounted Cash Flow Analysis

Discount Rate: Capitalization Rate: 7.96% 6.03%	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Period	Age	Revenues	O&M Expenses	Tax Depreciation	Cash Flow from Operations	Taxable Income before State & Federal Taxes	State and Federal Taxes @ 28.89%	Capital Expenditures	Change in Working Capital	Net Cash Flows	Period Present Worth Factor (PW)	PW of Cashflow	Accumulated PW of Cashflows	
					(3)-(4)	(6)-(5)	(7) * 28.89%			(3)-(4)+(6)-(9)-(10)	(11)^(12)	(11)^(12)	Sum (13)	
1	0.5	1,132,000	717,929	746,706	404,071	(842,635)	(198,987)	214,549	14,688	273,821	0.982	263,416	263,416	
2	1.5	1,144,440	733,088	750,382	411,352	(845,030)	(199,679)	217,769	1,212	292,050	0.891	250,217	513,633	
3	2.5	1,156,880	748,695	766,393	418,647	(847,425)	(200,370)	221,095	17,308	492,356	0.806	406,686	930,319	
4	3.5	1,169,320	764,752	776,748	425,932	(849,820)	(201,061)	224,430	1,583	517,166	0.765	395,632	1,325,951	
5	4.5	1,181,760	781,281	787,455	433,217	(852,215)	(201,752)	227,716	1,613	536,960	0.708	372,663	1,698,614	
6	5.5	1,194,200	798,285	798,522	440,502	(854,610)	(202,443)	231,002	23,045	556,764	0.656	522,224	2,220,838	
7	6.5	1,206,640	815,771	810,384	447,787	(857,005)	(203,134)	234,288	2,106	576,568	0.608	584,261	2,805,099	
8	7.5	1,219,080	832,772	820,542	455,072	(859,400)	(203,825)	237,573	2,149	596,362	0.563	549,637	3,354,736	
9	8.5	1,231,520	849,690	830,797	462,357	(861,795)	(204,516)	240,858	2,199	618,166	0.522	684,793	4,039,529	
10	9.5	1,243,960	867,442	841,052	469,642	(864,190)	(205,207)	244,143	2,249	639,960	0.484	657,024	4,696,553	
11	10.5	1,256,400	885,735	849,307	476,927	(866,585)	(205,898)	247,428	2,299	661,154	0.447	618,336	5,314,889	
12	11.5	1,268,840	904,577	857,062	484,212	(868,980)	(206,589)	250,713	2,349	685,343	0.414	625,787	5,940,676	
13	12.5	1,281,280	923,990	864,817	491,497	(871,375)	(207,280)	254,002	2,399	709,550	0.384	591,780	6,532,456	
14	13.5	1,293,720	944,399	872,572	498,782	(873,770)	(207,971)	257,287	2,449	733,757	0.356	538,022	7,090,478	
15	14.5	1,306,160	965,398	880,327	506,067	(876,165)	(208,662)	260,572	2,499	757,742	0.329	563,298	7,653,776	
16	15.5	1,318,600	986,775	887,582	513,352	(878,560)	(209,353)	263,857	2,549	781,729	0.305	484,419	8,118,195	
17	16.5	1,331,040	1,008,660	894,837	520,637	(880,955)	(210,044)	267,142	2,599	805,714	0.283	488,572	8,557,167	
18	17.5	1,343,480	1,032,494	902,092	527,922	(883,350)	(210,735)	270,427	2,649	829,695	0.262	448,675	9,005,842	
19	18.5	1,355,920	1,057,610	909,347	535,207	(885,745)	(211,426)	273,712	2,699	851,676	0.242	424,817	9,430,659	
20 and beyond	19.5	3,774,477	1,081,780	447,291	2,692,697	2,245,405	648,698	251,738	3,997	1,788,264	2.827	5,055,422	14,486,081	
Age				19.5				3,366,230						
PW(Age) = 1/(1+Discount Rate) <sup>Age</sup>														
PW to Perpetuity = 1/Capitalization Rate														
PW <sub>(closed interval)</sub> = PW to Perpetuity * PW Factor <sub>(19.5)</sub>														
0.0422 Input														
Net Plant ADIT 11,818,696														
Rate Base Annual Plant Construction Inflation Rate 2,107,067														
Plant Inflation over 19.5 years 0.225														
PP 13,000,000														
OCLD 5,173,559														
PP/OCLD 2,513														
RCNLD 13,976,109														
RCNLD/PP 1,028931465														
Average 9,635,678.16														
0.225 2,168,028														
11,537,726 14,246,806 12,967,325														

Deferred Tax

APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA.American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

Pennsylvania American Water Company
Royersford Borough
Wastewater Collection and Treatment System
Potential Purchaser: Investor-Owned Utility
As of December 10, 2019
Discounted Cash Flow Analysis

Discount Rate: 7.96%
Capitalization Rate: 6.03%

Table with 14 columns: (1) Period, (2) Age, (3) Revenues, (4) O&M Expenses, (5) Tax Depreciation, (6) Cash Flow from Operations, (7) Taxable Income before State & Federal Taxes, (8) State and Federal Taxes @ 28.88%, (9) Capital Expenditures, (10) Changes in Working Capital, (11) Net Cash Flows, (12) Period Plant Worth Factor (PW), (13) PW of Cashflow, (14) Accumulated PW of Cashflows. Includes rows for ages 20 to 60 and a total sum row.

Age 59.5
PW(Age) = 1/(1-Discount Rate)^Age
PW to Perpetuity = 1/Capitalization Rate
PW (to end beyond) = PW to Perpetuity \* PW Factor^(1/1.5)

0.0422 Input

Net Plant ADIT (2,185,663)
Rate Base 7,396,083
Plant Construction Inflation Rate
Plant Inflation over 59.5 years 865,54,790 0.010
PP 15,000,000
RCLND 13,376,009
RCLND/PP 1,028931465
7,610,062.26 0.010
76,101 17,510,477
18,098,965

# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-11-2019 Created 5-20-2020

## Water and Wastewater Cost of Capital First Quarter 2020 (1-1-2020)

### As an Investor-Owned Utility

#### Weighted Cost of Capital (Discount Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3)*(4a)
Debt	26%	Market	3.23%	Market	28.89%	71.11%	0.60%
Equity	74%	Market	9.95%	Market	0.0%	100.0%	7.36%
<b>Total Capital r</b>	<b>100.0%</b>						<b>7.96%</b>
Growth (g)							<b>1.82%</b>
<b>Rate without Growth: <math>[(1+r)/(1+g)]-1</math></b>							<b>6.03%</b>

#### Weighted Cost of Capital (Capitlization Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	Market Capital Cost (2)*(3)
Debt	26%	Market	3.23%	Market	Not Applicable	Not Applicable	0.84%
Equity	74%	Market	9.95%	Market	Not Applicable	Not Applicable	7.36%
<b>Total Capital r</b>	<b>100.0%</b>						<b>8.20%</b>
Growth (g)							<b>1.82%</b>
<b>Rate without Growth: <math>[(1+r)/(1+g)]-1</math></b>							<b>6.26%</b>

#### Weighted Cost of Capital (Rate of Return on Rate Base)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	Required Return on Rate Base (2)*(3)
Debt	45%	Embedded	3.23%	Embedded	Not Applicable	Not Applicable	1.45%
Equity	55%	Embedded	9.95%	Market	Not Applicable	Not Applicable	5.47%
<b>Total Capital r</b>	<b>100.0%</b>						<b>6.92%</b>
Growth (g)						Not Applicable	<b>0.00%</b>
<b>Rate without Growth: <math>[(1+r)/(1+g)]-1</math></b>							<b>6.92%</b>

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Market Approach**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

**Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Investor-Owned Utility  
As of December 10, 2019**

**Market Approach Summary**

Comparable Sales	OCLD / RCNLD	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Replacement Cost New less Depreciation (RCNLD)				
Measures of Central Tendency (PP/RCNLD)				
Mean		Simple Mean	Purchase Price Weighted Mean	
Standard Deviation		0.8220	0.931393289	
Median		0.1944	0.11	
Mode		0.9065	0.9639	
PP/RCNLD (Average)	13,376,109.04	0.9919	0.9919	12,873,137
			Average	
Original Cost less Depreciation (OCLD)				
Measures of Central Tendency (PP/OCLD)				
Mean		Simple Mean	Purchase Price Weighted Mean	
Standard Deviation		1.8306	1.8396	
Median		0.6246	0.1781	
Mode		1.5745	1.5888	
PP/OCLD (Average)	5,173,559.13	1.5601	1.5601	8,602,767
		1.7026	1.6628	
			Average	
Financial Markets				
Market to Book (equity)		Market Value per Share to Book Value per Share		
Market to Book (equity and debt)		3.40		
Use (equity and debt)		2.11		
		2.11	Input	
Market Conclusion				
Royersford Borough AUS Depreciated Original Cost		Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)		
		5,173,559.13	2.11	10,916,210
<b>Market Approach Summary</b>				Indicated Valus \$s
Minimum				8,602,767
Mean				10,797,371
Median				10,916,210
Maximum				12,873,137
<b>Use (RCNLD)</b>				<b>12,873,137</b>

# APPENDIX A-5.1 (AUS)

\\aus-dc1\shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019

Comparable Sites Approach

Market Sales Basis

Description	System Description	System Type of System	System Attributes	Purchase Price	Proportion of Purchase Price to Total	Proportion of Purchase Price to Outlier Adjusted Total	Acquirer	Date	Customers	Original Cost	Depreciated Original Cost (AUS Consultants) OCLD	Purchase Price to OCLD	Variance to Simple Mean	Variance to Wtd Mean	Replacement Cost New less Depreciation (RCNLD)	Purchase Price to RCNLD	Variance to Simple Mean	Variance to Wtd Mean	Variance Squared	Customers	Simple Average / Standard Deviation	Weighted Average	Use	
	New Garden Wastewater System	Wastewater Collection & Treatment		29,500,000	6%		Aqua-PA	Aug-16	2,100	18,567,728	1,5888	-0.2418	-0.2508		30,615,410	0.9636	0.1416	0.00206711	0.0039661062	2,100				
	McKeesport Wastewater System	Wastewater Collection & Treatment		159,000,000	32%		PA American	Sep-16	101,915,080	1,5601	-0.2705	-0.2785			160,307,491	0.9919	0.1689	0.060506711	0.0036661062	20,320				
	Limerick Wastewater System	Wastewater Collection & Treatment		75,100,000	15%		Aqua-PA		46,153,867	1,6272	-0.2034	-0.2124			86,086,756	0.8724	0.0504	0.032206711	0.0034802062	5,434				
	Mahoning Wastewater System	Water Treatment & Distribution		4,734,800	1%		SUEZ PA		8,899,336	0.532	-0.29	-0.399393289	0.159514999		7,991,234	0.5963	-0.2257	0.112287512	0.152127274	1,248				
	Mahoning Wastewater System	Wastewater Collection & Treatment		4,765,200	1%		SUEZ PA		7,991,234	0.5963	-0.2257	-0.399393289	0.159514999		8,899,336	0.5963	-0.2257	0.112287512	0.152127274	1,248				
	East Bradford Wastewater System	Wastewater Collection Only		5,000,000	1%		Aqua-PA	20-Dec-17	5,383,591	0.9287	-0.9019	-0.9109			9,236,581	0.5413	-0.2807	0.154606711	0.023903235	984				
	Stodbury Wastewater System	Wastewater Collection Only		9,250,000	2%		PA American		6,128,876	1,5092	-0.3214	-0.3304			8,517,587	1,086	0.264	0.023903235	0.023903235	984				
	Exeter Wastewater System	Wastewater Collection & Treatment		96,000,000	19%		PA American	29-May-18	40,057,634	2,3965	0.5659	0.5669			99,589,819	0.964	0.142	0.032606711	0.001063198					
	Seelton Water Treatment & Distribution	Water Treatment & Distribution		22,500,000	5%		PA American	14-Nov-18	14,433,435	1,5589	-0.2717	-0.2807			23,921,473	0.9406	0.1186	0.009206711	8.47635E-05					
	Cheltenham Wastewater System	Wastewater Collection Only		50,250,000	10%		Aqua-PA	Jun-18	15,784,463	3,1835	1,3529	1,3439			49,940,886	1,0662	0.1842	0.074806711	0.005596044					
	East Norriton Wastewater System	Wastewater Collection Only		21,000,000	4%		Aqua-PA	Oct-18	8,407,007	2,4979	0.6673	0.6583			27,461,356	0.7647	-0.0573	-0.166693289	0.027786653					
	Kane Wastewater Treatment	Wastewater Collection & Treatment		17,560,000	4%		PA American	Sep-19	12,070,455	1,4548	-0.3758	-0.3848			29,015,055	0.6052	-0.2168	-0.326193289	0.106402062					
				494,660,000	100%																			
																					268,902,136	1.8306	1.8396	1.8396
																					0.6246	0.1781	1.5745	1.5888
																					1.5745	1.5888	1.5888	1.5888
																					1.5601	1.5601	1.5601	1.5601
																					0.8220	0.931393289	0.931393	0.931393
																					0.1944	0.1100	0.1100	0.1100
																					0.9065	0.9639	0.9639	0.9639
																					0.9919	0.9919	0.9919	0.9919
																					0.931393289	0.931393289	0.931393289	0.931393289
																					0.223045172	0.223045172	0.223045172	0.223045172

# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Roversford, PA\Roversford Wastewater System Valuation as of 12-11-2019 Created 5-20-2020

Pennsylvania American Water Company  
 Roversford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 December 10, 2019

## Comparable Sales Approach

### Financial Basis<sup>1</sup>

	Industry Averages	American & Aqua		American States		American Water		Aqua America		California Water		Consol. Water Co.		Middlesex		SIW Corp		York	
		Averages	Aqua	Water	Water	American Water	Aqua America	California Water	Consol. Water Co.	Water	Water	SIW Corp	York	Water	Water	SIW Corp	York		
Price per Share	1.5	2.62		87.33	123.05	47.08	51.52	16.46	63.56	71.79	46.38								
Book value per share	3.40	3.1		16.1	34.4	18	15.85	10.95	15.7	31.2	10.4								
Market to Book Equity Ratio	1.18	0.480		5.42	3.58	2.62	3.25	1.5	4.05	2.3	4.46								
Minimum																			
Mean																			
Standard Deviation																			
Weighted Market to Debt Ratio	3.41			20,013.22	112,367.28	34,710.24	11,207.07	371.03	5,481.74	5,874.18	3,135.10								
Median	3,415																		
Maximum	5.42																		
Debt (Total) \$s millions				475.3	9,143.0	3,086.4	967.9	-	294.0	511.1	100.7								
Outstanding Shares (millions)				36.84	180.78	215.84	48.15	15.03	16.67	28.46	12.98								
Debt per share				12.9	50.58	14.3	20.1	0	17.64	17.96	7.76								
Equity (Total) \$s millions				3,217.18	22,244.51	10,161.78	2,480.43	247.35	1,059.52	2,042.89	602.24								
Total Capital (Debt + Equity)				3,692.48	31,387.51	13,248.18	3,448.33	247.35	1,353.52	2,553.99	702.94								
				0.07	0.55	0.23	0.06	-	0.02	0.05	0.01								
Market Value per Share (Equity+Debt)				100.23	173.63	61.38	71.62	16.46	81.2	89.75	54.14								
Book Value per Share (Equity+Debt)				29	84.98	32.3	35.95	10.95	33.34	49.16	18.16								
Market to Book (Total Capital) Ratio				3.46	2.04	1.9	1.99	1.5	2.44	1.83	2.98								
Minimum																			
Mean																			
Standard Deviation																			
Weighted Market to Book (Debt&Equity) Ratio				12,775.97	64,030.52	25,171.55	6,862.18	371.03	3,302.58	4,673.80	2,094.75								
Variance to Wtd Mean				1.35	(0.07)	(0.21)	(0.12)	(0.61)	0.33	(0.28)	0.87								
Median																			
Maximum																			

1. Value Line Investment Survey January 10, 2020  
 2. Value Line dropped Connecticut Water in its January 10, 2020 publication



**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Cost Approach**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Cost Approach**  
**Replacement Cost New**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

# APPENDIX A-5.1 (AUS)

\\aus-dc1\shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Replacement Cost New (RCN)**

(1)	(2)	(3)	(9)	(10)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Original Cost	Costing Parameter	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
Input	Input	Input	OC \$\$	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	Eng Assmnt	Eng Assmnt	AUS Input	Translator	RCN	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Original Cost	Cost Index Table	Translator	RCN	COR / RCN Factor	COR
353.20	353.20	LAND AND LAND RIGHTS - COLLECTION	13	USBSL1	10.87	141	1.00	141
353.30	353.30	LAND AND LAND RIGHTS - PUMPING	39	USBSL1	1.50	59	1.00	59
353.40	353.40	LAND AND LAND RIGHTS - TREATMENT	3,000	USBSL1	18.43	55,287	1.00	55,287
354.30	354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	249,437	HWW-18	4.51	1,125,292	1.00	1,125,292
354.40	354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	313,245	HWW-115	32.96	10,324,774	1.00	10,324,774
355.30	355.30	POWER GENERATION - PUMPING	67,239	USBSL4	1.40	94,209	1.00	94,209
355.40	355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	303,849	USBSL4	1.23	372,215	1.00	372,215
360.20	360.20	COLLECTION SEWERS - FORCE MAINS	31,522	HWW-144	20.98	661,466	1.00	661,466
361.21	361.21	COLLECTION SEWERS - GRAVITY MAINS	322,258	HWW-144	24.92	8,029,623	1.00	8,029,623
361.22	361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING	742,945	HWW-144	1.11	822,723	1.00	822,723
361.23	361.23	COLLECTION SEWERS -GRAVITY - MANHOLES	42,549	HWW-145	14.72	626,210	1.00	626,210
363.20	363.20	SERVICE TO CUSTOMERS	32,180	HWW-139	40.96	1,318,126	1.00	1,318,126
364.30	364.30	FLOW MEASURING DEVICES - PUMPING	7,997	HWW-140	1.21	9,684	1.00	9,684
364.40	364.40	FLOW MEASURING DEVICES - WWTP	9,930	HWW-140	1.21	12,025	1.00	12,025
371.40	371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	175,929	HWW-19	1.81	317,647	1.00	317,647
380.40	380.40	TREATMENT AND DISPOSAL EQUIPMENT	5,351,760	HWW-117	3.18	17,039,720	1.00	17,039,720
390.70	390.70	EQUIPMENT - GENERAL PLANT	7,325	AUST-115	0.98	7,171	1.00	7,171
396.70	396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	5,275	USBSL2	0.98	5,164	1.00	5,164
Grand Total	Total	Grand Total	7,666,492		5.33	40,821,536	1.00	40,821,536

# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

## Replacement Cost New (RCN)

Account	Account	Asset Description	Year Installed	Effective Installation Year	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN)	Replacement Cost New (COR)	Replacement Cost New (COR)
1	2	3	4	5	9	10	11	12	13	14	15	16	16
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input
Eng Assmnt	AUS Input	Asset Description	Eng Assmnt Service Date	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Code(10) & Cost(10) & Study YR	Cost Indices Lookup Code(10) & Cost(10) & Study YR	Cost(12)/(11)	Cost(5)*(13)	AUS Input COR / RCN	AUS Input COR / RCN	Cost(14)*(15)
NARUC Code	NARUC Code	Asset Description	Original Cost	Cost Index Table	Year Index	APP Cost Index	Translator	RCN	COR	COR	COR	COR	COR
		LAND AND LAND RIGHTS - COLLECTION											
353.2	353.2	353.2 Collection system ROW Properties 3,4,5,6,7,8,9,10 and 11	1937	1937	3	USBSL1	14	258	18,429	55	1,000	55	55
353.2	353.2	353.2 Collection system ROW Properties 1 and 2	1961	1961	10	USBSL1	30	258	8,600	86	1,000	86	86
Subtotal 353.2		353.2 LAND AND LAND RIGHTS - COLLECTION			13				10,868	141	1,000	141	141
		LAND AND LAND RIGHTS - PUMPING											
353.3	353.3	353.3 10th Ave. Pump Station (Property 13)	2000	2000	39	USBSL1	172	258	1,500	59	1,000	59	59
Subtotal 353.3		353.3 LAND AND LAND RIGHTS - PUMPING			39				1,500	59	1,000	59	59
		LAND AND LAND RIGHTS - TREATMENT											
353.4	353.4	353.4 Wastewater Treatment Plant	1935	1935	3,000	USBSL1	14	258	18,429	55,287	1,000	55,287	55,287
Subtotal 353.4		353.4 LAND AND LAND RIGHTS - TREATMENT			3,000				18,429	55,287	1,000	55,287	55,287
		STRUCTURES AND IMPROVEMENTS - PUMPING											
354.3	354.3	354.3 10th Avenue PS - Initial Facility	1935	1935	6,542	HWW-18	16	719	44,938	293,984	1,000	293,984	293,984
354.3	354.3	354.3 Green Street Pump Station - Initial Facility	1958	1958	25,335	HWW-18	50	719	14,380	364,317	1,000	364,317	364,317
354.3	354.3	354.3 Green Street PS improvements	1988	1988	1,400	HWW-18	251	719	2,865	401	1,000	401	401
354.3	354.3	354.3 Green Street PS improvements	1989	1989	64,986	HWW-18	265	719	2,713	176,307	1,000	176,307	176,307
354.3	354.3	354.3 Green Street PS improvements	1990	1990	25,978	HWW-18	271	719	2,653	68,920	1,000	68,920	68,920
354.3	354.3	354.3 10th Ave PS - Replaced pumps and grinder	2000	2000	91,694	HWW-18	362	719	1,986	182,104	1,000	182,104	182,104
354.3	354.3	354.3 drainage improvements	2011	2011	6,691	HWW-18	583.5	719	1,232	8,243	1,000	8,243	8,243
354.3	354.3	354.3 drainage improvements	2012	2012	15,071	HWW-18	603.8	719	1,191	17,950	1,000	17,950	17,950
354.3	354.3	354.3 Electrical improvements	2019	2019	13,000	HWW-18	715.5	719	1,005	13,065	1,000	13,065	13,065
Subtotal 354.3		354.3 STRUCTURES AND IMPROVEMENTS - PUMPING			249,437				4,511	1,125,292	1,000	1,125,292	1,125,292
		STRUCTURES AND IMPROVEMENTS TREATMENT PLANT											
354.4	354.4	354.4 Initial facility cost including pumps, building, treatment structures, fencing, property, etc.	1935	1935	225,721	HWW-115	16	719	44,938	10,143,450	1,000	10,143,450	10,143,450
354.4	354.4	354.4 Digester Cover	1993	1993	62,901	HWW-115	294	719	2,445	153,856	1,000	153,856	153,856
354.4	354.4	354.4 Furnace	2014	2014	3,850	HWW-115	630.8	719	1,140	4,389	1,000	4,389	4,389
354.4	354.4	354.4 Storage Building	2015	2015	20,773	HWW-115	647.3	719	1,111	23,079	1,000	23,079	23,079
Subtotal 354.4		354.4 STRUCTURES AND IMPROVEMENTS TREATMENT PLANT			313,245				32,961	10,324,774	1,000	10,324,774	10,324,774
		POWER GENERATION - PUMPING											

# APPENDIX A-5.1 (AUS)

\\aus-dc1\shared\water industry\PA American - Royersford, PA Royersford Wastewater System Valuation as of 12.10.2019

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Replacement Cost New (RCN)**

Account	Account	Asset Description	Year Installed	Effective Installation Year	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (COR)	Replacement Cost New (COR)
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input
Eng Assmt	AUS Input	Eng Assmt	Eng Assmt	Eng Assmt	Eng Assmt	Eng Assmt	Eng Assmt	Eng Assmt	Eng Assmt	Eng Assmt	Eng Assmt	Eng Assmt
NARUC Code	NARUC Code	Asset Description	Service Date	AUS Input	Original Cost	Cost Index Table	Year Index	APPCostIndex	Translator	RCN	COR / RCN \$s	COR
Eng Assmt	AUS Input	Asset Description	Service Date	AUS Input	Original Cost	Cost Index Table	Year Index	APPCostIndex	Translator	RCN	COR / RCN \$s	COR
355.3	355.3	355.3 10th Avenue Pump Station Generator	2000	2000	45,847	USBS4	140.4	217.6	1.550	71,063	1,000	71,063
355.3	355.3	355.3 Green Street Pump Station Generator	2012	2012	21,392	USBS4	201.2	217.6	1.082	23,146	1,000	23,146
355.3	355.3	355.3 POWER GENERATION - PUMPING			67,239				1.401	94,209	1,000	94,209
Subtotal												
355.4	355.4	POWER GENERATION - TREATMENT AND DISPOSAL PLANT										
355.4	355.4	355.4 WWTP Generator	2008	2008	303,849	USBS4	177.7	217.6	1.225	372,215	1,000	372,215
355.4	355.4	355.4 POWER GENERATION - TREATMENT AND DISPOSAL PLANT										
360.20	360.20	COLLECTION SEWERS - FORCE MAINS										
360.20	360.20	360.20 10th Ave. Forcemain	1935	1935	18,665	HWW-144	21.4	616.2	28,794	535,136	1,000	535,136
360.20	360.20	360.20 Green Street Forcemain	1958	1958	12,937	HWW-144	63.1	616.2	9,765	126,330	1,000	126,330
360.2	360.2	360.2 COLLECTION SEWERS - FORCE MAINS							20,984	661,466	1,000	661,466
361.21	361.21	COLLECTION SEWERS - GRAVITY MAINS										
361.21	361.21	361.21 VCP - 8-inch	1935	1935	101,181	HWW-144	21.4	616.2	28,794	2,913,415	1,000	2,913,415
361.22	361.22	361.22 VCP - 8-inch Relined in 2013 Qty 2,003 LF	1935	1935	6,790	HWW-144	21.4	616.2	28,794	195,506	1,000	195,506
361.22	361.22	361.22 VCP - 8-inch Relined in 2014 Qty 1,024 LF	1935	1935	3,472	HWW-144	21.4	616.2	28,794	99,984	1,000	99,984
361.22	361.22	361.22 VCP - 8-inch Relined in 2016 Qty 2,432 LF	1935	1935	8,244	HWW-144	21.4	616.2	28,794	237,392	1,000	237,392
361.21	361.21	361.21 VCP - 10-inch	1935	1935	4,737	HWW-144	21.4	616.2	28,794	136,397	1,000	136,397
361.22	361.22	361.22 VCP - 10-inch relined in 2013 Qty 910 LF	1935	1935	11,449	HWW-144	21.4	616.2	28,794	329,674	1,000	329,674
361.22	361.22	361.22 VCP - 12-inch	1935	1935	2,261	HWW-144	21.4	616.2	28,794	65,092	1,000	65,092
361.22	361.22	361.22 VCP - 12-inch relined in 2015 Qty 335 LF	1935	1935	19,273	HWW-144	21.4	616.2	28,794	554,941	1,000	554,941
361.21	361.21	361.21 VCP - 15-inch	1935	1935	14,187	HWW-144	21.4	616.2	28,794	408,497	1,000	408,497
361.22	361.22	361.22 VCP - 15-inch relined in 2014 Qty 1,642 LF	1935	1935	1,192	HWW-144	21.4	616.2	28,794	34,332	1,000	34,332
361.22	361.22	361.22 VCP - 15-inch relined in 2015 Qty 138 LF	1935	1935	73,210	HWW-144	22.5	616.2	27,387	2,005,002	1,000	2,005,002
361.21	361.21	361.21 CJP - 15-inch	1935	1935	1,084	HWW-144	22.5	616.2	27,387	48,031	1,000	48,031
361.21	361.21	361.21 VCP - 8-inch	1936	1936	8,213	HWW-144	22.5	616.2	27,387	29,663	1,000	29,663
361.21	361.21	361.21 VCP - 10-inch	1936	1936	20,759	HWW-144	22.5	616.2	27,387	224,929	1,000	224,929
361.22	361.22	361.22 VCP - 10-inch relined in 2013 Qty 208 LF	1936	1936	1,136	HWW-144	22.5	616.2	27,387	568,527	1,000	568,527
361.21	361.21	361.21 VCP - 12-inch	1936	1936	1,936	HWW-144	54	616.2	11,411	12,963	1,000	12,963
361.21	361.21	361.21 VCP - 8-inch	1955	1955	3,228	HWW-144	97.5	616.2	20,401	20,401	1,000	20,401
361.21	361.21	361.21 VCP - 8-inch	1972	1972	7,173	HWW-144	264.7	616.2	2,328	16,699	1,000	16,699
361.21	361.21	361.21 PVC - 8-inch	1994	1994	9,984	HWW-144	268.4	616.2	2,296	22,923	1,000	22,923
361.21	361.21	361.21 PVC - 8-inch	1990	1990								

# APPENDIX A-5.1 (AUS)

\\aus-dc1\shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

1	2	3	4	5	9	10	11	12	13	14	15	16
Account	Account	Asset Description	Year Installed	Effective Installation Year	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
Input	Input	Input	Input	Input	OC \$	Input	Input	Input	Calculation	RCN \$	COR \$ / RCN \$	COR \$
Eng Assmt	AUS Input	Eng Assmt	Eng Assmt	AUS Input	Eng Assmt	AUS Input	Cost Indices Lookup Col(10) & Col(11) * (11)	Cost Indices Lookup Col(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input COR / RCN	Col (14) - (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year	Original Cost	Cost Index Table	Year Index	APP Cost Index	Translator	RCN	Factor	COR
361.21	361.21	PVC - 8-inch	1992	1992	15,463	HHWW-144	253.3	616.2	2.433	37,621	1.000	37,621
361.21	361.21	PVC - 8-inch	1995	1995	5,947	HHWW-144	277.5	616.2	2.221	12,320	1.000	12,320
361.21	361.21	COLLECTION SEWERS - GRAVITY MAINS			322,258				24,917	8,029,623	1.000	8,029,623
361.22	361.22	COLLECTION SEWERS - GRAVITY MAINS - RELINING										
361.22	361.22	2012 CIPP Lining	2013	2013	191,498	HHWW-144	551.7	616.2	1.117	213,903	1.000	213,903
361.22	361.22	2013 CIPP Lining	2014	2014	369,468	HHWW-144	556	616.2	1.108	409,371	1.000	409,371
361.22	361.22	2016 CIPP Lining	2015	2015	181,979	HHWW-144	562.2	616.2	1.096	199,449	1.000	199,449
361.22	361.22	COLLECTION SEWERS - GRAVITY MAINS - RELINING			742,945				1.107	822,723	1.000	822,723
361.23	361.23	COLLECTION SEWERS - GRAVITY - MANHOLES										
361.23	361.23	Initial installation	1995	1995	14,993	HHWW-145	23.2	561.9	24.220	363,130	1.000	363,130
361.23	361.23	System expansion	1996	1996	9,046	HHWW-145	23.2	561.9	24.220	219,143	1.000	219,143
361.23	361.23	S. Third Ave	1955	1955	295	HHWW-145	49.6	561.9	11.329	3,342	1.000	3,342
361.23	361.23	8th St. at Church St.	1972	1972	782	HHWW-145	94.6	561.9	5,940	4,646	1.000	4,646
361.23	361.23	S. Fourth Ave	1985	1985	1,870	HHWW-145	248.1	561.9	2,265	4,236	1.000	4,236
361.23	361.23	Elm St.	1980	1980	4,223	HHWW-145	263	561.9	2,137	9,024	1.000	9,024
361.23	361.23	Elementary School	1992	1992	8,897	HHWW-145	276	561.9	2.036	18,114	1.000	18,114
361.23	361.23	8th St. at Church St.	1995	1995	2,441	HHWW-145	289.8	561.9	1.874	4,575	1.000	4,575
361.23	361.23	COLLECTION SEWERS - GRAVITY - MANHOLES			42,549				14,717	626,210	1.000	626,210
363.2	363.2	SERVICE TO CUSTOMERS										
363.2	363.2	VCP - 5-inch	1995	1995	14,754	HHWW-139	13	706	54.308	801,260	1.000	801,260
363.2	363.2	VCP - 5-inch	1996	1996	8,919	HHWW-139	13	706	54.308	484,373	1.000	484,373
363.2	363.2	VCP - 6-inch	1972	1972	3,132	HHWW-139	96	706	7,354	23,033	1.000	23,033
363.2	363.2	VCP - 6-inch	1990	1990	2,075	HHWW-139	262	706	2,695	5,592	1.000	5,592
363.2	363.2	PVC - 6-inch	2013	2013	3,300	HHWW-139	602.3	706	1,172	3,868	1.000	3,868
363.2	363.2	SERVICE TO CUSTOMERS			32,180				40,961	1,318,126	1.000	1,318,126
364.3	364.3	FLOW MEASURING DEVICES - PUMPING										
364.3	364.3	Pump Stations	2011	2011	7,997	HHWW-140	379	459	1.211	9,684	1.000	9,684
364.3	364.3	FLOW MEASURING DEVICES - PUMPING			7,997				1.211	9,684	1.000	9,684
364.4	364.4	FLOW MEASURING DEVICES - WWTP										
364.4	364.4	WWTP	2011	2011	9,930	HHWW-140	379	459	1.211	12,025	1.000	12,025
364.4	364.4	FLOW MEASURING DEVICES - WWTP			9,930				1.211	12,025	1.000	12,025

# APPENDIX A-5.1 (AUS)

\\aus-dc1\shared\water industry\PA.American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

1	2	3	4	5	9	10	11	12	13	14	15	16
Account	Account	Asset Description	Year Installed	Effective Installation Year	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Replacement Cost New (COR)	Replacement Cost New (COR)
Input	Input	Input	Input	Input	OC \$s	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	Eng Assmnt	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Code(10) & Cost Indices Lookup Code(5)	Cost Indices Lookup Code(10) & Cost Indices Lookup Code(5)	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	Year Index	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
<b>Pennsylvania American Water Company</b>												
<b>Royersford Borough</b>												
<b>Wastewater Collection and Treatment System</b>												
<b>Investor-Owned Utility</b>												
<b>As of December 10, 2019</b>												
<b>Replacement Cost New (RCN)</b>												
(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
371.4	371.4	371.4	2005	2005	9,925	HWW-19	611.5	1374	2,247	22,301	1,000	22,301
371.4	371.4	371.4	2010	2010	131,000	HWW-19	704.3	1374	1,951	265,581	1,000	265,581
371.4	371.4	371.4	2018	2018	35,004	HWW-19	1208.8	1374	1,136	39,765	1,000	39,765
Subtotal 371.4					175,929				1,806	317,647	1,000	317,647
<b>PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT</b>												
380.4	380.4	380.4	1951	1951	354,456	HWW-117	43	1012	23,535	8,342,122	1,000	8,342,122
380.4	380.4	380.4	1986	1986	22,410	HWW-117	286	1012	3,538	79,287	1,000	79,287
380.4	380.4	380.4	1987	1987	550	HWW-117	293	1012	3,454	1,900	1,000	1,900
380.4	380.4	380.4	1998	1998	1,462,008	HWW-117	401	1012	2,524	3,690,108	1,000	3,690,108
380.4	380.4	380.4	2006	2006	1,500	HWW-117	523.8	1012	1,932	2,898	1,000	2,898
380.4	380.4	380.4	2007	2007	15,000	HWW-117	564.8	1012	1,792	26,880	1,000	26,880
380.4	380.4	380.4	2010	2010	2,785,371	HWW-117	694.5	1012	1,457	4,058,286	1,000	4,058,286
380.4	380.4	380.4	2010	2010	75,000	HWW-117	694.5	1012	1,457	109,275	1,000	109,275
380.4	380.4	380.4	2010	2010	171,000	HWW-117	694.5	1012	1,457	249,147	1,000	249,147
380.4	380.4	380.4	2011	2011	8,993	HWW-117	717.5	1012	1,410	12,680	1,000	12,680
380.4	380.4	380.4	2014	2014	3,850	HWW-117	814.5	1012	1,242	4,782	1,000	4,782
380.4	380.4	380.4	2015	2015	44,411	HWW-117	843.3	1012	1,200	53,293	1,000	53,293
380.4	380.4	380.4	2016	2016	11,091	HWW-117	867.5	1012	1,167	12,943	1,000	12,943
380.4	380.4	380.4	2020	2020	396,120	HWW-117	1012	1012	1,000	396,120	1,000	396,120
Subtotal 380.4					5,351,760				3,184	17,039,720	1,000	17,039,720
<b>EQUIPMENT - GENERAL PLANT</b>												
390.7	390.7	390.7	2015	2015	7,325	USBSL2	96	94	0.979	7,171	1,000	7,171
390.7	390.7	390.7			7,325				0.979	7,171	1,000	7,171
Subtotal 390.7												

# APPENDIX A-5.1 (AUS)

\\aus-dc1\shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

	1	2	3	4	5	9	10	11	12	13	14	15	16
<b>Pennsylvania American Water Company</b> <b>Royersford Borough</b> <b>Wastewater Collection and Treatment System</b> <b>Investor-Owned Utility</b> <b>As of December 10, 2019</b>													
<b>Replacement Cost New (RCN)</b>													
(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
Account	Account	Asset Description	Year Installed	Effective Installation Year	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (COR)	Replacement Cost New (COR)	Replacement Cost New (COR)
Input	Input	Input	Input	Input	OC \$	Input	Input	Input	Calculation	Calculation	Input	Calculation	Calculation
Eng Assmnt	AUS Input	Eng Assmnt	Eng Assmnt Service Date	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Col (10) & Col (11) & Study YR	Cost Indices Lookup Col (10) & Col (11) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description			Original Cost	Cost Index Table	Year Index	APPCost Index	Translator	RCN	COR / RCN Factor	COR	COR
			2015	2015	5,275	USBLS2	96	94	0.979	5,164	1,000	5,164	5,164
Subtotal	396.7	COMMUNICATION EQUIPMENT - GENERAL PLANT			5,275				5,325	40,821,536.37	1,000	40,821,536.37	40,821,536.37
Grand Total	396.7	396.7 Transmitter			7,666,492.01								
		396.7 COMMUNICATION EQUIPMENT - GENERAL PLANT											
		<b>Grand Total</b>											



# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-110-2019 Created 5-20-2020

**Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Investor-Owned Utility  
December 10, 2019**

Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies

(1)	(2)	(3a)	(3b)	(3)	(3d)	(3e)
Account Number	Description	Costing Parameters		Line Reference	Lookup	Reproduction to Replacement Cost Factor
		Index Series	Table			AUS Input
353.20	Land & Land Rights - Collection	USBLS	PPI	1.00	USBLS1	1.00
353.30	Land & Land Rights - Pumping	USBLS	PPI	1.00	USBLS1	1.00
353.40	Land & Land Rights - Treatment	USBLS	PPI	1.00	USBLS1	1.00
354.30	Structures & Improvements - Pumping	HW	W-1	8.00	HWW-18	1.00
354.40	Structures & Improvements - Treatment	HW	W-1	15.00	HWW-115	1.00
355.30	Generating Equipment - Pumping	USBLS	PPI	4.00	USBLS4	1.00
355.40	Generating Equipment - Treatment	USBLS	PPI	4.00	USBLS4	1.00
360.20	Collection Sewers - Force - Mains	HW	W-1	44.00	HWW-144	1.00
361.21	Collection Sewers - Gravity - Mains	HW	W-1	44.00	HWW-144	1.00
361.22	Collection Sewers - Gravity - Mains Relining	HW	W-1	44.00	HWW-144	1.00
361.23	Collection Sewers - Gravity - Manholes	HW	W-1	45.00	HWW-145	1.00
363.20	Service Laterals	HW	W-1	39.00	HWW-139	1.00
364.30	Flow Measuring Devices - Pumping	HW	W-1	40.00	HWW-140	1.00
364.40	Flow Measuring Devices - WWTP	HW	W-1	40.00	HWW-140	1.00
371.40	Pumping Equipment - Treatment	HW	W-1	9.00	HWW-19	1.00
380.40	Treatment and Disposal Equipment	HW	W-1	17.00	HWW-117	1.00
390.70	Office Furniture and Equipment	AUS	T-1	15.00	AUST-115	1.00
391.00	Transportation Equipment	AUS	T-1	4.00	AUST-14	1.00
392.00	Stores Equipment	AUS	T-1	7.00	AUST-17	1.00
393.00	Tools, Shop, & Garage Equipment	AUS	T-1	7.00	AUST-17	1.00
394.00	Laboratory Equipment	AUS	T-1	7.00	AUST-17	1.00
395.00	Power Operated Equipment	AUS	T-1	8.00	AUST-18	1.00
396.00	Communications Equipment	USBLS	PPI	2.00	USBLS2	1.00
396.70	Communications Equipment	USBLS	PPI	2.00	USBLS2	1.00
397.00	Miscellaneous Equipment	AUS	T-1	8.00	AUST-18	1.00

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Cost Approach**  
**Replacement Cost New less Depreciation**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

# APPENDIX A-5.1 (AUS)

\\aus-dc1\shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Replacement Cost New less Depreciation (RCNLD)**

(18)	(19)	(21)	(22)	(23)	(24)	(28)	(29)	(30)	(31)
Account	Description	Age at December 10, 2019 Appraisal Date	Replacement Cost New (COR)	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (COR less Normal Depreciation)
Input	Input	years	COR \$	Input	years	years	years	% of COR	CORLD \$
Eng Assmnt		Calculation	Calculation	Input	Input	Calculation	Calculation	Calculation	Calculation
Account	Description	Age	RCN	lowa	NL	Rem Life	Total Life	Condition	CORLD
			Col (16)	AUS Input	AUS Input	Calculation	Col (21) * (28)	Col (28) / (29)	Col (22) * (30)
353.20	LAND AND LAND RIGHTS - COLLECTION	67.89	141	ZNonDep	-	-	-	-	141
353.30	LAND AND LAND RIGHTS - PUMPING	19.50	59	ZNonDep	-	-	-	-	59
353.40	LAND AND LAND RIGHTS - TREATMENT	84.50	55,287	ZNonDep	-	-	-	-	55,287
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	51.93	1,125,292	R4.0	45.00	13.09	65.02	0.29	323,362
354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	83.42	10,324,774	R4.0	55.00	8.67	92.10	0.16	1,627,280
355.30	POWER GENERATION - PUMPING	16.55	94,209	R3.0	35.00	19.77	36.32	0.55	51,463
355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	11.50	372,215	R3.0	35.00	24.00	35.50	0.68	251,638
360.20	COLLECTION SEWERS - FORCE MAINS	80.11	661,466	R3.0	75.00	13.42	93.53	0.17	114,219
361.21	COLLECTION SEWERS -GRAVITY MAINS	71.88	8,029,623	R2.5	76.99	23.20	95.08	0.28	2,280,870
361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING	5.52	822,723	R2.5	60.00	54.79	60.30	0.91	747,466
361.23	COLLECTION SEWERS -GRAVITY - MANHOLES	80.55	626,210	R2.5	80.00	19.64	100.19	0.20	125,978
363.20	SERVICE TO CUSTOMERS	83.02	1,318,126	R3.0	45.00	6.91	89.94	0.15	201,771
364.30	FLOW MEASURING DEVICES - PUMPING	8.50	9,684	S2.0	30.00	21.72	30.22	0.72	6,960
364.40	FLOW MEASURING DEVICES - WWTP	8.50	12,025	S2.0	30.00	21.72	30.22	0.72	8,643
371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	8.85	317,647	R3.0	35.00	26.57	35.42	0.75	238,419
380.40	TREATMENT AND DISPOSAL EQUIPMENT	40.86	17,039,720	R2.0	45.00	20.05	60.91	0.43	7,334,772
390.70	EQUIPMENT - GENERAL PLANT	4.50	7,171	R3.0	12.00	7.69	12.19	0.63	4,524
396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	4.50	5,164	R3.0	12.00	7.69	12.19	0.63	3,258
Grand									
Total	Grand Total	59.38	40,821,536		54.88	17.82	77.09	0.33	13,376,109







# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

Account	Description	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
Account	Description	Age at December 10, 2019	Retirement Type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Present New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (COR less Normal Depreciation)	COR Weighted Age	COR Weighted Normal Remaining Life	COR Weighted Total Life Expectancy	COR Weighted Normal Service Life (NSL)				
Account	Description	years	Input	years	Calculation	Lookup	%	years	years	% of COR	COR * \$	COR * Years	COR * Years	COR * Years	COR * Years				
Account	Description	2020-[0]+[0]	AUS input	AUS input	Col (21) / (24)	Col (23) & (25)	lowaCondition	Col (24) * (27)	Col (21) * (28)	Col (28) / (29)	Col (27) * (30)	Col (22) * (21)	Col (22) * (26)	Col (22) * (29)	Col (22) * (24)				
Account	Description	Age	lowa	NL	AgeP	lowaLookup	lowaCondition	RemLife	Total Life	Condition	COR * NL	COR * Age	COR * RL	COR * TL	COR * NL				
3967 Transmitter		4.50		12.0	38	R3.0038	0.64088	7.69	12.19	63.084485%	3,257.83	23,239	38,713	62,952	61,971				
3967 COMMUNICATION EQUIPMENT - GENERAL PLANT		4.50	R3.0	12.0				7.69	12.19	63.080000%	3,258	23,239	38,713	62,952	61,971				
<b>Grand Total</b>	<b>Total Royersford</b>	<b>59.38</b>		<b>54.9</b>				<b>17.82</b>	<b>77.09</b>	<b>32.770000%</b>	<b>13,376,109.04</b>	<b>2,424,186,195.00</b>	<b>727,430,437.00</b>	<b>3,146,934,151.00</b>	<b>2,240,147,692.00</b>				

# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-110-2019 Created 5-20-2020

**Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Investor-Owned Utility  
December 10, 2019**

Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies

(1)	(2)	(4)	(4b)	(5)	(6)	(6b)
Account Number	Description	Iowa Survivor / Retirement Curve	Normal Service Life years	Economic Obsolescence % of CORLD	Tax Depreciation Table	Life
353.20	Land & Land Rights - Collection	ZNonDep	0.00	0.00%	Non-Depr	0.00
353.30	Land & Land Rights - Pumping	ZNonDep	0.00	0.00%	Non-Depr	0.00
353.40	Land & Land Rights - Treatment	ZNonDep	0.00	0.00%	Non-Depr	0.00
354.30	Structures & Improvements - Pumping	R4.0	45.00	0.00%	MACRS	25.00
354.40	Structures & Improvements - Treatment	R4.0	55.00	0.00%	MACRS	25.00
355.30	Generating Equipment - Pumping	R3.0	35.00	0.00%	MACRS	25.00
355.40	Generating Equipment - Treatment	R3.0	35.00	0.00%	MACRS	25.00
360.20	Collection Sewers - Force - Mains	R3.0	75.00	0.00%	MACRS	25.00
361.21	Collection Sewers - Gravity - Mains	R2.5	80.00	0.00%	MACRS	25.00
361.22	Collection Sewers - Gravity - Mains Relining	R2.5	60.00	0.00%	MACRS	25.00
361.23	Collection Sewers - Gravity - Manholes	R2.5	80.00	0.00%	MACRS	25.00
363.20	Service Laterals	R3.0	45.00	0.00%	MACRS	25.00
364.30	Flow Measuring Devices - Pumping	S2.0	30.00	0.00%	MACRS	25.00
364.40	Flow Measuring Devices - WWTP	S2.0	30.00	0.00%	MACRS	25.00
371.40	Pumping Equipment - Treatment	R3.0	35.00	0.00%	MACRS	25.00
380.40	Treatment and Disposal Equipment	R2.0	45.00	0.00%	MACRS	25.00
390.70	Office Furniture and Equipment	R3.0	12.00	0.00%	MACRS	12.00
391.00	Transportation Equipment	R3.0	10.00	0.00%	MACRS	10.00
392.00	Stores Equipment	R3.0	35.00	0.00%	MACRS	25.00
393.00	Tools, Shop, & Garage Equipment	R3.0	35.00	0.00%	MACRS	25.00
394.00	Laboratory Equipment	R3.0	20.00	0.00%	MACRS	20.00
395.00	Power Operated Equipment	R3.0	15.00	0.00%	MACRS	15.00
396.00	Communications Equipment	R3.0	12.00	0.00%	MACRS	12.00
396.70	Communications Equipment	R3.0	12.00	0.00%	MACRS	12.00
397.00	Miscellaneous Equipment	R3.0	20.00	0.00%	MACRS	20.00





**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Cost Approach**

**Replacement Cost New less Depreciation to Fair Market Value**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

# APPENDIX A-5.1 (AUS)

\\aus-dc1\shared\water industry\PA American - Royersford - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

**Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019**

**Fair Market Value**

(36)	(37)	(39)	(40)	(41)
Account	Description	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Input	CORLD \$	% of Preliminary Cost Approach	Appraisal Date Value \$
Eng Assmnt	Eng Assmnt	Calculation	Input AUS Economic Obsolescence Analysis	Calculation
Account	Description	Col (31)	(39) * [1.00-Col (40)]	FMV
		Prelim CORLD	EO%	
353.20	LAND AND LAND RIGHTS - COLLECTION	141	0.00%	141
353.30	LAND AND LAND RIGHTS - PUMPING	59	0.00%	59
353.40	LAND AND LAND RIGHTS - TREATMENT	55,287	0.00%	55,287
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	323,362	0.00%	323,362
354.40	STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	1,627,280	0.00%	1,627,280
355.30	POWER GENERATION - PUMPING	51,463	0.00%	51,463
355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	251,638	0.00%	251,638
360.20	COLLECTION SEWERS - FORCE MAINS	114,219	0.00%	114,219
361.21	COLLECTION SEWERS -GRAVITY MAINS	2,280,870	0.00%	2,280,870
361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING	747,466	0.00%	747,466
361.23	COLLECTION SEWERS -GRAVITY - MANHOLES	125,978	0.00%	125,978
363.20	SERVICE TO CUSTOMERS	201,771	0.00%	201,771
364.30	FLOW MEASURING DEVICES - PUMPING	6,960	0.00%	6,960
364.40	FLOW MEASURING DEVICES - WWTP	8,643	0.00%	8,643
371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	238,419	0.00%	238,419
380.40	TREATMENT AND DISPOSAL EQUIPMENT	7,334,772	0.00%	7,334,772
390.70	EQUIPMENT - GENERAL PLANT	4,524	0.00%	4,524
396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	3,258	0.00%	3,258
Grand Total		13,376,109	0.00%	13,376,109

Cost Approach for Report

# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

36 37 38 39 40 41

**Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Investor-Owned Utility  
As of December 10, 2019**

**Fair Market Value**

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Input	Input	CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
Eng Assmnt	Eng Assmnt	Eng Assmnt	Calculation	Input	Calculation
Account	Description	Year	Prelim CORLD	EO%	FMV
Eng Assmnt	Eng Assmnt	Year	Col (31)	AUS Economic Obsolescence Analysis (39) * [1.00-Col (40)]	
353.2	Collection system ROW Properties	1937	55.29	0.00%	55.29
353.2	Collection system ROW Properties	1961	86.00	0.00%	86.00
353.2	LAND AND LAND RIGHTS - COLLECTION		141		141
353.3	10th Ave. Pump Station (Property)	2000	58.50	0.00%	58.50
353.3	LAND AND LAND RIGHTS - PUMPING		59		59
353.4	Wastewater Treatment Plant	1935	55,287.00	0.00%	55,287.00
353.4	LAND AND LAND RIGHTS - TREATMENT		55,287		55,287
354.3	10th Avenue PS - Initial Facility	1935	44,097.66	0.00%	44,097.66
354.3	Green Street Pump Station - Initial	1956	54,647.60	0.00%	54,647.60
354.3	Green Street PS Improvements	1988	131.65	0.00%	131.65
354.3	Green Street PS Improvements	1989	60,912.94	0.00%	60,912.94
354.3	Green Street PS Improvements	1990	25,026.52	0.00%	25,026.52
354.3	10th Ave PS - Replaced pumps an	2000	103,990.92	0.00%	103,990.92
354.3	drainage improvements	2011	6,686.55	0.00%	6,686.55
354.3	drainage improvements	2012	14,949.30	0.00%	14,949.30
354.3	Electrical Improvements	2019	12,919.99	0.00%	12,919.99
354.3	STRUCTURES AND IMPROVEMENTS - PUMPIN		323,362		323,362
354.4	Initial facility cost including pumps,	1935	1,521,517.55	0.00%	1,521,517.55
354.4	Digester Cover	1993	80,617.48	0.00%	80,617.48
354.4	Furnace	2014	3,950.18	0.00%	3,950.18
354.4	Storage Building	2015	21,194.30	0.00%	21,194.30
354.4	STRUCTURES AND IMPROVEMENTS TREATME		1,627,280		1,627,280

36 37 38 39 40 41

**Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Investor-Owned Utility  
As of December 10, 2019**

**Fair Market Value**

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Input	Input	CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
Eng Assmnt	Eng Assmnt	Eng Assmnt	Calculation	Input	Calculation
Account	Description	Year	Prelim CORLD	EO%	FMV
355.3	10th Avenue Pump Station Gener	2000	33,222.17	0.00%	33,222.17
355.3	Green Street Pump Station Gener	2012	18,240.91	0.00%	18,240.91
355.3	POWER GENERATION - PUMPING		51,463		51,463
355.4	WWTP Generator	2008	251,638.33	0.00%	251,638.33
355.4	POWER GENERATION - TREATMENT AND DISI		251,638		251,638
360.2	10th Ave. Forcemain	1935	80,270.47	0.00%	80,270.47
360.2	Green Street Forcemain	1958	33,948.32	0.00%	33,948.32
360.2	COLLECTION SEWERS - FORCE MAINS		114,219		114,219
361.21	VCP - 8-inch	1935	488,916.55	0.00%	488,916.55
361.22	VCP - 8-inch Relined in 2013 Qty 2	2013	174,442.38	0.00%	174,442.38
361.22	VCP - 8-inch Relined in 2014 Qty 1	2013	89,211.31	0.00%	89,211.31
361.22	VCP - 8-inch Relined in 2016 Qty 2	2013	211,814.81	0.00%	211,814.81
361.21	VCP - 10-inch	1935	-	0.00%	-
361.22	VCP - 10-inch relined in 2013 Qty 1	2013	121,701.64	0.00%	121,701.64
361.21	VCP - 12-inch	1935	55,324.46	0.00%	55,324.46
361.22	VCP - 12-inch relined in 2015 Qty 1	2015	60,209.84	0.00%	60,209.84
361.21	VCP - 15-inch	1935	93,127.78	0.00%	93,127.78
361.22	VCP - 15-inch relined in 2014 Qty 1	2014	371,324.06	0.00%	371,324.06
361.22	VCP - 15-inch relined in 2015 Qty 1	2015	31,756.79	0.00%	31,756.79
361.21	CIP - 15-inch	1935	9,277.60	0.00%	9,277.60
361.21	VCP - 8-inch	1936	350,677.28	0.00%	350,677.28
361.21	VCP - 10-inch	1936	8,400.73	0.00%	8,400.73
361.22	VCP - 10-inch relined in 2013 Qty 1	1936	4,453.95	0.00%	4,453.95
361.21	VCP - 12-inch	1936	39,340.42	0.00%	39,340.42
361.21	VCP - 15-inch	1936	99,436.00	0.00%	99,436.00
361.21	VCP - 8-inch	1955	3,855.97	0.00%	3,855.97
361.21	VCP - 8-inch	1972	9,239.41	0.00%	9,239.41
361.21	PVC - 8-inch	1985	9,827.24	0.00%	9,827.24
361.21	PVC - 8-inch	1990	14,759.11	0.00%	14,759.11

# APPENDIX A-5.1 (AUS)

\\aus-dc1\shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

36 37 38 39 40 41

**Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Investor-Owned Utility  
As of December 10, 2019**

**Fair Market Value**

(36) (37) (38) (39) (40) (41)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Input	Input	CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
Eng Assmt	Eng Assmt	Eng Assmt	Calculation	Input	Calculation
Account	Description	Year	Prelim CORLD	EO%	FMV
361.21	PVC - 8-inch	1992	25,136.98	0.00%	25,136.98
361.21	PVC - 8-inch	1995	8,635.80	0.00%	8,635.80
361.21	COLLECTION SEWERS - GRAVITY MAINS		2,280,870		2,280,870
361.22	2012 CIPP Lining	2013	190,857.17	0.00%	190,857.17
361.22	2013 CIPP Lining	2014	372,118.09	0.00%	372,118.09
361.22	2016 CIPP Lining	2015	184,490.31	0.00%	184,490.31
361.22	COLLECTION SEWERS - GRAVITY MAINS - REL		747,466		747,466
361.23	Initial installation	1935	60,938.97	0.00%	60,938.97
361.23	System expansion	1936	38,328.29	0.00%	38,328.29
361.23	S. Third Ave	1955	994.14	0.00%	994.14
361.23	6th St. at Church St.	1972	2,104.17	0.00%	2,104.17
361.23	S. Fourth Ave	1985	2,492.63	0.00%	2,492.63
361.23	Elm St.	1990	5,810.09	0.00%	5,810.09
361.23	Elementary School	1992	12,103.15	0.00%	12,103.15
361.23	6th St. at Church St.	1995	3,206.65	0.00%	3,206.65
361.23	COLLECTION SEWERS - GRAVITY - MANHOLES		125,978		125,978
363.2	VCP - 5-inch	1935	120,189.03	0.00%	120,189.03
363.2	VCP - 5-inch	1936	72,655.96	0.00%	72,655.96
363.2	VCP - 6-inch	1972	3,454.91	0.00%	3,454.91
363.2	PVC - 6-inch	1990	2,157.45	0.00%	2,157.45
363.2	PVC - 6-inch	2013	3,313.38	0.00%	3,313.38
363.2	SERVICE TO CUSTOMERS		201,771		201,771
364.3	Pump Stations	2011	6,960.44	0.00%	6,960.44
364.3	FLOW MEASURING DEVICES - PUMPING		6,960		6,960
364.4	WWTP	2011	8,642.89	0.00%	8,642.89
364.4	FLOW MEASURING DEVICES - WWTP		8,643		8,643

# APPENDIX A-5.1 (AUS)

\\aus-dcl\Shared\water industry\PA.American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

36 37 38 39 40 41

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019

Fair Market Value

(36) (37) (38) (39) (40) (41)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
Account	Description	Year	Prelim CORLD	EO%	FMV
371.4	Sludge Transfer Pumps	2005	13,321.43	0.00%	13,321.43
371.4	Raw and Recirculation Pumps	2010	187,031.61	0.00%	187,031.61
371.4	Replaced VFDs	2018	38,066.17	0.00%	38,066.17
371.4	PUMPING EQUIPMENT - TREATMENT AND DISI		238,419		238,419
380.4	Facility improvements including ne	1951	1,251,318.29	0.00%	1,251,318.29
380.4	Miscellaneous improvements	1986	28,607.31	0.00%	28,607.31
380.4	Miscellaneous improvements	1987	711.70	0.00%	711.70
380.4	Facility improvements including ne	1998	2,053,274.58	0.00%	2,053,274.58
380.4	Chlorination System	2006	2,062.40	0.00%	2,062.40
380.4	Dechlorination System	2007	19,663.51	0.00%	19,663.51
380.4	New influent and recirculation pum	2010	3,223,789.59	0.00%	3,223,789.59
380.4	Screen Unit	2010	86,805.03	0.00%	86,805.03
380.4	Settling Tank Equipment	2010	197,915.47	0.00%	197,915.47
380.4	PAC system	2011	10,335.02	0.00%	10,335.02
380.4	Furnace	2014	4,206.10	0.00%	4,206.10
380.4	Miscellaneous improvements	2015	48,020.13	0.00%	48,020.13
380.4	Grinder Rebuild	2016	11,942.51	0.00%	11,942.51
380.4	Settling Tank repairs, digester impi	2020	396,120.00	0.00%	396,120.00
380.4	TREATMENT AND DISPOSAL EQUIPMENT		7,334,772		7,334,772
396.7	Security camera	2015	4,523.90	0.00%	4,523.90
390.7	EQUIPMENT - GENERAL PLANT		4,524		4,524

# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

36 37 38 39 40 41

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Fair Market Value**

(36) (37) (38) (39) (40) (41)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Input	Input	CORLD \$ Calculation	% of Preliminary Cost Approach	Appraisal Date Value \$ Calculation
Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
Account	Description	Year	Prelim CORLD	EO%	FMV
396.7 Transmitter		2015	3,257.83	0.00%	3,257.83
396.7 COMMUNICATION EQUIPMENT - GENERAL PLJ			3,258		3,258
<b>Grand Total</b>	<b>Total Royersford</b>		<b>13,376,109.04</b>		<b>13,376,109.04</b>



**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Original Cost less Depreciation**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Collection and Treatment System**  
**Investor-Owned Utility**  
**As of December 10, 2019**

**Determination of the Depreciated Original Cost**

(43)	(44)	(46)	(47)	(48)	(49)	(53)	(54)	(55)	(56)	(57)
Account	Description	Original Costs	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age at December 10, 2019 Appraisal Date	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost
Input	Input	Input	Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
AUS Input	Eng Assmnt	Eng Assmnt	AUS Input	AUS Input	age	Rem Life	Col (46) + (53)	Col (53) / (54)	Col (46) * (55)	Col (46) - (56)
Acct	Descrip	Original Cost	lowa	Normal Life			Total Life	Theo%	Theo Reserve	Net Book
353.20	LAND AND LAND RIGHTS - COLLECTION	13	ZNonDep	-	64.04	-	-	-	-	13
353.30	LAND AND LAND RIGHTS - PUMPING	39	ZNonDep	-	19.50	-	-	-	-	39
353.40	LAND AND LAND RIGHTS - TREATMENT	3,000	ZNonDep	-	84.50	-	-	-	-	3,000
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	249,437	R4.0	45.00	27.37	21.92	49.29	0.52	129,528	119,909
354.40	STRUCTURES AND IMPROVEMENTS - TREATMENT PLANT	313,245	R4.0	55.00	66.58	15.77	82.34	0.71	223,886	89,359
355.30	POWER GENERATION - PUMPING	67,239	R3.0	35.00	15.68	20.55	36.23	0.43	28,947	38,292
355.40	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	303,849	R3.0	35.00	11.50	24.00	35.50	0.32	98,429	205,420
360.20	COLLECTION SEWERS - FORCE MAINS	31,522	R3.0	75.00	75.06	15.91	90.97	0.80	25,258	6,264
361.21	COLLECTION SEWERS - GRAVITY MAINS	322,258	R2.5	77.40	67.19	26.60	93.78	0.68	217,960	104,298
361.22	COLLECTION SEWERS - GRAVITY MAINS - RELINING	742,945	R2.5	60.00	5.51	54.79	60.30	0.09	67,902	675,043
361.23	COLLECTION SEWERS - GRAVITY - MANHOLES	42,549	R2.5	80.00	60.45	33.01	93.47	0.62	26,533	16,016
363.20	SERVICE TO CUSTOMERS	32,180	R3.0	45.00	69.08	10.91	79.99	0.76	24,532	7,648
364.30	FLOW MEASURING DEVICES - PUMPING	7,997	S2.0	30.00	8.50	21.72	30.22	0.28	2,249	5,748
364.40	FLOW MEASURING DEVICES - WWTP	9,930	S2.0	30.00	8.50	21.72	30.22	0.28	2,793	7,137
371.40	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	175,929	R3.0	35.00	8.19	27.20	35.39	0.23	40,627	135,302
380.40	TREATMENT AND DISPOSAL EQUIPMENT	5,351,760	R2.0	45.00	16.04	32.64	48.67	0.30	1,599,637	3,752,123
390.70	EQUIPMENT - GENERAL PLANT	7,325	R3.0	12.00	4.50	7.69	12.19	0.37	2,704	4,621
396.70	COMMUNICATION EQUIPMENT - GENERAL PLANT	5,275	R3.0	12.00	4.50	7.69	12.19	0.37	1,947	3,328
Grand Total		7,666,492		47.72	19.94	32.68	52.59	0.33	2,492,933	5,173,559

# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019

### Determination of the Depreciated Original Cost

(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	
Account	Description	Placement Year	Original Cost	Retirement Disposition lowa-type	Normal Service Life (NSL)	Age at December 10, 2019 Appraisal Date	Age as % of NSL	lowa Lookup	lowa Condition Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy	Normal Service Life (NSL)	
AUS Input	Eng Assmnt	Eng Assmnt	Eng Assmnt	AUS Input	AUS Input	2020 (645)+0.5	Col (49)/(44)	Col (47) & (60)	Lookup lowa Col (51)	Col (48) * (52)	Col (46) * (53)	Col (53) / (54)	Col (46) * (55)	Col (46) * (56)	Col (46) * (49)	Col (46) * (53)	Col (46) * (54)	Col (46) * (48)	
Acc't	Descrip	Year	Original Cost	lowa	Normal Life	age	AgeP	lowaLookup	lowa Condition	Rem Life	Total Life	Thec%	Theo Reserve	Net Book	OC wtd Age	OC wtd Rem Life	OC wtd Total Life	OC wtd Normal Life	
353.2	Collection system ROW Properties 3	1937	3	ZNonDep	0	82.50	4	ZNonDep000	0.00000	0	0	0	-	3	248	-	-	-	-
353.2	Collection system ROW Properties 1	1981	10	ZNonDep	0	59.50	17	ZNonDep000	0.00000	0	0	0	-	10	585	-	-	-	-
353.2	LAND AND LAND RIGHTS - COLLECTION		13		0	84.04				0	0	0.00%	-	13	833	-	-	-	-
353.3	10th Ave. Pump Station (Property 12)	2000	39	ZNonDep	0	19.50	200	ZNonDep000	0.00000	0	0	0	-	39	761	-	-	-	-
353.3	LAND AND LAND RIGHTS - PUMPING		39		0	19.5				0	0	0.00%	-	39	761	-	-	-	-
353.4	Wastewater Treatment Plant	1935	3,000	ZNonDep	0	84.50	3,550	ZNonDep000	0.00000	0	0	0	-	3,000	253,500	-	-	-	-
353.4	LAND AND LAND RIGHTS - TREATMENT		3,000		0	84.5				0	0	0.00%	-	3,000	253,500	-	-	-	-
354.3	10th Avenue PS - Initial Facility	1935	6,542	R4.0	45	84.50	188	R4.0188	0.15	6.75	91.25	0.85000	5,561	981	552,799	44,159	596,958	294,390	
354.3	Green Street Pump Station - Initial F	1958	25,335	R4.0	45	81.50	137	R4.0137	0.15	6.75	88.25	0.85000	21,535	3,800	1,558,103	171,011	1,729,114	1,140,075	
354.3	Green Street PS Improvements	1988	140	R4.0	45	31.50	70	R4.0070	0.34201	15.39	46.89	0.67179	94	46	4,410	2,155	6,565	6,300	
354.3	Green Street PS Improvements	1989	64,986	R4.0	45	30.50	68	R4.0068	0.35776	16.1	46.6	0.65451	42,534	22,452	1,982,073	1,046,275	3,028,348	2,924,370	
354.3	Green Street PS Improvements	1990	25,978	R4.0	45	29.50	66	R4.0066	0.37381	16.82	46.32	0.63887	16,545	9,433	766,351	436,950	1,203,301	1,168,010	
354.3	10th Ave PS - Replaced pumps and	2000	91,694	R4.0	45	19.50	43	R4.0043	0.57696	25.98	45.46	0.42895	39,332	52,362	1,788,033	2,380,376	4,168,409	4,126,230	
354.3	diainage improvements	2011	6,691	R4.0	45	8.50	19	R4.0019	0.81061	36.48	44.98	0.18897	1,264	5,427	56,874	244,088	300,961	301,095	
354.3	diainage improvements	2012	15,071	R4.0	45	7.50	17	R4.0017	0.83047	37.37	44.87	0.16715	2,519	12,552	113,033	563,203	678,195	678,195	
354.3	Electrical improvements	2019	13,000	R4.0	45	0.50	1	R4.0001	0.99001	44.55	45.05	0.01110	144	12,856	6,500	595,650	595,000	595,000	
354.3	STRUCTURES AND IMPROVEMENTS - PUMPING		249,437		45	27.37				21.92	49.29	51.93%	129,528	119,909	6,628,175	5,467,366	12,295,541	11,224,665	
354.4	Initial facility cost including pumps, t	1935	225,721	R4.0	55	84.50	154	R4.0154	0.15	8.25	92.75	0.85000	191,863	33,856	19,073,425	1,862,198	20,935,623	12,414,655	
354.4	Digester Cover	1993	62,901	R4.0	55	26.50	48	R4.0048	0.53035	29.17	55.67	0.47602	29,942	32,959	1,066,877	1,834,822	3,501,699	3,459,555	
354.4	Furnace	2014	3,850	R4.0	55	5.50	10	R4.0010	0.90985	49.51	50.01	0.09198	385	3,465	21,175	190,514	211,789	211,750	
354.4	Storage Building	2015	20,773	R4.0	55	4.50	8	R4.0008	0.92012	50.61	55.11	0.08165	1,696	19,077	93,479	1,051,322	1,144,800	1,142,515	
354.4	STRUCTURES AND IMPROVEMENTS TREATMENT		313,245		55	66.58				15.77	82.34	71.47%	223,886	89,359	20,854,955	4,938,955	25,793,910	17,228,475	
355.3	10th Avenue Pump Station Generac	2000	45,847	R3.0	35	19.50	56	R3.0056	0.68904	17.12	36.62	0.53250	24,414	21,433	894,017	764,801	1,678,917	1,604,645	
355.3	Green Street Pump Station Generac	2012	21,392	R3.0	35	7.50	21	R3.0021	0.79673	27.89	35.39	0.21192	4,533	16,859	160,440	596,623	757,063	748,720	
355.3	POWER GENERATION - PUMPING		67,239		35	15.68				20.55	36.23	43.05%	29,947	38,292	1,054,457	1,381,524	2,435,980	2,353,365	



# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\Water Industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12.10.2019

**Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Investor-Owned Utility  
As of December 10, 2019**

**Determination of the Depreciated Original Cost**

Account	Description	Placement Year	Original Costs	Retirement Dispersion low-type	Normal Service Life (NSL)	Age at December 10, 2019 Appraisal Date	Age as % of NSL	lowa Lookup	lowa Condition Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy	Normal Service Life (NSL)
(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)
Input	Input	Input	Input	Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
AUS Input	Eng Assmnt	Eng Assmnt	Eng Assmnt	AUS Input	AUS Input	2020 (45*0.5)	Col (49) / (48)	lowa Lookup	lowa Lookup	Col (48) * (52)	Col (48) * (53)	Col (53) / (54)	Col (48) * (55)	Col (48) * (56)	Col (48) * (49)	Col (48) * (53)	Col (48) * (54)	Col (48) * (48)
Acct	Descrip	Year	Original Cost	lowa	Normal Life	age	AgeP	lowaLookup	lowa Condition	Rem Life	Total Life	Theo%	Theo Reserve	Net Book	OC wtd Age	OC wtd Rem Life	OC wtd Total Life	OC wtd Normal Life
361.23	System expansion	1936	9,048	R2.5	80	85.50	104	R2.5104	0.22128	17.7	101.2	0.82510	7,466	1,583	755,508	160,150	915,658	723,940
1955	361.23 S. Third Ave		295	R2.5	80	64.50	81	R2.5081	0.34133	27.31	91.81	0.70254	207	88	18,028	8,056	27,084	23,000
1972	361.23 6th St. at Church St.		782	R2.5	80	47.50	59	R2.5059	0.49155	39.32	66.82	0.54711	428	354	37,153	30,755	67,908	62,574
1985	361.23 S. Fourth Ave		1,870	R2.5	80	34.50	43	R2.5043	0.61677	48.34	83.64	0.41150	770	1,100	64,515	92,266	156,781	149,600
1990	361.23 Elm St.		4,223	R2.5	80	28.50	37	R2.5037	0.66661	53.33	82.83	0.35615	1,504	2,719	124,571	225,199	349,770	319,819
1992	361.23 Elementary School		8,897	R2.5	80	27.50	34	R2.5034	0.69207	55.37	82.87	0.33185	2,952	5,945	244,688	492,627	737,314	711,760
1995	361.23 6th St. at Church St.		2,441	R2.5	80	24.50	31	R2.5031	0.71785	57.43	81.93	0.29904	730	1,711	59,807	140,192	199,999	195,288
	361.23 COLLECTION SEWERS -GRAVITY - MANHOLES		42,549		80	60.45				33.01	93.47	62.36%	26,533	16,016	2,572,157	1,404,725	3,976,883	3,403,921
1935	363.2 VCP - 5-inch		14,754	R3.0	45	84.50	188	R3.0188	0.15	6.75	91.25	0.85000	12,541	2,213	1,246,713	98,590	1,346,303	663,930
1956	363.2 VCP - 5-inch		8,919	R3.0	45	83.50	188	R3.0188	0.15	6.75	80.25	0.85000	7,581	1,338	744,737	60,203	804,940	401,355
1972	363.2 VCP - 6-inch		3,132	R3.0	45	47.50	106	R3.0106	0.17527	7.89	55.39	0.85000	2,662	470	146,770	24,711	173,481	140,940
1990	363.2 PVC - 6-inch		2,075	R3.0	45	29.50	66	R3.0066	0.41186	18.53	46.03	0.61420	1,274	801	61,213	38,450	99,662	93,375
2013	363.2 PVC - 6-inch		3,300	R3.0	45	6.50	14	R3.0014	0.86335	38.86	45.36	0.14330	473	2,827	21,450	128,238	149,688	148,500
	363.2 SERVICE TO CUSTOMERS		32,180		45	68.08				10.91	79.99	76.23%	24,532	7,648	2,222,882	351,192	2,574,074	1,448,100
2011	364.3 Pump Stations		7,997	S2.0	30	8.50	28	S2.0028	0.72411	21.72	30.22	0.28127	2,249	5,748	67,975	173,695	241,669	239,910
	364.3 FLOW MEASURING DEVICES - PUMPING		7,997		30	8.5				21.72	30.22	28.13%	2,249	5,748	67,975	173,695	241,669	239,910
2011	364.4 WWTP		9,930	S2.0	30	8.50	28	S2.0028	0.72411	21.72	30.22	0.28127	2,783	7,137	84,405	215,680	300,085	287,900
	364.4 FLOW MEASURING DEVICES - WWTP		9,930		30	8.5				21.72	30.22	28.13%	2,783	7,137	84,405	215,680	300,085	287,900
2005	371.4 Sludge Transfer Pumps		9,925	R3.0	35	14.50	41	R3.0041	0.61453	21.51	36.01	0.40267	3,997	5,929	143,913	213,487	357,399	347,375
2010	371.4 Raw and Recirculation Pumps		131,000	R3.0	35	9.50	27	R3.0027	0.74058	25.92	35.42	0.26821	35,136	95,864	1,240,500	3,395,520	4,640,020	4,585,000
2018	371.4 Replaced VFDs		35,004	R3.0	35	1.50	4	R3.0004	0.96069	33.62	35.12	0.04271	1,495	33,509	52,506	1,176,834	1,229,340	1,225,140
	371.4 PUMPING EQUIPMENT - TREATMENT AND DISPO		175,929		35	8.19				27.2	35.39	23.09%	40,827	135,302	1,440,919	4,785,841	6,226,760	6,157,515
1951	380.4 Facility improvements including new		354,456	R2.0	45	68.50	152	R2.0152	0.15	6.75	75.25	0.85000	301,288	53,168	24,280,236	2,392,578	26,672,814	15,950,520
1986	380.4 Miscellaneous improvements		22,410	R2.0	45	33.50	74	R2.0074	0.42014	18.91	52.41	0.63919	14,324	8,086	750,735	423,773	1,174,508	1,008,450
1987	380.4 Miscellaneous improvements		550	R2.0	45		72	R2.0072	0.43275	19.47	51.97	0.62536	344	206	17,875	10,709	28,584	24,750
1998	380.4 Facility improvements including new		1,462,008	R2.0	45	21.50	48	R2.0048	0.5994	26.97	46.47	0.44357	646,503	813,505	31,433,172	39,430,356	70,863,528	65,790,360
2006	380.4 Chlorination System		1,500	R2.0	45	13.50	30	R2.0030	0.74054	33.32	46.82	0.28834	433	1,067	20,250	49,980	70,230	67,500

# APPENDIX A-5.1 (AUS)

\\aus-dc1\shared\water industry\PA American - Royersford - Wastewater System Valuation as of 12.10.2019

Account	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)
							Age at December 10, 2019 Appraisal Date	Age as % of NSL	lowa Lookup lowa	lowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC w/d Age	OC w/d Rem Life	OC w/d Total Life	Normal Service Life (NSL)
Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
AUS Input	Eng Assmnt	Eng Assmnt	Eng Assmnt	AUS Input	AUS Input	AUS Input	2020- [(45)+0.5]	Col (49) / (48)	Col (47) & (50)	Lookup lowa Condition @ col (51)	Col (48) * (52)	Col (46) + (53)	Col (53) / (54)	Col (48) * (55)	Col (48) * (56)	Col (48) * (49)	Col (48) * (53)	Col (48) * (54)	Col (48) * (48)
Acc't	Descrip	Year	Original Cost	lowa	lowa	Normal Life	age	AgeP	lowa lookup	lowa Condition	Rem Life	Total Life	Theo%	Theo Reserve	Net Book	OC w/d Age	OC w/d Rem Life	OC w/d Total Life	OC w/d Normal Life
380.4	Dechlorination System	2007	15,000	R2.0	R2.0	45	12.50	28	R2.0028	0.75696	34.06	46.56	0.26847	4,027	10,973	187,500	510,900	698,400	675,000
380.4	New influent and recirculation pumps	2010	2,785,371	R2.0	R2.0	45	9.50	21	R2.0021	0.8155	36.7	46.2	0.20563	572,796	2,212,615	26,461,025	102,223,116	128,684,140	125,341,695
380.4	Screen Unit	2010	75,000	R2.0	R2.0	45	9.50	21	R2.0021	0.8155	36.7	46.2	0.20563	15,422	59,578	712,500	2,752,500	3,465,000	3,375,000
380.4	Settling Tank Equipment	2010	171,000	R2.0	R2.0	45	9.50	21	R2.0021	0.8155	36.7	46.2	0.20563	35,163	135,837	1,624,500	6,275,700	7,900,200	7,695,000
380.4	PAC system	2011	8,993	R2.0	R2.0	45	8.50	19	R2.0019	0.83252	37.46	45.96	0.16494	1,663	7,330	76,441	336,878	413,318	404,685
380.4	Furnace	2014	3,850	R2.0	R2.0	45	5.50	12	R2.0012	0.89204	40.19	45.69	0.12038	463	3,387	21,175	154,732	175,907	173,250
380.4	miscellaneous improvements	2015	44,411	R2.0	R2.0	45	4.50	10	R2.0010	0.9106	40.98	45.48	0.09894	4,394	40,017	199,850	1,819,963	2,019,812	1,998,495
380.4	Grinder Rebuild	2016	11,091	R2.0	R2.0	45	3.50	8	R2.0008	0.92827	41.77	45.27	0.07731	857	38,819	38,819	463,271	502,980	498,095
380.4	Settling Tank repairs, digester impro	2020	396,120	R2.0	R2.0	45	0.00	0	R2.0000	1	45	45	0.00000	-	396,120	38,819	17,825,400	17,825,400	17,825,400
380.4	TREATMENT AND DISPOSAL EQUIPMENT	2020	5,351,760			45	16.04	0	R2.0000		32.64	48.67	29.89%	1,598,637	3,752,123	85,824,076	174,669,854	260,493,930	240,829,200
396.7	Security camera	2015	7,325	R3.0	R3.0	12	4.50	38	R3.0038	0.64088	7.69	12.19	0.36516	2,704	4,621	32,963	56,329	86,292	87,900
390.7	EQUIPMENT - GENERAL PLANT		7,325			12	4.5				7.69	12.19	36.92%	2,704	4,621	32,963	56,329	86,292	87,900
396.7	Transmitter	2015	5,275	R3.0	R3.0	12	4.50	38	R3.0038	0.64088	7.69	12.19	0.36516	1,947	3,328	23,738	40,565	64,302	63,300
396.7	COMMUNICATION EQUIPMENT - GENERAL PLAN		5,275			12	4.5				7.69	12.19	36.92%	1,947	3,328	23,738	40,565	64,302	63,300
Grand Total	Total Royersford		7,666,482.01			47.72	19.94				32.68	52.59	32.59%	2,492,932.88	5,173,559.13	152,869,469.07	250,557,411.84	403,171,787.91	365,851,103.00

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Income Approach**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail:**

# APPENDIX A-5.1 (AUS)

\\aus-dc1\shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Potential Purchaser: Investor-Owned Utility  
As of December 10, 2019  
Discounted Cash Flow Analysis

Discount Rate: 7.96%		Capitalization Rate: 6.03%													
Period	Age	Revenues	O&M Expenses	Tax Depreciation	Cash Flow from Operations	Taxable Income Before State & Federal Taxes	State and Federal Taxes @ 28.85%	Capital Expenditures	Change in Working Capital	Net Cash Flows	Period Present Worth Factor (PW)	PW of Cashflow	Accumulated PW of Cashflows		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)		
					(3)-(4)	(6)-(5)	(7) *28.85%			(3)-(4)-(6)-(9)-(10)		(11)*(12)	Sum (13)		
1	0.5	1,122,000	717,929	746,706	404,071	(342,635)	(98,887)	214,549	14,688	273,821	0.962	263,416	263,416		
2	1.5	1,144,440	733,088	756,382	411,352	(345,030)	(99,679)	211,769	1,212	292,050	0.891	260,217	523,633		
3	2.5	1,464,883	748,693	766,393	716,190	(50,203)	(14,504)	221,035	17,303	492,356	0.826	406,686	930,319		
4	3.5	1,494,181	764,752	776,748	729,429	(47,319)	(13,670)	224,350	1,583	517,166	0.765	395,632	1,325,951		
5	4.5	1,524,065	781,281	787,455	742,784	(44,671)	(12,905)	227,716	1,613	526,360	0.708	372,663	1,698,614		
6	5.5	1,950,803	798,283	798,322	1,152,520	353,998	102,270	231,132	23,045	796,073	0.656	522,224	2,220,838		
7	6.5	1,989,819	815,771	738,384	1,174,048	435,664	125,863	85,124	2,106	960,955	0.608	584,261	2,805,099		
8	7.5	2,029,615	832,472	738,542	1,197,143	458,601	132,990	86,239	2,149	976,265	0.563	549,637	3,354,736		
9	8.5	2,557,315	849,690	738,797	1,707,625	968,828	279,894	87,371	28,496	1,311,864	0.522	684,793	4,039,529		
10	9.5	2,600,461	867,442	739,153	1,741,019	1,001,866	289,439	88,520	27,62	1,360,298	0.483	657,024	4,696,553		
11	10.5	2,873,480	885,733	739,608	1,774,897	1,035,289	299,095	89,683	2,817	1,383,302	0.447	618,336	5,314,889		
12	11.5	2,890,950	904,577	740,167	1,968,903	1,228,736	354,882	90,863	11,484	1,541,084	0.414	625,787	5,940,676		
13	12.5	2,989,589	933,990	743,808	2,006,960	1,283,152	370,703	92,060	3,103	1,567,478	0.384	591,780	6,532,456		
14	13.5	3,226,755	943,988	744,692	2,045,581	1,321,089	381,663	93,275	3,165	1,712,152	0.329	563,298	7,095,776		
15	14.5	3,293,310	964,579	725,283	2,264,156	1,538,673	444,381	94,307	12,916	1,522,686	0.305	464,419	7,560,195		
16	15.5	3,359,176	985,775	423,913	2,307,535	1,883,620	544,178	237,184	3,487	1,551,137	0.283	438,972	8,000,842		
17	16.5	3,627,910	1,008,820	429,553	2,350,356	1,920,803	554,920	240,743	3,556	1,517,501	0.262	448,675	8,450,497		
18	17.5	3,700,468	1,032,494	435,326	2,595,416	2,160,090	624,950	244,353	3,918	1,755,442	0.242	424,817	8,875,314		
19	18.5		1,056,810	441,238	2,643,658	2,202,420	636,279	248,019		1,788,264		5,095,422	14,486,081		
20 and beyond	19.5	3,774,477	1,081,780	447,291	2,692,697	2,245,406	648,698	251,738	3,997	1,818,696	2.827	2,107,067	11,537,736		
Age	19.5							Net Plant		11,818,696					
PW(Age) = 1/(1+Discount Rate) <sup>Age</sup>	0.225							ADT		(2,453,954)					
PW to Perpetuity = 1/Capitalization Rate	12.563							Rate Base		9,364,742	0.225	2,107,067	11,537,736		
PW <sub>(20 and beyond)</sub> = PW to Perpetuity * PW Factor <sub>(19.5)</sub>	2.827							Annual Plant Construction Inflation Rate	0.0422	Input					
								Plant Inflation over 19.5 years			0.225	4,816,147	14,246,806		
								PP	13,000,000						
								OCLO	5,173,559						
								PP/OCLO	2,513						
								RCNLD	13,376,109						
								RCNLD/PP	1.028931465						
								Average	9,635,676.16	0.225	2,168,028	11,598,687			
													12,967,325		







# APPENDIX A-5.1 (AUS)

Asset 45 (Water/Wastewater Utility) (A American - Royerford, PA) Royerford Wastewater System Valuation as of 12-31-2019

**Pennsylvania American Water Company  
Royerford Borough  
Wastewater Collection and Treatment System  
Valuation Report  
Prepared for Royerford Borough  
As of December 31, 2019**

	Base	1.5	Preced. 6/13	20-26	27-33	34-40	41-46	47-53	54-60	0	1	2	3	4	5	6	7	8	9
<b>Balance Statement</b>																			
Equity																			
Beginning Equity/Capital	9,898,321																		
Additional to Equity (Retained Earnings)	(53,138)																		
Reductions from Equity Dividends	0																		
Ending Equity/Capital	9,845,183																		
Operating Income	(103,288)																		
Return On Equity	-1.08%																		
Total Liabilities & Stockholders' Equity	13,225,491																		
Assets	242,760																		
Liabilities & Stockholders' Equity less Assets	(242,760)																		
Dividend	80,736																		
Final Stockholders' Equity	13,225,491																		
<b>Capital Expenditures and Changes in Working Capital</b>																			
Capital Expenditures	214,549.00																		
Changes to Working Capital																			
Income from Operations	342,760																		
Capital Expenditures	(215,842)																		
Change in Working Capital	45,990																		
Net Cash Flows	918																		
CASH FLOW	(60,099)																		
Income from Operations	267,286																		
Capital Expenditures (Depreciation)	(215,842)																		
Change in Working Capital	918																		
Net Cash Flows	272,673																		
Present Value	0.5	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5										
PW Factor	8.20%	8.20%	8.20%	8.20%	8.20%	8.20%	8.20%	8.20%	8.20%										
Discount Rate with growth	6.20%	6.20%	6.20%	6.20%	6.20%	6.20%	6.20%	6.20%	6.20%										
Present Value Factor (PW)	0.961	0.961	0.889	0.821	0.759	0.701	0.648	0.599	0.554										
PV of Cashflow	218,672	163,310	152,109	141,260	130,195	119,288	108,956	99,318	90,399										



# APPENDIX A-5.1 (AUS)

\\user-dc1\share\water\_industry\PA Americans - Royersford, PA\Royersford Wastewater System Valuation as of 12-31-2019

**Pennsylvania American Water Company**  
**Royersford Borough**  
**Wastewater Treatment System**  
**Potential Purchaser Investment-Owned Utility**  
**As of December 31, 2019**

	Base	1.5	Periods 0-1.5	15 - 19	20-26	27-33	34-40	41-46	47-53	54-60	0	1	2	3	4	5	6	7	8	9
<b>Equity</b>																				
Additions to Equity (Source Positive / Use Negative)																				
Current (Source Negative / Use Positive)																				
<b>Funds Provided from Operations</b>																				
Net Income (Use Negative / Source Positive)		17,176	24,485	243,011	256,059	268,989	563,830	542,738	543,830	563,830	542,738	563,830	542,738	563,830	542,738	563,830	542,738	563,830	542,738	563,830
Depreciation (Source Positive / Use Negative)		207,586	265,157	265,397	263,825	263,076	262,444	263,263	263,825	263,076	262,444	263,263	263,825	263,076	262,444	263,263	263,825	263,076	262,444	263,263
Current Liabilities (Source Positive)		6,472	5,071	72,421	6,621	6,754	96,442	8,838	6,621	6,754	96,442	8,838	6,621	6,754	96,442	8,838	6,621	6,754	96,442	8,838
Savings and Use of Funds		146,212	295,513	386,729	538,505	538,619	921,706	868,508	538,505	538,619	921,706	868,508	538,505	538,619	921,706	868,508	538,505	538,619	921,706	868,508
Current Liabilities (Source Positive)																				
<b>Uses of Funds</b>																				
Capital Expenditures (Use)		76,160	6,388	89,724	8,204	8,367	119,487	10,024	8,204	8,367	119,487	10,024	8,204	8,367	119,487	10,024	8,204	8,367	119,487	10,024
Fixed Assets Acquisitions (Use)		2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267	2,267
Total Uses of Funds		280,789	224,052	231,759	232,254	230,088	380,459	38,648	232,254	230,088	380,459	38,648	232,254	230,088	380,459	38,648	232,254	230,088	380,459	38,648
<b>Funds from Financing Activities</b>																				
Increase in Long-Term Debt		(18,623.00)	(73,890.00)	(12,465)	(108,890)	(102,963)	(101,752)	(96,982)	(108,890)	(102,963)	(101,752)	(96,982)	(108,890)	(102,963)	(101,752)	(96,982)	(108,890)	(102,963)	(101,752)	(96,982)
Repayment of Long-Term Debt		(14,936)	(14,318)	(12,465)	(108,890)	(102,963)	(101,752)	(96,982)	(108,890)	(102,963)	(101,752)	(96,982)	(108,890)	(102,963)	(101,752)	(96,982)	(108,890)	(102,963)	(101,752)	(96,982)
Funds from Equity		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Additional Paid-in Capital (Source)		(14,936)	(14,318)	(12,465)	(108,890)	(102,963)	(101,752)	(96,982)	(108,890)	(102,963)	(101,752)	(96,982)	(108,890)	(102,963)	(101,752)	(96,982)	(108,890)	(102,963)	(101,752)	(96,982)
Total Funds from Financing Activities		(33,559)	(98,208)	(24,930)	(217,780)	(205,926)	(203,502)	(193,964)	(217,780)	(205,926)	(203,502)	(193,964)	(217,780)	(205,926)	(203,502)	(193,964)	(217,780)	(205,926)	(203,502)	(193,964)
<b>Total Funds Needed</b>		(19,024.00)	(13,045.00)	157,325.00	185,061.00	197,075.00	666,401.00	676,884.00	185,061.00	197,075.00	666,401.00	676,884.00	185,061.00	197,075.00	666,401.00	676,884.00	185,061.00	197,075.00	666,401.00	676,884.00
<b>Financing</b>																				
Total Equity		706,789	706,789	706,789	706,789	706,789	706,789	706,789	706,789	706,789	706,789	706,789	706,789	706,789	706,789	706,789	706,789	706,789	706,789	706,789
Funds Provided by Financing		108,994.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00	207,753.00









# APPENDIX A-5.1 (AUS)

Use of Funds (Source Positive / Use Negative)

### Pennsylvania American Water Company Beverly Township Wastewater Treatment Plant Potential Purchaser: Investor-Owned Utility As of December 31, 2019

	10/20	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
<b>Equity</b>																
<b>Dividend (Source Positive / Use Negative)</b>																
<b>Funds Provided from Operations</b>																
<b>Net Income (Use Negative / Source Positive)</b>	1,000,760	1,029,395	1,171,983	1,203,944	1,235,659	1,396,136	1,420,352	1,463,376	1,517,020	1,677,409	1,708,772	1,807,661	1,953,982	1,996,062	2,722,608	2,772,211
<b>Depreciation (Source Positive / Use Negative)</b>	287,584	244,863	240,376	238,118	232,737	229,545	227,511	227,359	227,692	228,341	228,359	227,861	223,608	225,920	277,489	213,829
<b>Current Liabilities (Source Positive)</b>	11,790	11,390	48,304	13,048	13,248	14,051	14,594	14,886	16,734	16,998	16,776	18,247	18,426	18,794	76,879	20,204
<b>Sources and Uses of Funds</b>	1,299,634	1,385,148	1,460,663	1,458,039	1,481,639	1,679,721	1,671,257	1,703,620	1,762,536	1,917,758	1,953,907	2,032,860	2,193,796	2,216,776	2,816,976	2,805,444
<b>Current Liabilities (Source Positive)</b>																
<b>Uses of Funds</b>																
<b>Fixed Assets Increase (Use)</b>	16,121	14,627	59,528	16,020	16,613	66,627	16,855	18,242	26,245	54,516	57,373	81,644	22,828	23,284	95,002	25,550
<b>Fixed Assets Assets: Increase (Use)</b>	88,530	89,863	93,883	90,560	93,275	99,507	103,336	104,525	104,833	105,076	105,718	106,359	106,988	107,629	108,270	108,911
<b>Total Uses of Funds</b>	102,651	104,490	150,411	106,579	109,888	166,134	255,265	258,767	319,599	268,335	274,452	185,199	104,151	103,344	177,798	109,188
<b>Funds from Financing Activities</b>																
<b>Change in Cash</b>	(88,899)	(65,487)	(88,074)	(86,137)	(77,981)	(76,995)	(72,499)	(70,279)	(67,743)	(66,485)	(64,302)	(61,192)	(59,117)	(57,189)	(55,274)	(53,432)
<b>Increase in Long-Term Debt</b>																
<b>Payment of Long-Term Debt</b>																
<b>Capital Contributions</b>																
<b>Dividend Paid (Use)</b>																
<b>Total Funds from Financing Activities</b>	(88,899)	(65,487)	(88,074)	(86,137)	(77,981)	(76,995)	(72,499)	(70,279)	(67,743)	(66,485)	(64,302)	(61,192)	(59,117)	(57,189)	(55,274)	(53,432)
<b>Total Funds Needed</b>	1,068,213	1,095,071	1,276,988	1,294,647	1,294,370	1,442,233	1,348,492	1,374,356	1,338,094	1,348,218	1,518,094	1,976,614	2,036,483	2,073,210	2,281,504	2,344,174
<b>Financing</b>																
<b>Equity</b>	(77,716)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)
<b>Funds Provided by Financing</b>	(77,716)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)	(79,478)
<b>70%</b>																
<b>74%</b>																



# APPENDIX A-5.1 (AUS)

Year 41 (Shareholder Equity) (PA Amended - Reynolds PA) Reformed Wastewater System Valuation as of 12-30-2019

Pennsylvania American Water Company  
 Reynolds Borough  
 Reformed Wastewater System  
 Reformed Wastewater System  
 Reformed Wastewater System  
 As of December 31, 2019

	Base	1.5	Periods:	16	19	26	37	38	39	40	41
			9-13								
End Balance											
End Balance Check											
Net Plant											
Begin Balance											
End Balance											
<b>Total Assets</b>											
Tax Depreciation of Property, Plant, & Equipment											
Total MACRS Depreciation											
Depreciable											
Retirements											
End Balance Check											
Net Plant											
Begin Balance											
End Balance											
<b>Total Liabilities</b>											
Long Term Debt, Notes payable, net of current portion											
Additional Debt											
Debt Retirement											
Debt Maturities											
End Long Term Debt, Notes payable, net of current portion											
Total noncurrent liabilities											
Deferred Tax Liabilities											
Begin Balance											
Additions to Deferred Asset											
Total Deferred Tax Liability											
Total Liabilities											
Equity											
Beginning Equity Capital											
Additions to Equity (Retained Earnings)											
Dividends from Equity (Dividends)											
Ending Equity Capital											
Operating Income											
Return on Equity											
Total Liabilities & Stockholders' Equity											
Assets											
Stockholders' Equity less Assets											
Dividends											
Final Stockholder Equity											
Capital Expenditures and Changes in Working Capital											
Capital Expenditures											
Changes to Working Capital											
Current Liabilities											
Working Capital											
Change to Working Capital											
CASH FLOW											
Income from Operations											
Capital Expenditures											
Change in Working Capital											
Net Cash Flows											
Period											
PW Factor											
Discount Rate with growth											
Discount Rate without growth											
Period Present Worth Factor (PW)											
PW of Cashflow											

DCF Investor Owned



# APPENDIX A-5.1 (AUS)

Year 61 (Sheelwater Industry) (A American, Royersford, PA) Reverseflow Wastewater System Valuation as of 12-31-2019

**Pennsylvania American Water Company**  
**Reverseflow Sheelwater Industry (A American, Royersford, PA) Reverseflow Wastewater System Valuation as of 12-31-2019**

	Base	3.5	15-19	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
<b>Equity</b>																			
<b>Equity</b>																			
<b>Current Liabilities (Source Positive) (Use Negative)</b>																			
<b>Current Liabilities (Use Positive)</b>																			
<b>Funds Provided from Operations</b>																			
<b>Net Income (Use Negative) Source Positive</b>																			
<b>Depreciation (Source positive use negative)</b>																			
<b>Current liabilities (Source Positive)</b>																			
<b>Source and Uses of Funds</b>																			
<b>Source of Funds</b>																			
<b>Current Liabilities (Source Positive)</b>																			
<b>Uses of Funds</b>																			
<b>Current Liabilities (Use)</b>																			
<b>Fund Assets, Increase (Use)</b>																			
<b>Total Uses of Funds</b>																			
<b>Funds from Financing Activities</b>																			
<b>Change in Debt</b>																			
<b>Increase in Long Term Debt</b>																			
<b>Payment of Long Term Debt</b>																			
<b>Change in Equity</b>																			
<b>Additional Paid in Capital (Source)</b>																			
<b>Total Funds from Financing Activities</b>																			
<b>Total Funds Needed</b>																			
<b>Financing</b>																			
<b>Change in Equity</b>																			
<b>Funds Provided by Financing</b>																			

# APPENDIX A-5.1 (AUS)

\\nas-dc1\share\water\industry\A American - Royerford, PA\Royerford Wastewater System Valuation as of 12-10-2019

**Pennsylvania American Water Company**  
**Royerford Borough**  
**Wastewater Collection and Treatment System**  
**Water and Wastewater System Owned Utility**  
**As of December 31, 2019**

	15	16 - 19	41	44	45	46	47	48	49	50	51	52	53	54	55	56	57
<b>Income Statement</b>																	
Annual Revenue Growth rate																	
Revenue																	
Prepaid Subscriber Growth																	
Revenue Growth																	
Required Rate Increase																	
Required Rate Increase (w/ops)																	
Proposed Rate Increase																	
Total Revenue Adjustments																	
Base and Forecast																	
Operating Expenses																	
Operating and Administrative expenses																	
Operating and Administrative expenses Rate of Change																	
Net Used																	
Net Used Rate of Change																	
Net Used Rate of Change																	
Net Used Rate of Change																	
Begin Plant																	
Begin Plant																	
PT Rate, % of beginning net plant																	
PT Rate, % of beginning net plant																	
Cost of Operation as % of Revenues (Calculation)																	
Operating Expenses less Depreciation																	
Operating Income																	
Nonoperating (Revenues) Expenses																	
Interest Expense																	
Interest Expense as % of Debt																	
Total nonoperating revenues (expenses)																	
Income (loss) before State and Federal Taxes																	
State and Federal Taxes																	
State and Federal Tax Rate																	
Income After Taxes																	
Income After Taxes plus Interest																	
Earnings before Interest, Taxes, Depreciation, & Amortization																	
Income (loss) before State and Federal Taxes																	
State and Federal Taxes																	
State and Federal Tax Rate																	
Income Adjusted for Tax Depreciation																	
Income Adjusted for Tax Depreciation																	
Income Tax Expense																	
Income Tax Expense																	
Income After Tax																	
Deferred Income Taxes																	
Accumulated Deferred Income Taxes																	
Income After Taxes (Book Depreciation)																	
Plus Deferred Taxes																	
Plus Interest																	
After Tax Income After Fee																	
<b>Balance Sheet</b>																	
Assets																	
Current Asset Balance																	
Current Asset Balance																	
CA as % of Revenues																	
<b>Balance Sheet</b>																	
Total PP&E																	
Begin Balance																	
Additions																	
Retirements																	
End Balance																	
Book Depreciation of Property, Plant, & Equipment																	
Total Book Depreciation																	
Begin Balance																	
Depreciation																	
Retirements																	







# APPENDIX A-5.1 (AUS)

\\nas-dc1\share\water\industry\PA\American - Royersford, PA\Royersford Wastewater System Valuation as of 12.10.2019

**Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Valuation Report for the Royersford-Owned Utility  
As of December 31, 2019**

Base	Periods																		
	1-5	16-19	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	
<b>Equity</b>																			
Additions to Equity (Source Positive) (Use Negative)																			
Dividend (Source negative) (Use Positive)																			
<b>Funds Provided from Operations</b>																			
Sources of Funds																			
Current Assets (Source Positive)	4,716,301	3,442,271	3,627,545	3,742,312	3,818,879	3,895,316	3,971,640	4,047,964	4,124,288	4,200,612	4,276,936	4,353,260	4,429,584	4,505,908	4,582,232	4,658,556	4,734,880	4,811,204	
Depreciation (Source positive) (Use negative)	186,337	199,984	200,249	201,510	202,771	204,032	205,293	206,554	207,815	209,076	210,337	211,598	212,859	214,120	215,381	216,642	217,903	219,164	
Current liabilities (Source Positive)	30,696	31,369	32,042	32,715	33,388	34,061	34,734	35,407	36,080	36,753	37,426	38,099	38,772	39,445	40,118	40,791	41,464	42,137	
Sources and Uses of Funds	3,700,033	3,640,148	3,910,366	3,981,051	4,051,736	4,122,421	4,193,106	4,263,791	4,334,476	4,405,161	4,475,846	4,546,531	4,617,216	4,687,901	4,758,586	4,829,271	4,900,000	4,970,729	
<b>Sources of Funds</b>																			
Current liabilities (Source Positive)																			
Uses of Funds																			
Current Assets, Increase (Use)	38,079	38,390	39,356	40,322	41,287	42,253	43,219	44,184	45,150	46,116	47,082	48,048	49,014	49,980	50,946	51,912	52,878	53,844	
Depreciation (Use)	298,336	308,811	319,286	329,761	340,236	350,711	361,186	371,661	382,136	392,611	403,086	413,561	424,036	434,511	444,986	455,461	465,936	476,411	
Total Uses of Funds	360,257	370,421	380,580	390,739	400,898	411,057	421,216	431,375	441,534	451,693	461,852	472,011	482,170	492,329	502,488	512,647	522,806	532,965	
<b>Funds from Financing Activities</b>																			
Changes in Debt																			
Payment of Long Term Debt																			
Funds from Equity																			
Dividend Paid (Use)																			
Total Funds from Financing Activities																			
<b>Total Funds Needed</b>	3,376,483.00	3,441,135.00	3,506,970.00	3,573,305.00	3,641,490.00	3,710,525.00	3,780,510.00	3,851,445.00	3,923,330.00	3,996,265.00	4,070,250.00	4,145,285.00	4,221,370.00	4,298,505.00	4,376,690.00	4,455,925.00	4,536,210.00	4,617,545.00	
<b>Financing</b>																			
Debt	(877,875.00)	(894,695.00)	(911,837.00)	(929,318.00)	(947,159.00)	(965,370.00)	(983,951.00)	(1,002,892.00)	(1,022,193.00)	(1,041,854.00)	(1,061,875.00)	(1,082,256.00)	(1,103,007.00)	(1,124,128.00)	(1,145,609.00)	(1,167,450.00)	(1,189,651.00)	(1,212,212.00)	
Equity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>Funds Provided by Financing</b>	(877,875.00)	(894,695.00)	(911,837.00)	(929,318.00)	(947,159.00)	(965,370.00)	(983,951.00)	(1,002,892.00)	(1,022,193.00)	(1,041,854.00)	(1,061,875.00)	(1,082,256.00)	(1,103,007.00)	(1,124,128.00)	(1,145,609.00)	(1,167,450.00)	(1,189,651.00)	(1,212,212.00)	

# APPENDIX A-5.1 (AUS)

(Unit: \$K) Share of water industry (W.American - Royersford, PA) Royersford Wastewater System Valuation as of 12/30/2019

**Pennsylvania American Water Company**  
**Wastewater Collection and Treatment System**  
**Potential Purchaser - Investor-Owned Utility**  
**As of December 31, 2019**

	Base	1-5	6-15	16-19	58	59	60
<b>Income Statement</b>							
Revenues							
Annual Revenue Growth rate		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Subscriber Growth Rate (Annually)		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Periodic Subscriber Growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Revenue for Periodic Growth		\$					
Rate Case Activities							
Periodic Rate Case (years)		Typically 3 years					
Required Rate Increase		Calculated as % of Revenues					
Required Rate Increase		Calculated as % of Revenues					
Total Revenue Adjustments		Calculated					
Base and Forecast	850,000						
Operating Expenses							
Operating and Administrative expenses	585,661	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%
Net Used	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Net Used	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Net Used	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Property Taxes	13,376,109						
Begin Plant							
Book Depreciation (based on Beginning Year Property Plant & Equipment)	0.97%						
Total Operating Expenses							
Operating Expenses as % of Revenues (Calculation)							
Operating Expenses less Depreciation							
Operating Income							
Nonrecognition (Revenue/ Expenses)							
Interest Income							
Interest Expense							
Interest Exp as % of Debt	3.2%						
Total (Including Interest Expenses)							
Income (loss) before State and Federal Taxes							
State and Federal Taxes							
State and Federal Tax Rate	28.0%						
Income After Taxes							
Income After Taxes plus Interest							
Earnings before Interest, Taxes, Depreciation, & Amortization							
Income (loss) before State and Federal Taxes							
Book Depreciation							
Tax Depreciation							
Difference (tax-over Book Depreciation)							
Income Tax Rate							
Income Taxes							
Income After Tax							
Accumulated Deferred Income Taxes							
Income After Taxes (Book Depreciation)							
Income After Taxes (Tax Depreciation)							
Plus Interest							
After Tax Income Debt Fee							
<b>Balance Sheet</b>							
Assets							
Current Assets	28,000	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%
Current Asset Balance							
<b>Balance Sheet</b>							
Property Plant & Equipment							
Total PPE							
Retirements							
End Balance	13,174,109.04						
Book Depreciation of Property, Plant, & Equipment							
Total Book Depreciation							
Begin Balance							
Retirements							



# APPENDIX A-5.1 (AUS)

\\nas-dc1\Share\water\_industry\PAmerican - Reynolds, PA\Reynolds Wastewater System Valuation as of 12-31-2019

Reynolds American Water Company  
 Reynolds/Borough  
 Wastewater Collection and Treatment System  
 Potential Purchaser: Investor-Owned Utility  
 As of December 31, 2019

	Base	1.5	16 - 19	15	50
	14,459,937	126,790,824	117,527,729	120,388,892	
	6.0%				
Accumulated PV of Cashflows	14,459,937	126,790,824	117,527,729	120,388,892	
CASH FLOW					
Income from Operations	6,772,609	4,802,882	4,802,882	4,802,882	6,948,774
Change in Working Capital	(100,451)	(99,458)	(99,458)	(99,458)	(100,451)
Capital Expenditures	92,689	93,020	93,020	93,020	93,941
Change in Working Capital	10,288	10,270	10,270	10,270	10,175
Net Cash Flows	4,161,788	4,807,054	4,807,054	4,807,054	6,948,674
Period	58.3	58.3	58.3	58.3	58.3
PW Factor	6.0%	6.0%	6.0%	6.0%	6.0%
Discount Rate with growth	6.0%	6.0%	6.0%	6.0%	6.0%
Discount Rate without growth	6.0%	6.0%	6.0%	6.0%	6.0%
Period Present Worth Factor (PW)	0.011	0.011	0.011	0.011	0.009
PW of Cashflow	14,459,937	126,790,824	117,527,729	120,388,892	127,022,943
Accumulated PV of Cashflows	14,459,937	126,790,824	117,527,729	120,388,892	127,022,943
Rate Case Forecasts					
Part B Service	18,286,931.04	18,286,931.04	18,286,931.04	18,286,931.04	18,217,465.04
Accumulated Book Depreciation	(8,543,745.77)	(8,543,745.77)	(8,543,745.77)	(8,543,745.77)	(8,543,745.77)
Working Capital	1,216,512.00	1,216,512.00	1,216,512.00	1,216,512.00	1,216,512.00
Debt	(2,295,120)	(2,295,120)	(2,295,120)	(2,295,120)	(2,185,663)
Rate Base	8,077,466.67	7,977,702.47	7,977,702.47	7,977,702.47	7,930,312.75
Authorized Return on Rate Base	155,516.00	152,097.00	152,097.00	152,097.00	148,728.00
CGM Expenses	(176,971.15)	(176,971.15)	(176,971.15)	(176,971.15)	(176,971.15)
Revenue Requirement	16,914.00	16,914.00	16,914.00	16,914.00	15,806.00
Ratepayers' Contribution Expense	3,480,655.15	3,491,166.20	3,491,166.20	3,491,166.20	3,533,621.72
CGM Expenses	(176,971.15)	(176,971.15)	(176,971.15)	(176,971.15)	(176,971.15)
Rate Base	16,351.00	16,351.00	16,351.00	16,351.00	15,806.00
Pre-tax Income	552,097.00	548,778.00	548,778.00	548,778.00	548,778.00
State & Federal Taxes @ 28.89%	(158,000.00)	(158,000.00)	(158,000.00)	(158,000.00)	(158,000.00)
Current Income	394,097.00	390,778.00	390,778.00	390,778.00	390,778.00
Revenue Requirement	9,699,163.00	9,699,163.00	9,699,163.00	9,699,163.00	9,699,163.00
Income from Operations	3,711,934.12	3,650,555.20	3,650,555.20	3,650,555.20	3,711,934.12
Return on Rate Base	4,831,425	4,831,425	4,831,425	4,831,425	4,938,227
Authorized Return	6.0%	6.0%	6.0%	6.0%	6.0%
After-tax Net Income	4,607,074	4,607,074	4,607,074	4,607,074	4,607,074
Taxes	(158,000)	(158,000)	(158,000)	(158,000)	(158,000)
Pre-tax Net Income	6,185,074	6,185,074	6,185,074	6,185,074	6,185,074
Operating Income	16,351	16,351	16,351	16,351	15,806
Operating Expenses	6,650,728	6,776,405	6,776,405	6,776,405	6,904,318
Revenue Requirement	2,838,225	2,922,738	2,922,738	2,922,738	2,988,838
Required Return	3,526,793	3,526,793	3,526,793	3,526,793	3,526,793
Required Return	555,516	557,057	557,057	557,057	548,778
Operating Expenses	2,838,225	2,922,738	2,922,738	2,922,738	2,988,838
Revenue Requirement	3,526,793	3,526,793	3,526,793	3,526,793	3,526,793
Required Rate Increase	60.21%	62.16%	62.16%	62.16%	62.48%
Proposed Rate Increase	58	59	59	60	60
Rate Increase Scenario	6	58	59	60	60
No rate increases (Year 2)	2	0%	0%	0%	0%
No Rate Increases (Year 2)	3				
Modest Rate Increases (Year 3rd year (Year 4))	4	0.0%	0.0%	0.0%	0.0%
Required Rate Increases 20% period 1, 20% period 2, 20% period 3 (Year 4)	5	0.0%	0.0%	0.0%	0.0%
Required Rate Increases 20% period 1, 20% period 2, 20% period 3 (Year 4)	6	0.0%	0.0%	0.0%	0.0%
Required Rate Increases (Year 4)	7	0.0%	0.0%	0.0%	0.0%
Required Rate Increases (Year 4)	8	0.0%	0.0%	0.0%	0.0%
Changes in Balance Sheet Accounts					
Assets	52,206	53,251	53,251	53,251	54,315
Liabilities & Equilibrium	92,089	93,010	93,010	93,941	94,840
Additional (Source: negative / Use: positive)	42,138	42,981	42,981	43,840	44,840
Additional Long Term Debt (Source: positive / Use: negative)	17,456	18,074	18,074	18,311	18,311

# APPENDIX A-5.1 (AUS)

\\psdnet\shared\water\indiana\PSA\americas - Riverbend, PA\Riverford Wastewater System\statements of 12-30-2019

**Pennsylvania American Water Company**  
**Reverend Borough**  
**Wastewater Treatment and Treatment System**  
**Private Purchase, Investor-Owned Utility**  
**As of December 31, 2019**

	2019	2018	2017	2016	2015	2014	2013	2012
<b>Equity</b>								
Common Stock	16,311	16,310	16,310	16,310	16,310	16,310	16,310	16,310
Retained Earnings	4,398,423	4,398,423	4,398,423	4,398,423	4,398,423	4,398,423	4,398,423	4,398,423
Accumulated Depreciation	(17,266)	(17,266)	(17,266)	(17,266)	(17,266)	(17,266)	(17,266)	(17,266)
Current Liabilities (Source Positive)	43,880	43,880	43,880	43,880	43,880	43,880	43,880	43,880
Current Liabilities (Use Negative)	(5,174,327)	(5,174,327)	(5,174,327)	(5,174,327)	(5,174,327)	(5,174,327)	(5,174,327)	(5,174,327)
<b>Total Equity</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>
<b>Assets</b>								
Current Assets	53,252	53,252	53,252	53,252	53,252	53,252	53,252	53,252
Fixed Assets	93,010	93,010	93,010	93,010	93,010	93,010	93,010	93,010
Accumulated Depreciation	(146,263)	(146,263)	(146,263)	(146,263)	(146,263)	(146,263)	(146,263)	(146,263)
<b>Total Assets</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>
<b>Financing</b>								
Common Stock	16,311	16,310	16,310	16,310	16,310	16,310	16,310	16,310
Retained Earnings	4,398,423	4,398,423	4,398,423	4,398,423	4,398,423	4,398,423	4,398,423	4,398,423
Accumulated Depreciation	(17,266)	(17,266)	(17,266)	(17,266)	(17,266)	(17,266)	(17,266)	(17,266)
Current Liabilities	43,880	43,880	43,880	43,880	43,880	43,880	43,880	43,880
Current Liabilities (Use Negative)	(5,174,327)	(5,174,327)	(5,174,327)	(5,174,327)	(5,174,327)	(5,174,327)	(5,174,327)	(5,174,327)
<b>Total Financing</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>	<b>14,362,221</b>















# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-110-2019 Created 5-20-2020

## Water and Wastewater Cost of Capital First Quarter 2020 (1-1-2020)

### As an Investor-Owned Utility

#### Weighted Cost of Capital (Discount Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3)*(4a)
Debt	26%	Market	3.23%	Market	28.89%	71.11%	0.60%
Equity	74%	Market	9.95%	Market	0.0%	100.0%	7.36%
<b>Total Capital r</b>	<b>100.0%</b>						<b>7.96%</b>
Growth (g)							<b>1.82%</b>
<b>Rate without Growth: <math>[(1+r)/(1+g)]-1</math></b>							<b>6.03%</b>

#### Weighted Cost of Capital (Capitlization Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	Market Capital Cost (2)*(3)
Debt	26%	Market	3.23%	Market	Not Applicable	Not Applicable	0.84%
Equity	74%	Market	9.95%	Market	Not Applicable	Not Applicable	7.36%
<b>Total Capital r</b>	<b>100.0%</b>						<b>8.20%</b>
Growth (g)							<b>1.82%</b>
<b>Rate without Growth: <math>[(1+r)/(1+g)]-1</math></b>							<b>6.26%</b>

#### Weighted Cost of Capital (Rate of Return on Rate Base)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	Required Return on Rate Base (2)*(3)
Debt	45%	Embedded	3.23%	Embedded	Not Applicable	Not Applicable	1.45%
Equity	55%	Embedded	9.95%	Market	Not Applicable	Not Applicable	5.47%
<b>Total Capital r</b>	<b>100.0%</b>						<b>6.92%</b>
Growth (g)						Not Applicable	<b>0.00%</b>
<b>Rate without Growth: <math>[(1+r)/(1+g)]-1</math></b>							<b>6.92%</b>

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Market Approach**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

**Pennsylvania American Water Company  
Royersford Borough  
Wastewater Collection and Treatment System  
Investor-Owned Utility  
As of December 10, 2019**

**Market Approach Summary**

Comparable Sales	OCLD / RCNLD	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Replacement Cost New less Depreciation (RCNLD)				
Measures of Central Tendency (PP/RCNLD)				
Mean		Simple Mean	Purchase Price Weighted Mean	
Standard Deviation		0.8220	0.931393289	
Median		0.1944	0.11	
Mode		0.9065	0.9639	
PP/RCNLD (Average)	13,376,109.04	0.9919	0.9919	
Average				
Original Cost less Depreciation (OCLD)				
Measures of Central Tendency (PP/OCLD)				
Mean		Simple Mean	Purchase Price Weighted Mean	
Standard Deviation		1.8306	1.8396	
Median		0.6246	0.1781	
Mode		1.5745	1.5888	
PP/OCLD (Average)	5,173,559.13	1.5601	1.5601	
Average				
Financial Markets				
Market Value per Share to Book Value per Share				
Market to Book (equity)		3.40		
Market to Book (equity and debt)		2.11		
Use (equity and debt)		2.11	Input	
Market Conclusion				
Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)				
Royersford Borough AUS Depreciated Original Cost		5,173,559.13	2.11	10,916,210
<b>Market Approach Summary</b>				Indicated Valus \$s
Minimum				8,602,767
Mean				10,797,371
Median				10,916,210
Maximum				12,873,137
Use (RCNLD)				12,873,137

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Market Approach**  
**Comparable Sales Analysis**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

# APPENDIX A-5.1 (AUS)

\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 As of December 10, 2019

Comparable Sales Approach

Market Sales Basis

Description	System Attributes	New Garden Wastewater System	Mckeesport Wastewater System	Limerick Wastewater System	Mahoning Water System	Mahoning Wastewater System	East Bradford Wastewater Collection System	Sadbury Wastewater Collection System	Exeter Wastewater Collection System	Steelton Water Treatment & Distribution	Cheltenham Wastewater Collection System	East Norriton Wastewater	Kane Wastewater Treatment	Simple Average / Standard Deviation	Weighted Average	Use
Purchase Price		29,500,000	159,000,000	75,100,000	4,734,800	4,785,200	5,000,000	9,250,000	96,000,000	22,500,000	50,250,000	21,000,000	17,560,000		494,660,000	100%
Proportion of Purchase Price to Total		6%	32%	15%	1%	1%	1%	2%	19%	5%	10%	4%	4%			
Acquirer		Aqua-PA Aug-16	PA-American Sep-16	Aqua-PA	SUEZ PA	SUEZ PA	Aqua-PA 20-Dec-17	PA-American	PA-American 29-May-18	PA-American 14-Nov-18	Aqua-PA Jun-18	Aqua-PA Oct-18	PA-American Sep-19			
Customers		18,567,728	101,915,080	46,153,867	8,899,336	7,991,234	5,388,591	6,128,876	40,057,634	14,433,435	15,784,463	8,407,007	12,070,455	Mean	268,902,136	
Original Cost		1,5888	1,5601	1,6272	0,532	0,5963	0,9387	1,5092	2,3965	1,5589	3,1835	2,4979	1,4548	StdDev	1,8306	1,8396
Depreciated Original Cost (AUS Consultants) OCLD		-0,2418	-0,2705	-0,2034	-0,29	-0,2257	-0,9019	-0,3214	0,5659	-0,2717	1,3529	0,6673	-0,3758	Median	0,6246	0,1781
Purchase Price to OCLD		-0,2508	-0,2795	-0,2124	0,159514999	0,112287512	-0,9109	-0,3304	0,5569	-0,2807	1,3439	0,6583	-0,3848	Mode	1,5745	1,5888
Variance to Simple Mean		0,001037772	0,003661062	0,003480208	0,159514999	0,112287512	0,152127274	0,023903235	0,001063198	8,476355-05	0,074806711	0,027786553	0,106402062		541,576584	
Variance to Wtd Mean		2,100	20320	5,434	1,248	984	99,589,819	8,517,587	99,589,819	23,921,473	49,940,486	27,461,356	29,015,055		0,931,932,289	
Replacement Cost New less Depreciation RCLND		0,9636	0,9919	0,8724	0,532	0,5963	0,5413	1,066	0,964	0,9406	1,0062	0,7647	0,6652	Mean	0,8220	0,931,932,289
Purchase Price to RCLND		0,032206711	0,060506711	-0,058993289	-0,29	-0,2257	-0,390093289	0,154606711	0,142	0,1186	0,1842	-0,0573	-0,2168	StdDev	0,1944	0,1100
Variance to Simple Mean		0,001037772	0,003661062	0,003480208	0,159514999	0,112287512	0,152127274	0,023903235	0,001063198	8,476355-05	0,074806711	-0,166693289	-0,326193289	Median	0,9065	0,9539
Variance to Wtd Mean		2,100	20320	5,434	1,248	984	99,589,819	8,517,587	99,589,819	23,921,473	49,940,486	27,461,356	29,015,055	Mode	0,9919	0,9919
Variance Squared																
Customers																
Customers															0,223045172	0,931,932,289





\\nas-dc1\Shared\wastewater\PA.American - Royersford, PA\Royersford Wastewater System\Valuation as of 12.10.2019

Table with multiple columns representing wastewater systems (New Garden, McKeesport, Limerick, Mahoning Water, East Bradford, Sadsbury, Exeter Wastewater, Cheltenham) and rows for various statistical tests (Thompson tau, Z and/or t score) and outlier determination results.

Market Approach - Sales Compar

# APPENDIX A-5.1 (AUS)

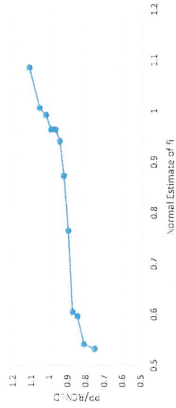
\\aus-dc1\Shared\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-10-2019

## Normality Check

Property	PP/R/CNLD	Rank	f <sub>i</sub>	z factor <sub>max</sub>	Normal Estimate of f <sub>i</sub>	Link src="https://www.calculatorsoup.com/calculators/statistics/normal-distribution-table.php"
Mahoning Water System	0.532	1	0.051020408	-3.62084682	0.75153897	1. Average your data.
East Bradford Wastewater Collection System	0.5413	2	0.112653061	-3.546302628	0.80860195	2. Calculate the normal distribution for each individual for and
Mahoning Wastewater System	0.5963	3	0.214285714	-3.046302628	0.844313042	3. Find the z-score for the vertical axis.
Kane Wastewater	0.6052	4	0.295948367	-2.965395337	0.8724139	
East Norriton Wastewater	0.7647	5	0.37755102	-1.515395337	0.897082193	
Limerick Wastewater System	0.8724	6	0.459183673	-0.586302628	0.920119333	
Steeleton Water System	0.9406	7	0.540846327	0.08697372	0.942667245	
New Garden Wastewater System	0.9636	8	0.62244898	0.292788281	0.965704385	
Exeter Wastewater Collection System	0.9654	9	0.704081633	0.296424645	0.990372678	
McKeesport Wastewater System	0.9919	10	0.785742286	0.550061009	1.018472536	
Cheltenham Wastewater Collection System	1.0062	11	0.867346939	0.680061009	1.053926383	
Sadsbury Wastewater Collection System	1.086	12	0.948979592	1.405515554	1.111247608	

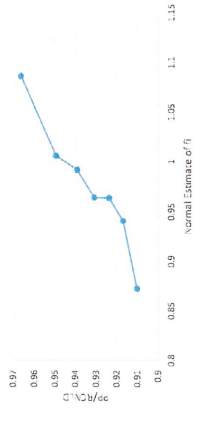
Mean (mean)	Standard Deviation (std)	3	Simple Average with Wtd Average	2	Simple Average without Outliers	4
0.931383289	0.11	0.8220	0.981383289	0.1100		

Normal Estimate of f<sub>i</sub> (Including Outliers)



Property	PP/R/CNLD	Rank	f <sub>i</sub>	z factor <sub>data</sub>	Normal Estimate of f <sub>i</sub>
Mahoning Water System (Outlier)	0.532	1	0.051020408	-11.8447205	0.860751736
East Bradford Wastewater Collection System (Outlier)	0.5413	2	0.112653061	-11.5559062	0.877531222
Mahoning Wastewater System (Outlier)	0.5963	3	0.214285714	-9.847826087	0.887909237
Kane Wastewater (Outlier)	0.6052	4	0.295948367	-9.571428571	0.896135124
East Norriton Wastewater (Outlier)	0.7647	5	0.37755102	-4.618012422	0.903356206
Limerick Wastewater System	0.8724	6	0.459183673	-1.273291925	0.910099806
Steeleton Water System	0.9406	7	0.540846327	0.844720497	0.916700194
New Garden Wastewater System	0.9636	8	0.62244898	1.559006211	0.923443794
Exeter Wastewater Collection System	0.9654	9	0.704081633	1.571428571	0.930664876
McKeesport Wastewater System	0.9919	10	0.785742286	2.437888199	0.938800763
Cheltenham Wastewater Collection System	1.0062	11	0.867346939	2.881987578	0.949268778
Sadsbury Wastewater Collection System	1.086	12	0.948979592	5.360248447	0.966048264

Normal Estimate of f<sub>i</sub> (Outliers Removed)



# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-11-2019 Created 5-7-2020

Market Sales	Purchase Price (PP)	RCNLD	PP/RCNLD	Market Sales	Purchase Price (PP)	Frequency	Accumulated PP	PP/RCNLD
New Garden Wastewater System	29,500,000	30,615,410	0.9636	Mahoning Water System	4,734,800	1.0%	4,734,800	0.5320
McKeesport Wastewater System	159,000,000	160,301,491	0.9919	East Bradford Wastewater Collection System	5,000,000	1.0%	9,734,800	0.5413
Limerick Wastewater System	75,100,000	86,086,756	0.8724	Mahoning Wastewater System	4,765,200	1.0%	14,500,000	0.5963
Mahoning Water System	4,734,800	8,899,336	0.5320	Kane Wastewater	17,560,000	3.5%	32,060,000	0.6052
Mahoning Wastewater System	4,765,200	7,991,234	0.5963	East Norriton Wastewater	21,000,000	4.2%	53,060,000	0.7647
East Bradford Wastewater Collection System	5,000,000	9,236,581	0.5413	Limerick Wastewater System	75,100,000	15.2%	128,160,000	0.8724
Sadsbury Wastewater Collection System	9,250,000	8,517,587	1.0860	Steelton Water System	22,500,000	4.5%	150,660,000	0.9406
Exeter Wastewater Collection System	96,000,000	99,589,819	0.9640	New Garden Wastewater System	29,500,000	6.0%	180,160,000	0.9636
Steelton Water System	22,500,000	23,921,473	0.9406	Exeter Wastewater Collection System	96,000,000	19.4%	276,160,000	0.9640
Cheltenham Wastewater Collection System	50,250,000	49,940,486	1.0062	McKeesport Wastewater System	159,000,000	32.1%	435,160,000	0.9919
East Norriton Wastewater	21,000,000	27,461,356	0.7647	Cheltenham Wastewater Collection System	50,250,000	10.2%	485,410,000	1.0062
Kane Wastewater	17,560,000	29,015,055	0.6052	Sadsbury Wastewater Collection System	9,250,000	1.9%	494,660,000	1.0860
<b>Total</b>	<b>494,660,000</b>	<b>541,576,584</b>		<b>Total</b>	<b>494,660,000</b>			

Market Sales	Purchase Price (PP)	OCLD	PP/OCLD	Market Sales	Purchase Price (PP)	Frequency	Accumulated PP	PP/OCLD
New Garden Wastewater System	29,500,000	18,567,728	1.5888	East Bradford Wastewater Collection System	5,000,000	1.0%	5,000,000	0.9287
McKeesport Wastewater System	159,000,000	101,915,080	1.5601	Kane Wastewater	17,560,000	3.6%	22,560,000	1.4548
Limerick Wastewater System	75,100,000	46,153,867	1.6272	Sadsbury Wastewater Collection System	9,250,000	1.9%	31,810,000	1.5092
Steelton Water System	22,500,000	29,015,055	0.7754	Steelton Water System	22,500,000	4.6%	54,310,000	1.5589
McKeesport Wastewater System	159,000,000	101,915,080	1.5601	McKeesport Wastewater System	159,000,000	32.8%	213,310,000	1.5601
Cheltenham Wastewater Collection System	50,250,000	49,940,486	1.0062	New Garden Wastewater System	29,500,000	6.1%	242,810,000	1.5888
East Norriton Wastewater	21,000,000	27,461,356	0.7647	Limerick Wastewater System	75,100,000	15.5%	317,910,000	1.6272
Kane Wastewater	17,560,000	29,015,055	0.6052	Exeter Wastewater Collection System	96,000,000	19.8%	413,910,000	2.3965
<b>Total</b>	<b>494,660,000</b>	<b>541,576,584</b>		East Norriton Wastewater	21,000,000	4.3%	434,910,000	2.4979
				Cheltenham Wastewater Collection System	50,250,000	10.4%	485,160,000	3.1835
				<b>Total</b>	<b>485,160,000</b>			

Market Sales	Purchase Price (PP)	OCLD	PP/OCLD	Market Sales	Purchase Price (PP)	Frequency	Accumulated PP	PP/OCLD
New Garden Wastewater System	29,500,000	18,567,728	1.5888	East Bradford Wastewater Collection System	5,000,000	1.0%	5,000,000	0.9287
McKeesport Wastewater System	159,000,000	101,915,080	1.5601	Kane Wastewater	17,560,000	3.6%	22,560,000	1.4548
Limerick Wastewater System	75,100,000	46,153,867	1.6272	Sadsbury Wastewater Collection System	9,250,000	1.9%	31,810,000	1.5092
Steelton Water System	22,500,000	29,015,055	0.7754	Steelton Water System	22,500,000	4.6%	54,310,000	1.5589
McKeesport Wastewater System	159,000,000	101,915,080	1.5601	McKeesport Wastewater System	159,000,000	32.8%	213,310,000	1.5601
Cheltenham Wastewater Collection System	50,250,000	49,940,486	1.0062	New Garden Wastewater System	29,500,000	6.1%	242,810,000	1.5888
East Norriton Wastewater	21,000,000	27,461,356	0.7647	Limerick Wastewater System	75,100,000	15.5%	317,910,000	1.6272
Kane Wastewater	17,560,000	29,015,055	0.6052	Exeter Wastewater Collection System	96,000,000	19.8%	413,910,000	2.3965
<b>Total</b>	<b>494,660,000</b>	<b>541,576,584</b>		East Norriton Wastewater	21,000,000	4.3%	434,910,000	2.4979
				Cheltenham Wastewater Collection System	50,250,000	10.4%	485,160,000	3.1835
				<b>Total</b>	<b>485,160,000</b>			

Market Sales	Purchase Price (PP)	OCLD	PP/OCLD	Market Sales	Purchase Price (PP)	Frequency	Accumulated PP	PP/OCLD
New Garden Wastewater System	29,500,000	18,567,728	1.5888	East Bradford Wastewater Collection System	5,000,000	1.0%	5,000,000	0.9287
McKeesport Wastewater System	159,000,000	101,915,080	1.5601	Kane Wastewater	17,560,000	3.6%	22,560,000	1.4548
Limerick Wastewater System	75,100,000	46,153,867	1.6272	Sadsbury Wastewater Collection System	9,250,000	1.9%	31,810,000	1.5092
Steelton Water System	22,500,000	29,015,055	0.7754	Steelton Water System	22,500,000	4.6%	54,310,000	1.5589
McKeesport Wastewater System	159,000,000	101,915,080	1.5601	McKeesport Wastewater System	159,000,000	32.8%	213,310,000	1.5601
Cheltenham Wastewater Collection System	50,250,000	49,940,486	1.0062	New Garden Wastewater System	29,500,000	6.1%	242,810,000	1.5888
East Norriton Wastewater	21,000,000	27,461,356	0.7647	Limerick Wastewater System	75,100,000	15.5%	317,910,000	1.6272
Kane Wastewater	17,560,000	29,015,055	0.6052	Exeter Wastewater Collection System	96,000,000	19.8%	413,910,000	2.3965
<b>Total</b>	<b>494,660,000</b>	<b>541,576,584</b>		East Norriton Wastewater	21,000,000	4.3%	434,910,000	2.4979
				Cheltenham Wastewater Collection System	50,250,000	10.4%	485,160,000	3.1835
				<b>Total</b>	<b>485,160,000</b>			

Market Approach

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Market Approach**  
**Value Line Investment Surveys**  
**Water Industry**  
**Market and Financial Ratios**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinerti@auswest.net](mailto:weinerti@auswest.net)**

# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-110-2019 Created 5-7-2020

Pennsylvania American Water Company  
 Royersford Borough  
 Wastewater Collection and Treatment System  
 Investor-Owned Utility  
 December 10, 2019

## Comparable Sales Approach

### Financial Basis<sup>1</sup>

	Industry Averages	American & Aqua Averages	American States Water	American Water	Aqua America	California Water	Connecticut Water <sup>2</sup>	Consol. Water Co.	Middlesex Water	SIW Corp	York
Price per Share	3.40	3.1	87.33	123.05	47.08	51.52	16.46	63.56	71.79	46.38	
Book value per share	1.18	0.480	16.1	34.4	18	15.85	10.95	15.7	31.2	10.4	
Market to Book Equity Ratio	3.415	3.1	5.42	3.58	2.62	3.25	1.5	4.05	2.3	4.46	
Minimum	1.5	2.62									
Mean	3.40	3.1									
Standard Deviation	1.18	0.480									
Weighted Market to Debt Ratio	3.41										
Median	3.415	3.1	20,013.22	112,367.28	34,710.24	11,207.07	371.03	5,481.74	5,874.18	3,135.10	193,159.86
Maximum	5.42	3.58									
Debt (Total) \$s millions			475.3	9,143.0	3,086.4	967.9		294.0	511.1	100.7	
Outstanding Shares (millions)			36.84	180.78	215.84	48.15	15.03	16.67	28.46	12.98	
Debt per share			12.9	50.58	14.3	20.1	0	17.64	17.96	7.76	
Equity (Total) \$s millions			3,217.18	22,244.51	10,161.78	2,480.43	247.35	1,059.52	2,042.89	602.24	
Total Capital (Debt + Equity)			3,692.48	31,387.51	13,248.18	3,448.33	247.35	1,353.52	2,553.99	702.94	56,634.30
Market Value per Share (Equity+Debt)			100.23	173.63	61.38	71.62	16.46	81.2	89.75	54.14	
Book Value per Share (Equity+Debt)			29	84.98	32.3	35.95	10.95	33.34	49.16	18.16	
Market to Book (Total Capital) Ratio			3.46	2.04	1.9	1.99	1.5	2.44	1.83	2.98	
Minimum	1.5	1.9									
Mean	2.27	1.97									
Standard Deviation	0.61	0.070									
Weighted Market to Book (Debt&Equity) Ratio	2.11										
Variance to Wtd Mean	0.1392										
Median	2.015	1.97	12,775.97	64,030.52	25,171.55	6,862.18	371.03	3,302.58	4,673.80	2,094.75	119,282.38
Maximum	3.46	2.04	1.35	(0.07)	(0.21)	(0.12)	(2.11)	0.33	(0.28)	0.87	

1. Value Line Investment Survey January 10, 2020  
 2. Value Line dropped Connecticut Water in its January 10, 2020 publication

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Cost Indices**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**  
**ail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Handy Whitman Index of Public System Construction Costs**  
**Water Industry – Northeastern United States**

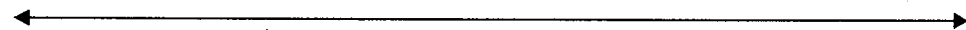
**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**  
**ail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**



*Bulletin No. 190*

*1912 to July 1, 2019*

The  
Handy-Whitman Index<sup>®</sup>  
of  
Public Utility  
Construction Costs<sup>™</sup>



*Trends of Construction Costs*

COMPILED & PUBLISHED BY

**Whitman, Requardt & Associates, LLP**

**Engineers, Architects and Planners**

**801 South Caroline Street**

**Baltimore, Maryland 21231**

**410-235-3450**

---

COPYRIGHT 2019

BY

*WHITMAN, REQUARDT AND ASSOCIATES, LLP*

ISSN 1092-955X

All rights reserved. No part of this book may be reproduced or transmitted in any form by any means (electronic, photocopying, recording, or otherwise) without the prior written permission of the publisher.

# TABLE OF CONTENTS

---

## TRENDS OF PUBLIC UTILITY CONSTRUCTION COSTS

TABLE OF CONTENTS	i
GEOGRAPHIC REGIONS	ii
FOREWORD	iii
Methods of Preparation of Indexes	iii
Geographic Regions	iv
Use of Index Numbers	iv
Value of Index Numbers	iv
Comments	iv

### COST TRENDS OF BUILDING CONSTRUCTION

	<u>Table</u>	<u>Page</u>
Cost Trend Tables - 1912 to July 1, 2919		
North Atlantic Region	B-1	B-1-1
South Atlantic Region	B-2	B-2-1
North Central Region	B-3	B-3-1
South Central Region	B-4	B-4-1
Plateau Region	B-5	B-5-1
Pacific Region	B-6	B-6-1
Utility Materials	M-1	B-M-1

### COST TRENDS OF ELECTRIC UTILITY CONSTRUCTION

Cost Trend Tables - 1912 to July 1, 2919		
North Atlantic Region	E-1	E-1-1
South Atlantic Region	E-2	E-2-1
North Central Region	E-3	E-3-1
South Central Region	E-4	E-4-1
Plateau Region	E-5	E-5-1
Pacific Region	E-6	E-6-1

### COST TRENDS OF GAS UTILITY CONSTRUCTION

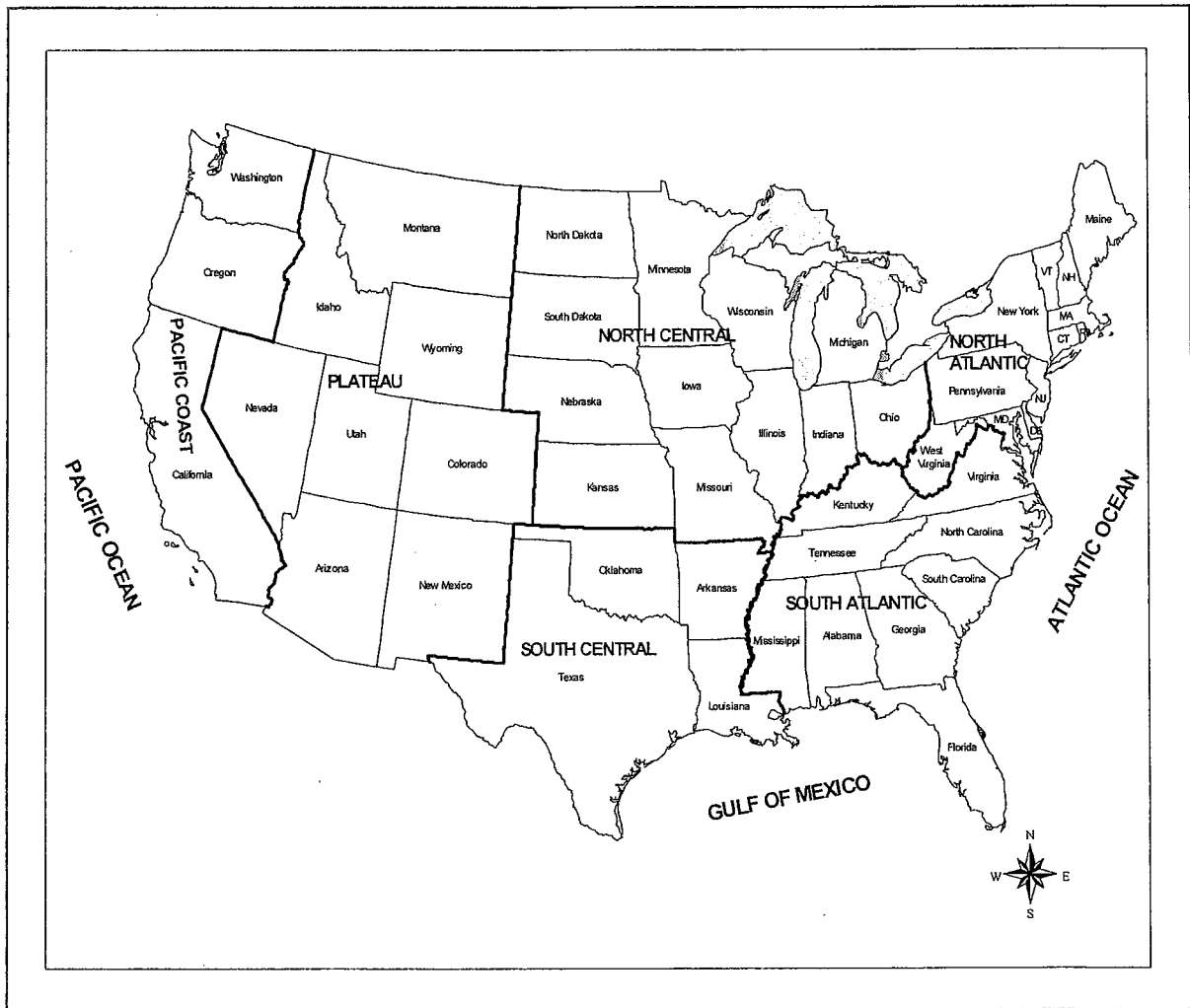
Cost Trend Tables - 1912 to July 1, 2919		
North Atlantic Region	G-1	G-1-1
South Atlantic Region	G-2	G-2-1
North Central Region	G-3	G-3-1
South Central Region	G-4	G-4-1
Plateau Region	G-5	G-5-1
Pacific Region	G-6	G-6-1

### COST TRENDS OF WATER UTILITY CONSTRUCTION

Cost Trend Tables - 1912 to July 1, 2919		
North Atlantic Region	W-1	W-1-1
South Atlantic Region	W-2	W-2-1
North Central Region	W-3	W-3-1
South Central Region	W-4	W-4-1
Plateau Region	W-5	W-5-1
Pacific Region	W-6	W-6-1

# TRENDS OF PUBLIC UTILITY CONSTRUCTION COSTS

## GEOGRAPHIC REGIONS



### Tradition of Quality

The Handy-Whitman Index of Public Utility Construction Costs has been published continuously since 1924. Formerly the Handy Index, Bulletin Nos. 1 through 15 were developed by William W. Handy of Baltimore who had wide valuation experience in public utilities. *He believed that valuation studies should not be confined to rate cases but should be kept alive to the benefit of the utility industry.* He began publishing index numbers for electric and gas construction cost trends. Carrying on with the *tradition of quality*, after Mr. Handy's death, we continued publication for his estate beginning with Bulletin 16. Then, January 1, 1950, Whitman, Requardt and Associates, LLP purchased rights to the publication and have since been the sole publishers.

The name Handy-Whitman Index was adopted for Bulletin No. 53 and succeeding issues to combine the names of Mr. Handy and Ezra B. Whitman, a well-known valuation engineer. In 1957 an index of water utility construction costs was added. Mr. Whitman was a consultant on the publication of the Index until his death in 1963.

### Whitman, Requardt and Associates, LLP

Ezra B. Whitman, a well-known valuation engineer was one of the founders of our firm. Major Whitman, as he was known from his World War I service, had already made a name for himself. Prior to the founding of the firm in 1915, Major Whitman had been President and Chief Engineer of the Water Board of the City of Baltimore. He designed the first rapid sand filtration plant serving a major city while he was the Baltimore Water Engineer. He was also president of the American Society of Civil Engineers and of the American Institute of Consulting Engineers and a chairman of the Public Service Commission of Maryland.

The Handy-Whitman Index is prepared especially for electric, gas and water utilities and is the only known publication of its kind available to the public. The list of subscribers is international and includes operating utilities, regulatory bodies, valuation engineers, equipment industries, insurance companies and reference libraries.

### Tradition of Quality Continued

Since 1915, Whitman, Requardt and Associates, LLP, has been an independent consulting engineering firm organized to serve government, industry and private enterprise.

The firm has steadily expanded its engineering capabilities, providing complete services for civil, sanitary, structural, mechanical and electrical engineering and architectural projects from job

inception through construction management. Construction cost data from utility projects of all types are available from design and valuation assignments. The staff is composed of specialists in these and related disciplines who bring a diverse professional and academic expertise to each assignment. A full-time staff is maintained specifically for preparing the Handy-Whitman Index.

### Methods of Preparation of Indexes

An index number is a percentage ratio between the cost of an item at any stated time and its cost at a base period, or:

$$\text{Index Number} = \frac{\text{cost at stated time}}{\text{cost at base period}} \times 100$$

Index numbers have been prepared for many items, including wage rates, cost-of-living, material and equipment costs, and financial transactions. In the Handy-Whitman Index, index numbers have been developed for Building Construction, Electric Utility Construction, Gas Utility Construction and Water Utility Construction. Prices of basic materials such as cement, sand, gravel, cast iron pipe, wire, etc., are obtained from publications such as Engineering News-Record and checked against prices actually being paid for such materials. Labor cost trends are computed from labor rates obtained from sources such as the Construction Labor Research Council. Prices and cost trends of equipment are obtained from nationally recognized manufacturers, and operating utilities.

Handy-Whitman Index numbers are developed from wage rates and prices prevailing on January 1 and July 1 each year. The index numbers are generally based on 1973 = 100, although those items of recent origin are based on a later year.

The proportions of basic materials, labor, equipment and other cost components used in the Handy-Whitman Index are based on analyses developed during valuation and design assignments and on data furnished by utilities and industrial sources willing to assist with the Index. These data are reviewed continuously, and weightings and components are revised as required. This review assures that the indexes published reflect current construction practice.

**FOREWORD****Geographic Regions**

To reflect differing cost trends throughout the 48 contiguous states, the index has been divided into six geographical regions of similar characteristics. They are shown on the accompanying map.

**Use of Index Numbers**

Handy-Whitman Index numbers have been widely used to trend earlier valuations and original cost records to estimate reproduction cost at prices prevailing at a certain date. The use of indexes for an appropriate property item or group will provide a reliable guide to changes in cost. Cost trends are given for all the important items of property. The electric and gas groups are arranged by the Federal Energy Regulatory Commission Uniform System of Accounts. The water property accounts are arranged to follow the classification of the National Association of Regulatory Utility Commissioners and the American Water Works Association.

The Handy-Whitman Index will furnish a yardstick for the fluctuations in value of property which will be satisfactory for many purposes. In rate cases, when a more exact determination of value is desired, however, the Index must be used carefully. Average prices and cost trends are used to develop the Index, and any direct application of cost trends without checking with actual local experience may not be accepted without controversy. When local experience is compared with the index and the correlation between the two trends is determined, the result is satisfactory. Costs trended by such a method are used to assist in establishing a rate base.

Indexes in these bulletins are used to trend earlier valuations or original cost records for insurance purposes.

The Handy-Whitman Index has a general application in valuations of all types of property. The building construction cost trends may be used wherever similar items of property are to be compared. Many of the other trends may be used for related items in other industries because of their similarity.

State-of-the-art changes often affect costs independently of inflation. New regulatory and environmental requirements, changes in work rules and improved design standards, for instance, increase construction costs even though the price of wages, materials and equipment may be static. Trended construction costs will not reflect such changes. However, trended costs are a reasonably accurate measure of the cost of reproducing actual plant.

Although every effort is made to maintain accuracy, Whitman, Requardt and Associates, LLP disclaim any responsibility for the use of these indexes, because local conditions may vary.

No guarantee or warranty of any kind is made in the sale of the Handy-Whitman Index. Published numbers are occasionally subject to change based upon receipt of new or different information. These numbers will be bolded.

Further inquiries on electric, gas and water indexes should be addressed to Whitman, Requardt and Associates, LLP.

**Total Electric Plant and Function**

Three indexes are provided for total plant. The first is for all steam generation and the other two for weighted combinations of steam and nuclear, and steam and hydro generation. Indexes are also provided for each function.

Indexes are not maintained for plant accounts 323,324,325,341,345 and 346. We believe that indexes for comparable accounts in other functions are sufficiently accurate for these accounts.

The indexes for total nuclear production and total other production incorporate comparable indexes from the steam production function for the accounts not listed.

**Value of Index Numbers**

We believe that present-day reproduction cost of any property can be calculated more accurately using index numbers than by repricing a complete inventory.

Trending the controlling items of property in any utility by the index method saves time and effort in arriving at a valuation. Analyzing and determining cost trends for all of the great numbers of articles of plant that represent only a very small proportion of the value of the utility is not necessary. They may be assumed to follow in general the trend of the controlling items, and the fluctuations in value above or below the trends of the controlling items will tend to offset each other and have a very slight effect on the total value.

**Comments on Bulletin No. 190**

During the twelve month period ending July 1, 2019, the average index of all geographical regions for Total Gas Plant increased 1.7%, and the comparable index for Electric Plant-All Steam Generation increased 2.8%.

November 2019  
Whitman, Requardt and Associates, LLP

**Cost Trends Of**

**Water Utility**

**Construction**

**COST TREND TABLES**  
**1912 to July 1, 2019**

COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	N	COST INDEX NUMBERS														
			A	1	1	1	1	1	1	1	1	1	1	1	1		
			R	9	9	9	9	9	9	9	9	9	9	9	9	9	
1	<b>Source of Supply Plant</b>																
2	Collecting & Impounding Res.	305	7	7	7	7	9	13	15	15	17	16	16	16	16	16	16
3																	
4																	
5																	
6																	
7	<b>Pumping Plant</b>																
8	Structures & Improvements	304	8	8	8	9	11	16	17	18	20	18	18	18	19	18	18
9	Electric Pumping Equipment	311	-	-	15	15	17	20	22	24	24	23	21	22	23	23	23
10																	
11																	
12																	
13																	
14	<b>Water Treatment Plant</b>																
15	Structures & Improvements	304	8	8	8	9	11	16	17	18	20	18	18	18	19	18	18
16	Large Treatment Plant Equip.	320	9	9	9	9	11	14	16	17	20	19	18	18	20	20	20
17	Small Treatment Plant Equip.	320	10	10	10	10	13	17	19	19	22	20	20	20	21	20	20
18																	
19																	
20																	
21																	
22	<b>Transmission Plant</b>																
23	Steel Reservoirs	330	4	4	4	12	15	17	19	20	15	13	12	13	13	13	13
24	Elevated Steel Tanks	330	4	4	4	11	14	16	18	19	16	13	11	12	11	12	10
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																	
27	Cast Iron Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Steel Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Concrete Cylinder Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30																	
31																	
32																	
33	<b>Distribution Plant</b>																
34	Mains-Average All Types	331	9	10	8	9	11	16	19	20	22	22	20	21	22	21	21
35	Cast Iron Mains	331	9	10	9	9	12	18	20	22	25	24	22	23	24	23	23
36	Cement-Asbestos Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	Steel Mains	331	6	7	6	7	8	11	13	13	14	15	14	14	14	15	15
38	PVC Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Services Installed	333	6	6	5	6	6	9	10	11	12	13	12	12	13	13	13
40	Meters	334	23	23	23	23	26	29	35	37	37	37	37	37	37	37	37
41	Meter Installations	334	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	Hydrants Installed	335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43																	
44																	
45	<b>Miscellaneous Items</b>																
46	Flocculating Equipment-Installed		14	16	13	14	26	38	31	29	29	24	25	26	24	23	23
47	Clarifier Equipment-Installed		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	Filter Gallery Piping-Installed		8	8	8	8	10	14	16	18	20	18	17	18	19	19	19
49																	
50																	
51																	
52																	
53																	
54																	
55																	
56																	



NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	N	COST INDEX NUMBERS													
			A	1	1	1	1	1	1	1	1	1	1	1	1	
			R	9	9	9	9	9	9	9	9	9	9	9	9	9
U	2	2	2	2	3	3	3	3	3	3	3	3	3	3		
C	6	7	8	9	0	1	2	3	4	5	6	7	8	9		
1	<b>Source of Supply Plant</b>															
2	Collecting & Impounding Res.	305	17	17	17	17	17	16	14	14	15	15	17	17	17	
3																
4																
5																
6																
7	<b>Pumping Plant</b>															
8	Structures & Improvements	304	19	18	18	18	17	16	15	15	16	16	16	18	18	18
9	Electric Pumping Equipment	311	23	23	23	22	22	22	22	23	24	24	25	26	26	26
10																
11																
12																
13																
14	<b>Water Treatment Plant</b>															
15	Structures & Improvements	304	19	18	18	18	17	16	15	15	16	16	16	18	18	18
16	Large Treatment Plant Equip.	320	20	20	20	20	20	19	17	17	18	18	18	20	20	20
17	Small Treatment Plant Equip.	320	20	20	20	20	20	19	17	17	19	19	19	21	21	21
18																
19																
20																
21																
22	<b>Transmission Plant</b>															
23	Steel Reservoirs	330	12	12	12	12	11	10	9	9	12	11	12	14	14	14
24	Elevated Steel Tanks	330	11	10	10	10	10	9	8	8	10	10	11	12	13	13
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Steel Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Concrete Cylinder Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30																
31																
32																
33	<b>Distribution Plant</b>															
34	Mains-Average All Types	331	21	21	20	20	20	20	18	18	19	19	20	21	22	22
35	Cast Iron Mains	331	23	21	20	21	21	20	18	18	20	20	21	23	24	24
36	Cement-Asbestos Mains	331	-	-	-	-	-	-	-	-	-	-	31	32	32	33
37	Steel Mains	331	15	15	15	16	16	16	14	13	14	14	14	16	16	16
38	PVC Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Services Installed	333	13	13	13	14	14	14	13	11	12	13	13	14	14	14
40	Meters	334	37	37	37	37	37	37	37	35	26	26	26	31	32	32
41	Meter Installations	334	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	Hydrants Installed	335	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43																
44																
45	<b>Miscellaneous Items</b>															
46	Flocculating Equipment-Installed		23	22	22	22	21	20	20	20	21	21	23	26	25	25
47	Clarifier Equipment-Installed		-	-	-	-	-	-	-	-	-	-	-	17	23	24
48	Filter Gallery Piping-Installed		19	18	18	18	18	18	15	16	18	18	18	19	20	20
49																
50																
51																
52																
53																
54																
55																
56																

COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	N A R U C	COST INDEX NUMBERS													
			1	1	1	1	1	1	1	1	1	1	1	1	1	
			9	9	9	9	9	9	9	9	9	9	9	5	5	5
			0	1	2	3	4	5	6	7	8	9	0	1	2	3
1	<b>Source of Supply Plant</b>															
2	Collecting & Impounding Res.	305	17	18	20	20	20	21	23	27	31	32	33	35	36	38
3																
4																
5																
6																
7	<b>Pumping Plant</b>															
8	Structures & Improvements	304	18	19	20	21	21	22	24	28	32	35	36	38	38	39
9	Electric Pumping Equipment	311	26	27	27	27	27	27	31	39	43	45	49	55	55	55
10																
11																
12																
13																
14	<b>Water Treatment Plant</b>															
15	Structures & Improvements	304	18	19	20	21	21	22	24	28	32	35	36	38	38	39
16	Large Treatment Plant Equip.	320	21	22	23	24	24	25	28	32	35	36	38	40	41	42
17	Small Treatment Plant Equip.	320	21	22	24	24	24	25	28	33	37	39	41	43	43	44
18																
19																
20																
21																
22	<b>Transmission Plant</b>															
23	Steel Reservoirs	330	14	16	16	13	14	16	20	26	29	27	28	30	31	32
24	Elevated Steel Tanks	330	12	15	15	14	15	14	17	23	26	25	26	28	29	31
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	-	-	-	-	-	-	-	-	-	-	-	42	43	45
28	Steel Mains	331	-	-	-	-	-	-	-	-	-	-	-	40	40	43
29	Concrete Cylinder Mains	331	-	-	-	-	-	-	-	-	-	-	-	44	45	47
30																
31																
32																
33	<b>Distribution Plant</b>															
34	Mains-Average All Types	331	23	23	24	25	25	26	29	35	41	42	43	45	47	48
35	Cast Iron Mains	331	24	25	27	27	28	28	32	39	46	46	48	50	51	53
36	Cement-Asbestos Mains	331	33	34	36	36	37	37	44	49	59	61	62	64	65	67
37	Steel Mains	331	16	17	18	18	18	19	21	24	28	29	31	32	34	36
38	PVC Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Services Installed	333	14	15	16	16	17	17	19	22	25	27	28	29	31	33
40	Meters	334	33	35	37	37	37	37	40	42	48	52	59	61	61	65
41	Meter Installations	334	-	-	-	-	-	-	-	-	-	29	31	34	35	36
42	Hydrants Installed	335	-	-	-	-	-	-	-	-	-	35	37	41	41	43
43																
44																
45	<b>Miscellaneous Items</b>															
46	Flocculating Equipment-Installed		25	27	28	28	28	30	33	38	44	45	45	49	49	50
47	Clarifier Equipment-Installed		25	26	27	27	27	29	32	37	43	43	44	46	46	49
48	Filter Gallery Piping-Installed		21	21	22	22	22	23	25	30	35	37	37	39	40	41
49																
50																
51																
52																
53																
54																
55																
56																

# APPENDIX A-5.1 (AUS)

W-1

## COST TRENDS OF WATER UTILITY CONSTRUCTION

### NORTH ATLANTIC REGION (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	N A R U C	COST INDEX NUMBERS													
			1	1	1	1	1	1	1	1	1	1	1	1	1	1
			9	9	9	9	9	9	9	9	9	9	9	9	9	9
			4	5	6	7	8	9	0	1	2	3	4	5	6	7
1	<b>Source of Supply Plant</b>															
2	Collecting & Impounding Res.	305	39	41	44	47	49	51	52	53	55	56	57	59	61	64
3																
4																
5																
6																
7	<b>Pumping Plant</b>															
8	Structures & Improvements	304	41	43	46	49	50	52	53	53	54	55	56	57	59	61
9	Electric Pumping Equipment	311	55	56	63	69	73	74	74	71	71	71	73	74	78	81
10																
11																
12																
13																
14	<b>Water Treatment Plant</b>															
15	Structures & Improvements	304	41	43	46	49	50	52	53	53	54	55	56	57	59	61
16	Large Treatment Plant Equip.	320	44	45	48	50	52	54	55	56	58	59	60	62	64	67
17	Small Treatment Plant Equip.	320	46	47	50	53	54	56	58	58	60	60	62	63	66	68
18																
19																
20																
21																
22	<b>Transmission Plant</b>															
23	Steel Reservoirs	330	32	33	38	42	37	36	35	35	35	41	44	45	46	47
24	Elevated Steel Tanks	330	31	33	35	38	38	38	38	37	36	37	38	38	41	44
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	47	50	52	56	57	61	62	63	64	65	66	67	69	71
28	Steel Mains	331	44	46	49	52	55	57	57	58	59	60	61	63	65	67
29	Concrete Cylinder Mains	331	48	50	52	54	56	59	60	60	61	62	62	64	66	70
30																
31																
32																
33	<b>Distribution Plant</b>															
34	Mains-Average All Types	331	51	53	57	60	63	65	68	69	71	72	73	74	75	76
35	Cast Iron Mains	331	56	59	62	66	68	72	73	75	77	79	79	80	80	81
36	Cement-Asbestos Mains	331	68	70	75	78	81	84	86	86	87	89	88	81	82	82
37	Steel Mains	331	38	40	43	46	48	51	53	55	56	58	60	63	65	66
38	PVC Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Services Installed	333	35	36	39	41	44	46	48	50	51	53	55	58	60	63
40	Meters	334	67	70	77	78	78	78	78	78	84	87	87	93	101	101
41	Meter Installations	334	38	40	44	45	46	48	51	52	54	55	57	59	62	65
42	Hydrants Installed	335	44	44	48	50	51	53	54	55	56	57	58	58	61	64
43																
44																
45	<b>Miscellaneous Items</b>															
46	Flocculating Equipment-Installed		52	53	57	58	58	59	60	61	61	62	65	66	67	68
47	Clarifier Equipment-Installed		50	49	53	55	57	58	58	59	60	60	63	65	66	67
48	Filter Gallery Piping-Installed		44	46	48	50	53	54	56	57	58	59	60	61	63	65
49																
50																
51																
52																
53																
54																
55																
56																

NORTH ATLANTIC REGION (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	N A R U C	COST INDEX NUMBERS													
			1	1	1	1	1	1	1	1	1	1	1	1	1	1
			9	9	9	9	9	9	9	9	9	9	9	9	9	9
1	<b>Source of Supply Plant</b>															
2	Collecting & Impounding Res.	305	67	72	78	86	94	100	115	127	133	139	148	164	179	189
3																
4																
5																
6																
7	<b>Pumping Plant</b>															
8	Structures & Improvements	304	64	69	75	84	92	100	117	127	130	137	148	163	181	191
9	Electric Pumping Equipment	311	81	84	89	93	96	100	122	155	174	184	192	205	222	245
10																
11																
12																
13																
14	<b>Water Treatment Plant</b>															
15	Structures & Improvements	304	64	69	75	84	92	100	117	127	130	137	148	163	181	191
16	Large Treatment Plant Equip.	320	69	73	79	89	96	100	118	134	144	152	162	175	191	208
17	Small Treatment Plant Equip.	320	70	74	80	90	96	100	120	139	150	160	172	186	204	223
18																
19																
20																
21																
22	<b>Transmission Plant</b>															
23	Steel Reservoirs	330	49	53	75	82	85	100	140	159	171	172	173	178	191	208
24	Elevated Steel Tanks	330	48	55	71	80	86	100	152	183	182	183	195	206	228	250
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	74	78	84	91	96	100	129	137	142	150	158	166	180	196
28	Steel Mains	331	69	74	80	88	96	100	113	125	133	141	152	166	180	199
29	Concrete Cylinder Mains	331	72	78	80	88	95	100	113	134	138	140	148	162	176	189
30																
31																
32																
33	<b>Distribution Plant</b>															
34	Mains-Average All Types	331	77	80	84	94	98	100	110	146	154	162	173	185	202	219
35	Cast Iron Mains	331	82	83	88	97	99	100	143	158	163	167	178	185	202	218
36	Cement-Asbestos Mains	331	82	85	88	97	98	100	127	148	159	167	176	202	212	234
37	Steel Mains	331	68	72	78	88	97	100	115	128	139	151	164	179	197	212
38	PVC Mains	331	-	-	-	-	-	-	25	100	104	108	113	122	132	138
39	Services Installed	333	66	72	79	89	96	100	115	123	130	139	145	160	175	184
40	Meters	334	101	106	108	108	106	100	93	93	98	101	105	108	122	127
41	Meter Installations	334	68	73	79	89	97	100	113	120	131	147	152	162	177	189
42	Hydrants Installed	335	68	72	80	90	96	100	123	143	157	167	182	194	207	222
43																
44																
45	<b>Miscellaneous Items</b>															
46	Flocculating Equipment-Installed		69	74	82	93	98	100	139	174	195	218	246	290	350	406
47	Clarifier Equipment-Installed		68	72	82	93	98	100	140	167	181	199	210	232	272	310
48	Filter Gallery Piping-Installed		68	72	78	90	97	100	119	130	136	144	151	158	171	185
49																
50																
51																
52																
53																
54																
55																
56																

NORTH ATLANTIC REGION (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	N A R U C	COST INDEX NUMBERS														
			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
			9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
1	<b>Source of Supply Plant</b>																
2	Collecting & Impounding Res.	305	197	206	217	227	234	238	248	255	258	262	270	282	295	302	
3																	
4																	
5																	
6																	
7	<b>Pumping Plant</b>																
8	Structures & Improvements	304	198	206	218	225	233	239	251	265	271	274	281	294	308	316	
9	Electric Pumping Equipment	311	260	271	277	282	284	299	311	330	349	355	368	386	428	442	
10																	
11																	
12																	
13																	
14	<b>Water Treatment Plant</b>																
15	Structures & Improvements	304	198	206	218	225	233	239	251	265	271	274	281	294	308	316	
16	Large Treatment Plant Equip.	320	227	242	251	262	269	276	286	301	313	322	332	342	348	357	
17	Small Treatment Plant Equip.	320	243	259	268	279	286	293	303	317	328	334	343	354	360	366	
18																	
19																	
20																	
21																	
22	<b>Transmission Plant</b>																
23	Steel Reservoirs	330	210	182	184	181	184	196	220	216	229	253	261	248	246	250	
24	Elevated Steel Tanks	330	244	197	200	198	207	219	260	268	278	285	277	249	242	252	
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
26																	
27	Cast Iron Mains	331	208	222	225	236	235	242	253	266	273	279	284	295	305	305	
28	Steel Mains	331	215	223	230	234	232	241	255	272	279	287	293	302	316	324	
29	Concrete Cylinder Mains	331	203	213	218	232	239	243	258	269	277	288	295	303	311	317	
30																	
31																	
32																	
33	<b>Distribution Plant</b>																
34	Mains-Average All Types	331	231	239	244	254	255	263	280	295	301	307	311	321	327	332	
35	Cast Iron Mains	331	223	245	253	264	263	269	282	296	304	313	320	329	339	341	
36	Cement-Asbestos Mains	331	253	244	249	255	259	275	315	340	338	332	319	335	338	354	
37	Steel Mains	331	233	228	231	237	242	248	265	277	281	288	295	302	304	311	
38	PVC Mains	331	137	151	149	151	150	160	197	217	211	200	183	193	191	204	
39	Services Installed	333	198	207	215	221	226	230	245	258	262	272	283	292	300	307	
40	Meters	334	128	141	148	135	135	137	140	150	159	162	196	195	175	200	
41	Meter Installations	334	207	230	239	247	255	259	269	282	294	310	320	337	347	358	
42	Hydrants Installed	335	245	264	270	285	296	307	320	343	363	372	378	385	391	398	
43																	
44																	
45	<b>Miscellaneous Items</b>																
46	Flocculating Equipment-Installed		458	496	506	540	560	575	579	580	565	528	539	555	562	566	
47	Clarifier Equipment-Installed		356	389	398	431	442	446	451	455	442	416	435	458	492	514	
48	Filter Gallery Piping-Installed		201	217	223	234	237	243	251	266	279	289	297	309	319	321	
49																	
50																	
51																	
52																	
53																	
54																	
55																	
56																	

# APPENDIX A-5.1 (AUS)

W-1

## COST TRENDS OF WATER UTILITY CONSTRUCTION

### NORTH ATLANTIC REGION (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	N A R U C	COST INDEX NUMBERS														
			1	1	1	1	2	2001		2002		2003		2004			
								9	9	9	9	9	9	9	9		
								6	7	8	9	0	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1
1	<b>Source of Supply Plant</b>																
2	Collecting & Impounding Res.	305	309	317	318	318	326	328	338	338	346	344	345	364	370		
3																	
4																	
5																	
6																	
7	<b>Pumping Plant</b>																
8	Structures & Improvements	304	321	331	337	343	362	370	380	382	390	393	388	405	418		
9	Electric Pumping Equipment	311	450	473	489	505	530	531	531	516	533	534	546	547	569		
10																	
11																	
12																	
13																	
14	<b>Water Treatment Plant</b>																
15	Structures & Improvements	304	321	331	337	343	362	370	380	382	390	393	388	405	418		
16	Large Treatment Plant Equip.	320	367	380	391	401	413	419	429	435	445	448	449	461	462		
17	Small Treatment Plant Equip.	320	375	389	401	410	424	431	440	444	454	456	457	470	476		
18																	
19																	
20																	
21																	
22	<b>Transmission Plant</b>																
23	Steel Reservoirs	330	251	255	268	268	270	270	275	275	275	275	275	278	313		
24	Elevated Steel Tanks	330	268	273	283	288	299	305	314	429	429	429	429	438	481		
25	Concrete Reservoirs	330	-	-				-	-	-	-	-	-	-	-		
26																	
27	Cast Iron Mains	331	311	320	323	328	348	355	365	368	387	390	381	387	386		
28	Steel Mains	331	329	337	342	351	377	384	392	394	400	404	395	421	437		
29	Concrete Cylinder Mains	331	324	331	338	345	372	395	405	409	416	420	411	417	423		
30																	
31																	
32																	
33	<b>Distribution Plant</b>																
34	Mains-Average All Types	331	339	347	355	361	377	383	392	395	406	407	403	415	426		
35	Cast Iron Mains	331	348	358	364	370	390	396	406	409	424	426	422	430	428		
36	Cement-Asbestos Mains	331	364	372	375	382	405	418	423	429	448	450	441	450	454		
37	Steel Mains	331	316	322	334	339	346	352	359	361	363	364	363	378	413		
38	PVC Mains	331	211	216	216	219	231	241	241	246	254	256	250	258	259		
39	Services Installed	333	321	323	330	334	348	352	355	354	361	363	365	377	386		
40	Meters	334	207	197	197	198	205	206	206	207	207	207	207	207	207		
41	Meter Installations	334	375	381	387	392	406	412	418	421	428	436	437	449	455		
42	Hydrants Installed	335	418	475	493	508	526	538	554	557	566	569	568	576	583		
43																	
44																	
45	<b>Miscellaneous Items</b>																
46	Flocculating Equipment-Installed		579	603	622	642	652	667	670	676	685	687	688	724	754		
47	Clarifier Equipment-Installed		540	562	572	579	593	599	602	609	617	623	625	646	649		
48	Filter Gallery Piping-Installed		328	337	344	349	363	369	379	384	400	406	404	417	415		
49																	
50																	
51																	
52																	
53																	
54																	
55																	
56																	

NORTH ATLANTIC REGION (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	N A R U C	COST INDEX NUMBERS											
			2005		2006		2007		2008		2009		2010	
			Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	<b>Source of Supply Plant</b>													
2	Collecting & Impounding Res.	305	388	394	400	405	413	439	457	466	470	465	475	478
3														
4														
5														
6														
7	<b>Pumping Plant</b>													
8	Structures & Improvements	304	442	447	456	464	481	494	516	543	551	536	552	558
9	Electric Pumping Equipment	311	604	611	620	619	639	628	640	666	679	688	707	701
10														
11														
12														
13														
14	<b>Water Treatment Plant</b>													
15	Structures & Improvements	304	442	447	456	464	481	494	516	543	551	536	552	558
16	Large Treatment Plant Equip.	320	480	482	499	500	516	533	566	582	614	616	631	638
17	Small Treatment Plant Equip.	320	498	502	520	518	539	559	602	624	666	669	686	693
18														
19														
20														
21														
22	<b>Transmission Plant</b>													
23	Steel Reservoirs	330	329	338	348	375	494	537	537	722	722	722	722	722
24	Elevated Steel Tanks	330	524	524	524	596	657	657	680	866	866	866	866	867
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-
26														
27	Cast Iron Mains	331	411	415	442	451	480	484	510	534	578	576	601	601
28	Steel Mains	331	509	508	530	539	528	527	543	606	605	585	593	609
29	Concrete Cylinder Mains	331	436	440	454	459	460	462	468	475	502	502	494	495
30														
31														
32														
33	<b>Distribution Plant</b>													
34	Mains-Average All Types	331	462	464	485	494	524	523	550	588	624	608	617	623
35	Cast Iron Mains	331	457	460	483	492	525	528	556	579	625	624	647	648
36	Cement-Asbestos Mains	331	480	483	538	546	599	597	621	632	691	678	638	649
37	Steel Mains	331	459	460	467	477	494	487	514	582	595	559	565	575
38	PVC Mains	331	277	278	321	321	365	361	372	374	419	408	353	363
39	Services Installed	333	404	407	421	459	478	481	501	511	534	534	545	554
40	Meters	334	207	207	235	248	260	262	373	373	373	373	374	376
41	Meter Installations	334	466	467	482	530	549	552	572	573	597	598	612	623
42	Hydrants Installed	335	597	597	613	647	663	669	693	699	732	731	740	721
43														
44														
45	<b>Miscellaneous Items</b>													
46	Flocculating Equipment-Installed		801	801	852	852	869	983	1187	1373	1645	1645	1699	1744
47	Clarifier Equipment-Installed		709	709	729	729	760	892	920	944	997	997	991	1001
48	Filter Gallery Piping-Installed		438	438	468	470	500	501	530	543	589	590	613	614
49														
50														
51														
52														
53														
54														
55														
56														

COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	N A R U C	COST INDEX NUMBERS													
			2011		2012		2013		2014		2015		2016		2017	
			Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	<b>Source of Supply Plant</b>															
2	Collecting & Impounding Res.	305	492	495	501	502	507	505	515	517	526	521	526	532	543	549
3																
4																
5																
6																
7	<b>Pumping Plant</b>															
8	Structures & Improvements	304	571	583	597	600	618	608	621	630	642	646	655	659	672	671
9	Electric Pumping Equipment	311	708	760	780	785	800	844	856	900	928	931	990	1013	1052	1135
10																
11																
12																
13																
14	<b>Water Treatment Plant</b>															
15	Structures & Improvements	304	571	583	597	600	618	608	621	630	642	646	655	659	672	671
16	Large Treatment Plant Equip.	320	642	653	669	680	689	697	713	725	736	737	755	758	774	785
17	Small Treatment Plant Equip.	320	706	712	740	754	764	779	800	813	832	840	861	864	881	897
18																
19																
20																
21																
22	<b>Transmission Plant</b>															
23	Steel Reservoirs	330	771	771	795	810	778	780	715	742	742	742	742	774	784	784
24	Elevated Steel Tanks	330	1079	1079	1059	1082	1089	1099	1131	1131	1131	1131	1131	1143	1161	1161
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	602	610	634	669	691	684	712	743	733	744	754	759	793	785
28	Steel Mains	331	644	659	711	708	724	704	694	708	712	713	697	705	723	726
29	Concrete Cylinder Mains	331	510	517	523	526	547	534	535	547	562	575	591	592	601	592
30																
31																
32																
33	<b>Distribution Plant</b>															
34	Mains-Average All Types	331	633	644	669	690	698	693	720	733	736	738	747	750	774	772
35	Cast Iron Mains	331	654	660	681	716	733	730	759	781	780	785	795	797	832	826
36	Cement-Asbestos Mains	331	658	683	716	721	712	707	704	721	724	731	741	743	751	746
37	Steel Mains	331	593	606	633	637	638	631	665	665	673	670	678	681	697	701
38	PVC Mains	331	369	389	412	412	391	392	383	383	387	387	388	388	387	387
39	Services Installed	333	568	574	589	600	602	602	603	605	617	616	622	617	638	651
40	Meters	334	379	379	379	379	380	381	381	381	400	400	403	403	404	418
41	Meter Installations	334	635	635	646	673	677	677	688	688	702	702	709	709	722	733
42	Hydrants Installed	335	730	731	757	758	774	784	807	849	877	930	971	972	980	981
43																
44																
45	<b>Miscellaneous Items</b>															
46	Flocculating Equipment-Installed	1823	1848	1904	1973	1978	2015	2041	2078	2167	2177	2192	2192	2198	2213	
47	Clarifier Equipment-Installed	1056	1060	1077	1102	1105	1136	1154	1162	1184	1188	1229	1272	1311	1315	
48	Filter Gallery Piping-Installed	620	620	641	666	677	680	713	728	727	728	735	738	772	772	
49																
50																
51																
52																
53																
54																
55																
56																



L i n e	CONSTRUCTION AND EQUIPMENT	N A R U C	COST INDEX NUMBERS													
			2018		2019		2020		2021		2022		2023		2024	
			Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	<b>Source of Supply Plant</b>															
2	Collecting & Impounding Res.	305	559	570	576	575										
3																
4																
5																
6																
7	<b>Pumping Plant</b>															
8	Structures & Improvements	304	687	706	717	713										
9	Electric Pumping Equipment	311	1146	1216	1261	1346										
10																
11																
12																
13																
14	<b>Water Treatment Plant</b>															
15	Structures & Improvements	304	687	706	717	713										
16	Large Treatment Plant Equip.	320	797	812	832	842										
17	Small Treatment Plant Equip.	320	911	934	960	975										
18																
19																
20																
21																
22	<b>Transmission Plant</b>															
23	Steel Reservoirs	330	801	820	832	832										
24	Elevated Steel Tanks	330	1181	1200	1244	1244										
25	Concrete Reservoirs	330	-	-	-	-										
26																
27	Cast Iron Mains	331	810	825	844	858										
28	Steel Mains	331	733	770	792	785										
29	Concrete Cylinder Mains	331	620	626	639	641										
30																
31																
32																
33	<b>Distribution Plant</b>															
34	Mains-Average All Types	331	790	801	819	826										
35	Cast Iron Mains	331	855	864	883	894										
36	Cement-Asbestos Mains	331	763	770	784	793										
37	Steel Mains	331	704	717	734	736										
38	PVC Mains	331	397	397	401	401										
39	Services Installed	333	661	667	677	684										
40	Meters	334	434	434	443	443										
41	Meter Installations	334	750	750	765	772										
42	Hydrants Installed	335	1012	1024	1049	1063										
43																
44																
45	<b>Miscellaneous Items</b>															
46	Flocculating Equipment-Installed		2223	2264	2360	2360										
47	Clarifier Equipment-Installed		1369	1401	1462	1462										
48	Filter Gallery Piping-Installed		801	808	825	834										
49																
50																
51																
52																
53																
54																
55																
56																

**Cost Trends Of**

**Building**

**Construction**

**COST TREND TABLES**  
**1912 to July 1, 2019**

NORTH ATLANTIC REGION (1973=100)

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
		2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	8	8	8	8	12	18	19	19	20	15	14	17	17	17	16	
3	Brick Building Construction	8	8	8	9	11	15	17	19	21	17	16	18	19	18	18	
4	Structural Steel Erected	9	9	9	8	16	29	26	22	22	16	15	19	19	17	16	
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10	Lumber for Reinf. Concrete	7	7	7	7	9	13	19	19	20	14	13	15	19	19	15	
11	Steel Bars for Reinf. Concrete	15	15	15	17	34	47	37	35	37	24	22	28	29	27	24	
12	Common Brick	10	10	10	14	16	19	20	27	34	31	30	33	30	28	28	
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14																	
15	<b>Labor</b>																
16	Building Trades Labor	6	6	6	6	6	7	8	10	11	11	11	12	13	14	15	
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18	Labor for Reinf. Concrete	5	5	5	5	5	6	8	10	11	9	9	10	11	11	11	
19	Common Labor	4	4	4	4	5	5	8	10	11	9	8	9	9	9	9	
20	Electricians	5	5	5	6	6	6	8	9	10	11	11	11	12	13	14	
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22	Plumbers	6	6	6	6	6	7	8	9	9	11	11	12	12	13	14	
23																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
		2	2	3	3	3	3	3	3	3	3	3	3	4	4	4	4
		8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	16	16	15	14	12	13	15	15	15	16	16	16	17	18	20	
3	Brick Building Construction	18	17	17	16	14	14	16	16	16	17	17	17	17	19	20	
4	Structural Steel Erected	16	16	15	13	11	12	14	15	15	17	15	15	15	19	20	
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	Reinf. Concrete (Plant-Mix)	16	16	15	14	12	13	15	15	15	17	17	17	17	18	19	
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	-	-	-	-	-	-	32	32	32	33	33	32	31	31	32	
10	Lumber for Reinf. Concrete	15	15	14	12	10	12	16	13	13	15	15	15	16	19	21	
11	Steel Bars for Reinf. Concrete	24	25	22	20	20	21	24	23	25	31	29	28	27	28	28	
12	Common Brick	25	23	20	20	19	19	22	20	20	20	20	20	20	21	22	
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14																	
15	<b>Labor</b>																
16	Building Trades Labor	15	15	15	15	14	12	13	13	13	15	15	15	16	17	18	
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18	Labor for Reinf. Concrete	11	11	10	10	9	9	11	11	11	12	13	13	14	14	15	
19	Common Labor	9	9	9	9	8	6	8	9	9	10	10	11	11	12	13	
20	Electricians	14	15	15	16	16	14	14	14	15	16	16	17	17	18	19	
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22	Plumbers	14	15	15	15	13	13	14	14	14	15	16	16	17	17	18	
23																	

NORTH ATLANTIC REGION (1973=100)

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	20	20	24	28	32	34	35	37	38	40	42	44	48	52	53	55
3	Brick Building Construction	21	21	24	28	32	34	35	37	38	39	41	42	46	49	50	52
4	Structural Steel Erected	20	20	24	30	37	39	41	43	43	47	48	50	59	66	67	67
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	35	37	39	41	43	46	48	50
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	33	33	35	39	44	45	46	47	49	50	54	57	60	63	66	66
10	Lumber for Reinf. Concrete	23	23	29	33	38	34	37	37	38	36	39	42	44	45	44	47
11	Steel Bars for Reinf. Concrete	28	28	30	34	37	43	45	47	48	51	53	56	61	68	70	72
12	Common Brick	23	27	31	33	38	42	43	47	47	48	50	51	52	53	54	54
13	Concrete Block	-	-	-	-	-	56	58	62	63	63	62	67	69	70	69	73
14																	
15	<b>Labor</b>																
16	Building Trades Labor	18	19	21	23	26	27	28	31	31	33	34	36	37	39	41	43
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	15	16	18	22	24	25	26	27	29	30	32	33	35	37	39	41
19	Common Labor	13	14	17	19	21	23	24	25	27	28	30	31	33	35	37	40
20	Electricians	19	19	20	23	25	27	28	30	32	33	34	35	37	38	41	42
21	Pipefitters	-	-	-	-	-	26	27	28	29	31	32	33	35	35	39	41
22	Plumbers	18	18	19	22	25	27	28	29	30	32	34	35	37	38	40	41
23																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
		6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	55	54	55	55	57	58	59	62	65	70	75	84	91	100	121	134
3	Brick Building Construction	53	52	53	54	56	57	59	61	64	68	74	84	91	100	118	127
4	Structural Steel Erected	66	62	62	62	63	63	65	66	69	74	77	83	89	100	140	161
5	Reinf. Concrete (Ready-Mix)	51	52	53	54	55	57	59	61	64	69	77	88	94	100	111	119
6	Reinf. Concrete (Plant-Mix)	49	48	50	51	52	53	56	58	61	66	73	83	91	100	108	115
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	66	66	66	65	64	64	65	65	68	73	82	91	94	100	112	123
10	Lumber for Reinf. Concrete	47	39	41	40	39	38	41	42	46	53	53	63	75	100	93	91
11	Steel Bars for Reinf. Concrete	72	72	72	72	74	81	82	81	81	81	84	91	91	100	157	156
12	Common Brick	56	56	56	57	58	58	60	62	65	65	68	78	84	100	123	126
13	Concrete Block	68	70	70	70	70	67	70	72	75	77	81	90	98	100	109	113
14																	
15	<b>Labor</b>																
16	Building Trades Labor	45	46	48	50	52	54	56	59	62	68	76	87	96	100	108	115
17	Heavy Constr. Trades Labor	-	45	47	48	50	53	56	58	61	67	76	86	96	100	107	116
18	Labor for Reinf. Concrete	43	45	47	49	51	53	56	58	62	67	77	88	96	100	108	116
19	Common Labor	42	44	45	47	49	52	55	58	61	66	75	88	97	100	109	117
20	Electricians	43	45	48	49	51	53	55	57	60	64	72	82	91	100	108	117
21	Pipefitters	41	44	45	45	48	50	52	55	57	62	70	85	97	100	107	114
22	Plumbers	43	44	46	48	49	51	53	56	58	64	71	86	96	100	107	114
23																	

APPENDIX A-5.1 (AUS)  
COST TRENDS OF BUILDING CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	134	139	150	167	184	190	189	196	211	222	229	234	246	258	262	257
3	Brick Building Construction	130	136	148	164	183	192	197	206	217	225	233	239	252	265	271	272
4	Structural Steel Erected	153	154	170	193	225	227	202	202	225	240	249	255	272	286	286	261
5	Reinf. Concrete (Ready-Mix)	124	131	140	154	166	176	191	201	210	220	225	229	238	244	251	260
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	126	133	143	163	185	207	226	227	235	248	245	252	254	244	250	255
10	Lumber for Reinf. Concrete	106	118	130	148	139	138	135	143	144	140	140	146	143	148	147	145
11	Steel Bars for Reinf. Concrete	145	147	166	206	215	216	203	190	198	202	205	205	227	232	222	199
12	Common Brick	130	136	159	190	232	247	255	257	256	246	258	270	292	320	320	316
13	Concrete Block	116	120	139	185	210	228	260	260	262	278	285	287	285	301	288	288
14																	
15	<b>Labor</b>																
16	Building Trades Labor	122	129	135	143	152	164	184	199	212	221	229	234	245	256	268	285
17	Heavy Constr. Trades Labor	123	131	137	146	155	165	184	199	210	220	229	233	244	255	264	279
18	Labor for Reinf. Concrete	122	130	137	147	157	166	184	198	210	220	227	232	242	253	262	277
19	Common Labor	124	133	141	152	163	172	190	204	214	223	231	234	243	254	265	280
20	Electricians	124	129	135	143	150	164	186	207	224	234	239	244	261	271	280	298
21	Pipefitters	122	131	135	143	154	170	192	207	219	228	236	242	248	263	276	290
22	Plumbers	122	131	136	141	152	168	191	205	217	226	235	241	242	257	279	294
23																	

Line	CONSTRUCTION, MATERIAL, AND LABOR	1	1	1	1	1	1	1	1	2	2001		2002		2003	
		9	9	9	9	9	9	9	9	0	Jan.	Jul.	Jan.	Jul.	Jan.	Jul.
		9	9	9	9	9	9	9	9	0	1	1	1	1	1	1
1	<b>Building Construction</b>															
2	Reinf. Conc. Bldg. Construction	262	279	298	305	311	322	324	330	342	345	357	358	364	364	363
3	Brick Building Construction	278	290	304	310	315	328	337	345	359	364	374	377	384	385	385
4	Structural Steel Erected	260	278	305	317	325	334	336	344	360	363	373	377	373	375	373
5	Reinf. Concrete (Ready-Mix)	268	279	291	296	304	312	320	327	336	340	351	357	366	367	368
6	Reinf. Concrete (Plant-Mix)	247	265	281	279	286	298	296	299	304	305	321	316	328	322	323
7																
8	<b>Building Material</b>															
9	Ready-Mix Concrete	257	262	270	281	295	286	301	307	315	321	328	351	346	355	357
10	Lumber for Reinf. Concrete	150	193	227	196	206	218	186	182	168	158	199	159	173	149	144
11	Steel Bars for Reinf. Concrete	194	212	234	236	236	250	246	229	225	218	230	218	223	220	239
12	Common Brick	315	310	313	315	311	335	369	384	412	424	427	427	426	426	427
13	Concrete Block	288	263	262	258	258	285	306	332	354	360	362	377	381	383	383
14																
15	<b>Labor</b>															
16	Building Trades Labor	296	307	318	326	331	344	353	362	376	384	392	401	413	419	419
17	Heavy Constr. Trades Labor	291	300	311	319	325	337	348	358	372	377	387	393	405	406	406
18	Labor for Reinf. Concrete	289	297	308	314	320	333	343	354	366	373	382	390	403	402	402
19	Common Labor	293	303	315	315	327	338	349	359	376	380	391	394	402	403	403
20	Electricians	309	324	336	343	353	365	377	390	401	407	412	431	442	449	449
21	Pipefitters	305	317	323	335	342	352	361	374	388	399	410	417	425	425	425
22	Plumbers	305	320	330	339	348	355	363	368	385	395	406	412	427	434	434
23																

NORTH ATLANTIC REGION (1973=100)

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		2004		2005		2006		2007		2008		2009		2010		2011	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	394	402	415	422	431	436	446	472	493	501	505	486	497	498	515	515
3	Brick Building Construction	407	412	425	431	441	443	457	472	492	497	506	494	506	507	521	518
4	Structural Steel Erected	419	434	443	452	462	471	480	534	550	563	555	509	511	511	531	532
5	Reinf. Concrete (Ready-Mix)	386	383	402	409	414	418	434	446	469	476	484	484	500	506	516	517
8	<b>Building Material</b>																
9	Ready-Mix Concrete	355	334	351	371	371	379	382	425	425	425	429	430	430	437	431	439
10	Lumber for Reinf. Concrete	175	186	182	215	195	195	150	164	157	162	162	159	158	149	147	152
11	Steel Bars for Reinf. Concrete	275	280	348	360	324	361	380	420	398	490	334	326	358	416	417	406
12	Common Brick	427	429	429	439	439	439	457	457	460	460	460	453	453	453	453	434
13	Concrete Block	388	390	406	406	428	450	460	386	390	390	390	390	443	432	430	432
15	<b>Labor</b>																
16	Building Trades Labor	437	437	458	458	478	478	499	499	527	527	550	550	572	572	590	590
17	Heavy Constr. Trades Labor	424	424	446	446	459	459	483	483	517	517	542	542	564	564	584	584
18	Labor for Reinf. Concrete	422	422	439	439	452	452	476	476	512	512	541	541	562	562	579	579
19	Common Labor	418	418	428	428	436	436	475	475	510	510	550	550	572	572	590	590
20	Electricians	467	467	497	497	512	512	543	543	564	564	582	582	615	615	632	632
21	Pipefitters	464	464	488	488	514	514	526	526	566	566	590	590	607	607	642	642
22	Plumbers	450	450	469	469	502	502	520	520	545	545	580	580	597	597	610	610

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	2012		2013		2014		2015		2016		2017		2018		2019	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	524	527	537	534	546	549	557	549	552	558	569	576	589	611	611	605
3	Brick Building Construction	530	532	542	539	550	552	585	580	586	589	604	608	633	647	647	643
4	Structural Steel Erected	538	542	558	553	561	567	568	555	549	556	561	569	579	617	618	604
5	Reinf. Concrete (Ready-Mix)	525	526	527	527	541	543	556	554	564	567	581	585	602	609	611	608
6	Reinf. Concrete (Plant-Mix)	464	467	470	468	482	482	497	490	497	505	519	527	541	561	553	551
8	<b>Building Material</b>																
9	Ready-Mix Concrete	441	441	436	436	441	452	455	461	471	471	481	485	488	488	489	488
10	Lumber for Reinf. Concrete	150	165	170	168	174	170	188	182	178	204	222	240	244	309	255	249
11	Steel Bars for Reinf. Concrete	393	391	365	356	363	373	368	326	288	307	316	349	342	393	413	381
12	Common Brick	448	451	458	452	449	449	617	617	618	618	636	637	725	725	709	709
13	Concrete Block	428	428	445	445	444	499	505	485	483	429	427	411	411	443	429	461
15	<b>Labor</b>																
16	Building Trades Labor	607	607	619	619	636	636	646	646	660	660	678	678	696	696	707	707
17	Heavy Constr. Trades Labor	596	596	605	605	620	620	640	640	659	659	673	673	696	696	705	705
18	Labor for Reinf. Concrete	591	591	598	598	616	616	633	633	651	651	666	666	690	690	693	693
19	Common Labor	604	604	604	604	620	620	644	644	661	661	674	674	705	705	712	712
20	Electricians	665	665	674	674	691	691	702	702	724	724	731	731	753	753	775	775
21	Pipefitters	658	658	668	668	694	694	704	704	717	717	738	738	755	755	768	768
22	Plumbers	623	623	634	634	655	655	668	668	674	674	696	696	716	716	734	734

# APPENDIX A-5.1 (AUS)

## M

### UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS														
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
		1	1	1	1	1	1	1	1	2	2	2	2	2	2	
		2	3	4	5	6	7	8	9	0	1	2	3	4	5	
1	Boilers	6	6	6	7	8	13	17	15	16	14	12	14	15	15	
2	Coal & Ash Handling Equipment	12	12	12	12	19	31	29	20	28	24	21	23	23	21	
3	Pumps	9	9	9	12	14	16	18	18	18	17	16	16	16	17	
4	Steam Pipe	17	17	17	12	18	39	44	35	37	35	34	36	37	37	
5	Cranes	6	6	6	7	7	7	7	8	8	9	9	9	9	10	
6	Regulators	32	32	32	32	32	39	47	45	49	50	49	50	53	52	
7	Switchboards	20	20	20	20	21	23	26	35	44	49	43	40	43	43	
8	Power Transformers	23	23	23	23	23	32	41	41	49	48	42	43	46	46	
9	Oil Switches	27	27	27	27	27	30	38	45	49	53	50	50	51	51	
10	Motors	21	21	21	21	21	28	31	37	42	43	34	29	29	29	
11	Line Transformers	48	48	48	48	48	51	69	72	77	79	69	67	69	68	
12	Meters-Electric	37	37	37	37	37	41	46	51	53	57	53	50	50	48	
13	Treated Pine Poles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14	Standard Cross Arms	7	7	7	7	7	9	10	12	12	11	12	12	12	13	
15	Standard Galv. Steel Guy Wire	12	12	12	14	15	19	22	23	22	22	21	21	20	20	
16	Fibre Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
17	Plastic Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18	Mercury Luminaires w/Standard	-	-	-	-	-	-	-	-	-	-	-	-	27	26	
19	Power Wire & Control Cable	23	23	23	30	36	42	48	51	49	37	29	33	31	34	
20	Overhead Conductor-Transmission	28	26	23	25	45	49	54	53	51	31	28	32	31	32	
21	Underground Conductor-Transmission	15	13	12	12	19	22	25	27	26	21	21	26	23	23	
22	Overhead Conductor-Distribution	25	23	20	23	40	43	48	47	45	28	25	28	28	29	
23	Underground Conductor-Distribution	16	15	14	14	22	25	28	30	29	22	22	28	25	25	
24	Service Cable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
25	Condensers & Tubes	7	7	7	7	11	13	20	21	21	20	17	17	18	18	
26	Turbo-Generators	9	9	9	9	13	13	17	18	21	23	20	19	19	19	
27																
28	Gas Compressors	18	18	18	18	18	19	25	25	27	26	25	25	25	25	
29	Gas Transmission Line Pipe	23	24	23	24	34	44	44	45	44	43	40	41	43	43	
30	Steel Distribution Pipe	15	16	16	17	24	36	40	36	34	32	28	30	31	31	
31	Plastic Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
32	Meters-Gas	17	18	18	18	19	23	33	33	32	33	30	30	28	27	
33	House Regulators	24	25	25	25	26	31	47	46	45	45	41	41	39	37	
34																
35	Cast Iron Pipe	16	17	16	17	23	40	44	48	53	44	39	45	47	40	
36	Cast Iron Fittings	10	10	10	13	13	24	27	25	34	29	25	25	25	27	
37	Ductile Iron Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
38	Chemical Feeders-Small	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
39	Chemical Feeders-Large	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
40	Gate Valves	15	15	15	17	17	17	24	24	30	28	25	29	29	27	
41	Meter Yokes	24	24	24	24	24	24	29	29	31	31	29	29	29	29	
42	Corporation Stops	27	27	27	27	27	27	25	25	25	25	25	25	24	24	
43	Curb Stops	20	20	20	20	20	20	22	22	22	22	22	22	21	21	
44	Hydrants	23	23	23	23	23	23	23	24	27	27	23	26	27	26	
45	Meters-Water	23	23	23	23	26	29	35	37	37	37	37	37	37	37	
46																
47																
48																
49																
50	Construction Equipment	-	-	-	11	15	19	26	28	30	22	19	23	21	22	
51																
52																
53																
54																
55																
56																

ALL REGIONS (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1	1	1	1	1	1	1	1	1	1	1	1	1	1
		9	9	9	9	9	9	9	9	9	9	9	9	9	9
		2	2	2	2	3	3	3	3	3	3	3	3	3	
		6	7	8	9	0	1	2	3	4	5	6	7	8	9
1	Boilers	15	15	14	14	14	14	12	12	15	15	16	18	19	20
2	Coal & Ash Handling Equipment	21	20	20	20	19	17	16	17	20	20	20	21	20	20
3	Pumps	19	19	19	20	20	19	18	18	19	19	19	21	22	22
4	Steam Pipe	37	37	37	36	36	36	35	32	31	31	32	36	35	35
5	Cranes	10	10	11	11	11	11	10	10	10	10	10	10	10	11
6	Regulators	42	41	40	41	42	43	42	43	48	48	48	52	53	53
7	Switchboards	44	44	45	48	48	47	43	48	48	48	48	52	53	53
8	Power Transformers	46	43	41	42	40	40	39	40	46	47	47	50	52	52
9	Oil Switches	51	49	49	51	53	52	51	55	59	59	59	63	65	65
10	Motors	29	28	28	29	29	29	29	30	33	32	32	32	32	32
11	Line Transformers	63	59	58	62	61	59	57	59	61	62	62	66	67	67
12	Meters-Electric	48	48	48	48	48	48	48	50	54	55	55	55	55	55
13	Treated Pine Poles	28	27	26	25	24	23	21	22	23	24	23	24	23	23
14	Standard Cross Arms	10	9	9	9	9	8	8	9	10	11	11	12	12	12
15	Standard Galv. Steel Guy Wire	18	17	16	16	15	14	14	15	17	17	17	18	19	18
16	Fibre Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Plastic Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Mercury Luminaires w/Standard	26	23	26	27	28	29	29	29	30	30	30	30	30	30
19	Power Wire & Control Cable	33	30	27	29	26	21	19	23	26	27	29	35	29	26
20	Overhead Conductor-Transmission	29	27	32	38	26	22	19	23	28	27	29	32	27	27
21	Underground Conductor-Transmission	22	21	23	27	20	19	19	21	23	23	25	27	24	24
22	Overhead Conductor-Distribution	26	24	28	34	23	19	17	20	25	24	26	28	24	24
23	Underground Conductor-Distribution	24	22	25	29	22	21	20	22	25	25	27	29	26	26
24	Service Cable	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Condensers & Tubes	18	16	15	19	20	19	18	19	21	24	24	27	27	27
26	Turbo-Generators	19	19	20	21	22	22	21	22	25	25	26	29	30	30
27															
28	Gas Compressors	24	23	24	24	24	24	24	24	24	24	23	23	23	23
29	Gas Transmission Line Pipe	43	43	43	43	43	43	42	35	35	35	34	35	34	34
30	Steel Distribution Pipe	31	31	31	31	30	29	29	26	29	29	26	28	26	25
31	Plastic Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Meters-Gas	27	27	27	27	27	26	25	25	25	25	25	26	26	26
33	House Regulators	37	38	38	38	37	36	34	34	34	34	34	35	37	40
34															
35	Cast Iron Pipe	40	34	29	30	30	28	25	30	34	35	36	39	39	38
36	Cast Iron Fittings	27	25	25	25	24	21	19	20	22	23	23	23	24	24
37	Ductile Iron Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Chemical Feeders-Small	18	19	22	22	20	15	17	17	17	17	17	17	17	17
39	Chemical Feeders-Large	-	-	-	-	-	-	-	-	-	12	12	13	13	13
40	Gate Valves	26	26	28	28	28	24	23	23	22	22	23	25	26	26
41	Meter Yokes	29	29	29	29	29	29	28	28	28	28	28	28	29	29
42	Corporation Stops	24	24	24	24	24	24	24	22	21	21	21	21	21	21
43	Curb Stops	21	21	21	21	21	21	21	21	21	21	21	21	21	21
44	Hydrants	24	24	25	25	25	23	23	23	20	22	22	24	25	25
45	Meters-Water	37	37	37	37	37	37	37	35	26	26	26	31	32	32
46															
47															
48															
49															
50	Construction Equipment	21	22	21	22	22	20	19	19	20	21	21	23	23	23
51															
52															
53															
54															
55															
56															



# APPENDIX A-5.1 (AUS)

## M

### UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1	1	1	1	1	1	1	1	1	1	1	1	1	1
		9	9	9	9	9	9	9	9	9	9	9	9	9	9
		4	4	4	4	4	4	4	4	4	4	5	5	5	
		0	1	2	3	4	5	6	7	8	9	0	1	2	3
1	Boilers	20	21	21	21	21	21	22	25	31	36	37	41	41	43
2	Coal & Ash Handling Equipment	20	23	25	25	24	24	29	35	42	44	47	50	51	55
3	Pumps	22	23	24	24	24	24	26	32	35	37	40	47	47	48
4	Steam Pipe	35	35	35	35	35	35	37	42	45	50	52	53	53	55
5	Cranes	11	11	11	11	12	17	20	23	26	29	31	33	35	38
6	Regulators	53	53	53	53	52	51	57	63	65	69	70	74	74	81
7	Switchboards	53	53	51	50	45	44	50	58	59	59	62	72	72	77
8	Power Transformers	52	52	51	49	46	45	50	60	62	67	70	78	78	83
9	Oil Switches	65	65	65	65	59	58	67	78	79	79	89	102	102	110
10	Motors	31	32	33	33	31	32	37	45	46	49	53	63	63	66
11	Line Transformers	67	69	68	64	64	64	72	90	93	96	100	113	113	121
12	Meters-Electric	55	55	55	55	55	55	61	69	74	80	80	80	78	81
13	Treated Pine Poles	23	24	27	28	33	39	37	41	43	43	42	44	46	49
14	Standard Cross Arms	13	16	17	19	22	23	25	35	37	34	36	41	42	42
15	Standard Galv. Steel Guy Wire	17	17	17	18	18	18	19	29	35	38	40	42	43	51
16	Fibre Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Plastic Conduit	-	-	-	-	-	-	-	-	-	-	-	-	179	170
18	Mercury Luminaires w/Standard	30	30	31	31	31	31	32	40	44	48	47	53	52	51
19	Power Wire & Control Cable	31	39	40	40	40	40	48	56	65	66	66	75	77	74
20	Overhead Conductor-Transmission	29	28	31	32	32	32	40	48	52	48	52	59	63	69
21	Underground Conductor-Transmission	25	29	30	29	28	28	34	41	50	56	56	59	61	59
22	Overhead Conductor-Distribution	26	25	27	28	28	28	35	43	46	43	46	52	56	61
23	Underground Conductor-Distribution	27	31	32	32	31	31	36	44	54	59	59	63	64	64
24	Service Cable	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Condensers & Tubes	27	27	27	27	26	27	30	32	33	36	37	40	40	43
26	Turbo-Generators	30	30	30	30	30	31	36	44	47	49	49	54	54	58
27															
28	Gas Compressors	24	25	27	27	26	28	31	31	35	40	40	41	42	43
29	Gas Transmission Line Pipe	34	34	34	34	34	34	36	41	44	48	50	51	52	54
30	Steel Distribution Pipe	25	25	25	25	25	25	28	33	37	41	43	46	47	52
31	Plastic Pipe	-	-	-	-	-	-	-	-	-	-	-	-	175	175
32	Meters-Gas	26	26	26	26	26	26	33	41	42	45	48	55	55	55
33	House Regulators	48	48	48	48	48	48	53	63	64	68	69	74	74	74
34															
35	Cast Iron Pipe	39	39	40	39	39	40	45	58	69	68	67	73	73	73
36	Cast Iron Fittings	24	26	27	27	27	28	33	42	49	48	48	54	56	59
37	Ductile Iron Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Chemical Feeders-Small	17	17	17	17	17	18	22	26	31	34	38	40	40	40
39	Chemical Feeders-Large	13	14	15	15	16	19	20	24	29	35	40	42	42	42
40	Gate Valves	26	28	29	29	29	29	34	39	42	45	52	57	57	57
41	Meter Yokes	29	29	30	30	30	31	37	39	40	39	41	48	48	48
42	Corporation Stops	22	22	23	23	23	24	31	36	37	37	37	45	45	45
43	Curb Stops	22	23	23	23	23	25	31	36	38	37	38	45	45	45
44	Hydrants	25	27	27	27	27	27	32	36	39	43	50	55	55	55
45	Meters-Water	33	35	37	37	37	37	40	42	48	52	59	61	61	65
46															
47															
48															
49															
50	Construction Equipment	24	25	28	29	29	29	34	37	39	40	42	45	46	49
51															
52															
53															
54															
55															
56															

# APPENDIX A-5.1 (AUS)

## M

### UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1	1	1	1	1	1	1	1	1	1	1	1	1	1
		9	9	9	9	9	9	9	9	9	9	9	9	9	9
		5	5	5	5	5	6	6	6	6	6	6	6	6	
		4	5	6	7	8	9	0	1	2	3	4	5	6	7
1	Boilers	45	47	54	61	63	65	65	66	66	66	68	70	71	74
2	Coal & Ash Handling Equipment	56	58	68	76	77	79	77	72	72	72	73	73	74	76
3	Pumps	49	50	55	56	56	62	68	68	69	69	70	70	74	77
4	Steam Pipe	56	57	61	67	69	71	71	71	71	71	73	73	73	74
5	Cranes	40	43	45	47	49	52	54	55	55	55	56	56	58	64
6	Regulators	83	85	98	105	108	108	108	96	96	90	87	84	83	84
7	Switchboards	79	81	96	105	108	106	98	81	78	77	77	78	82	90
8	Power Transformers	85	87	100	103	107	103	95	88	84	76	81	84	87	91
9	Oil Switches	112	110	115	131	136	132	109	75	74	64	70	82	80	88
10	Motors	67	68	79	89	93	96	92	87	86	85	85	87	87	88
11	Line Transformers	123	123	127	135	130	125	122	118	107	100	100	101	101	105
12	Meters-Electric	83	79	82	87	89	92	92	91	90	89	89	88	88	89
13	Treated Pine Poles	51	51	55	59	60	57	57	56	56	56	56	56	58	61
14	Standard Cross Arms	42	42	49	50	47	46	46	44	44	44	44	45	47	46
15	Standard Galv. Steel Guy Wire	54	55	58	62	63	63	63	63	63	63	63	63	63	63
16	Fibre Conduit	-	-	-	-	-	-	82	86	86	86	86	84	76	71
17	Plastic Conduit	170	157	159	159	154	154	154	150	146	146	143	139	141	136
18	Mercury Luminaires w/Standard	59	59	60	66	68	68	68	67	67	66	67	66	72	82
19	Power Wire & Control Cable	71	68	72	65	50	50	40	38	40	40	44	55	67	72
20	Overhead Conductor-Transmission	67	73	80	81	79	72	73	73	74	63	69	73	76	78
21	Underground Conductor-Transmission	60	65	72	65	63	65	66	64	63	63	69	77	77	79
22	Overhead Conductor-Distribution	59	67	72	63	58	63	64	62	62	62	64	71	75	78
23	Underground Conductor-Distribution	64	71	78	69	67	70	71	69	67	68	74	82	83	85
24	Service Cable	-	-	93	89	74	69	68	69	67	62	66	68	71	74
25	Condensers & Tubes	44	45	48	53	56	56	56	56	56	57	61	65	71	75
26	Turbo-Generators	59	61	72	80	84	84	78	72	70	70	70	71	72	73
27															
28	Gas Compressors	44	46	49	54	58	61	61	61	61	64	68	73	74	78
29	Gas Transmission Line Pipe	55	56	59	65	67	69	69	69	69	69	71	71	71	72
30	Steel Distribution Pipe	54	56	60	68	69	71	71	71	71	71	71	71	71	73
31	Plastic Pipe	154	147	146	142	140	139	137	133	132	132	128	123	126	126
32	Meters-Gas	55	56	63	66	71	71	71	73	79	79	79	79	86	88
33	House Regulators	74	74	74	76	80	80	80	81	82	82	82	80	80	80
34															
35	Cast Iron Pipe	79	80	86	91	95	95	95	95	95	95	95	95	95	95
36	Cast Iron Fittings	62	64	67	69	72	74	74	74	73	72	72	72	72	75
37	Ductile Iron Pipe	-	-	-	-	-	-	-	96	96	96	96	96	96	96
38	Chemical Feeders-Small	40	41	45	48	49	54	60	60	63	63	64	69	73	77
39	Chemical Feeders-Large	42	44	54	61	68	68	68	68	71	72	71	70	72	79
40	Gate Valves	55	51	57	59	58	58	58	59	62	63	62	62	68	72
41	Meter Yokes	51	57	64	61	59	59	62	63	65	65	66	70	75	77
42	Corporation Stops	46	54	59	59	59	60	62	62	65	65	66	71	79	81
43	Curb Stops	46	54	59	59	59	60	62	63	65	65	67	71	79	82
44	Hydrants	55	52	58	59	59	59	59	59	59	59	59	59	61	66
45	Meters-Water	67	70	77	78	78	78	78	78	84	87	87	93	101	101
46															
47															
48															
49															
50	Construction Equipment	49	51	55	59	62	64	65	67	67	68	70	71	73	76
51															
52															
53															
54															
55															
56															

M

APPENDIX A-5.1 (AUS)

UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1	1	1	1	1	1	1	1	1	1	1	1	1	1
		9	9	9	9	9	9	9	9	9	9	9	9	9	9
6		6	6	7	7	7	7	7	7	7	7	7	7	8	
8		8	9	0	1	2	3	4	5	6	7	8	9	0	
1	Boilers	76	78	83	89	94	100	119	143	159	172	186	203	221	
2	Coal & Ash Handling Equipment	79	84	88	93	95	100	124	150	154	162	175	192	213	
3	Pumps	78	80	85	89	93	100	127	154	177	183	195	212	235	
4	Steam Pipe	78	82	86	92	98	100	112	131	143	155	178	206	223	
5	Cranes	68	72	78	82	88	100	122	139	147	171	186	215	237	
6	Regulators	84	87	90	92	97	100	128	150	165	170	174	179	189	
7	Switchboards	92	93	94	96	97	100	131	196	212	222	234	238	261	
8	Power Transformers	93	95	97	95	93	100	129	157	162	172	182	193	210	
9	Oil Switches	96	92	93	93	95	100	123	140	143	174	186	195	203	
10	Motors	89	94	100	104	100	100	110	155	167	186	186	188	195	
11	Line Transformers	109	106	105	104	100	100	110	133	136	147	158	166	165	
12	Meters-Electric	92	95	98	101	101	100	107	126	135	140	144	148	144	
13	Treated Pine Poles	62	66	69	73	77	100	150	205	192	190	206	234	265	
14	Standard Cross Arms	44	50	65	60	58	100	162	157	146	155	161	223	244	
15	Standard Galv. Steel Guy Wire	63	64	72	86	97	100	133	153	151	162	178	205	214	
16	Fibre Conduit	72	78	83	82	85	100	119	130	133	149	173	203	218	
17	Plastic Conduit	116	105	100	98	100	100	118	133	129	144	161	187	199	
18	Mercury Luminaires w/Standard	74	78	94	101	102	100	125	173	194	211	234	263	288	
19	Power Wire & Control Cable	81	86	84	74	86	100	115	95	97	95	101	109	135	
20	Overhead Conductor-Transmission	75	84	97	107	103	100	121	167	204	220	189	201	232	
21	Underground Conductor-Transmission	76	82	86	83	89	100	149	142	142	154	148	188	238	
22	Overhead Conductor-Distribution	75	84	97	107	102	100	121	166	203	220	192	210	246	
23	Underground Conductor-Distribution	76	86	94	92	100	100	135	130	132	140	148	196	231	
24	Service Cable	71	77	92	98	99	100	105	124	126	131	149	183	221	
25	Condensers & Tubes	80	84	89	94	99	100	109	128	142	157	171	189	209	
26	Turbo-Generators	72	75	81	89	96	100	111	131	144	158	170	188	206	
27															
28	Gas Compressors	84	88	91	91	90	100	120	150	161	172	188	213	237	
29	Gas Transmission Line Pipe	75	80	83	89	98	100	122	145	172	187	212	225	253	
30	Steel Distribution Pipe	73	76	82	89	97	100	127	142	155	170	194	213	225	
31	Plastic Pipe	123	111	98	96	100	100	112	116	120	125	129	142	152	
32	Meters-Gas	88	89	94	100	100	100	111	128	131	136	139	143	149	
33	House Regulators	81	83	92	98	100	100	106	125	132	136	144	171	201	
34															
35	Cast Iron Pipe	95	95	96	100	100	100	153	178	180	183	195	201	217	
36	Cast Iron Fittings	77	80	87	99	99	100	144	142	148	152	163	173	194	
37	Ductile Iron Pipe	96	96	97	100	100	100	153	182	186	189	201	207	215	
38	Chemical Feeders-Small	81	81	86	90	92	100	126	180	209	230	249	257	287	
39	Chemical Feeders-Large	80	81	87	92	94	100	125	177	194	195	201	212	232	
40	Gate Valves	74	74	79	91	96	100	127	160	191	197	220	252	270	
41	Meter Yokes	79	87	93	95	95	100	132	139	160	227	246	262	296	
42	Corporation Stops	85	90	96	99	99	100	126	133	133	136	139	154	168	
43	Curb Stops	86	90	96	99	99	100	126	133	135	140	146	161	177	
44	Hydrants	71	76	84	94	95	100	143	185	214	229	261	279	293	
45	Meters-Water	101	107	108	108	106	100	93	93	98	101	105	108	122	
46															
47															
48															
49															
50	Construction Equipment	80	84	88	93	95	100	117	141	153	164	178	197	222	
51															
52															
53															
54															
55															
56															

# APPENDIX A-5.1 (AUS)

## M

### UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1	1	1	1	1	1	1	1	1	1	1	1	1	1
		9	9	9	9	9	9	9	9	9	9	9	9	9	9
		2	3	4	5	6	7	8	9	0	1	2	3	4	5
1	Boilers	264	273	283	292	298	307	330	344	364	380	385	404	413	425
2	Coal & Ash Handling Equipment	224	229	240	246	250	255	270	289	296	300	302	308	318	325
3	Pumps	276	281	284	292	296	300	310	327	342	353	361	391	406	419
4	Steam Pipe	254	226	215	215	215	231	271	264	241	229	222	199	199	216
5	Cranes	302	328	344	384	411	423	442	458	474	482	490	537	598	615
6	Regulators	216	225	227	229	231	236	239	248	253	257	257	256	260	241
7	Switchboards	318	317	319	333	338	343	366	398	429	439	449	499	496	572
8	Power Transformers	231	226	229	237	242	253	264	291	327	337	343	360	371	388
9	Oil Switches	279	280	275	271	268	273	336	380	402	411	399	358	369	395
10	Motors	224	250	260	261	257	266	285	339	365	357	348	376	478	495
11	Line Transformers	208	210	211	212	213	211	212	221	224	222	223	226	230	225
12	Meters-Electric	188	201	200	202	207	205	187	175	174	186	190	189	174	169
13	Treated Pine Poles	291	280	276	283	289	284	289	300	310	323	332	367	416	445
14	Standard Cross Arms	249	240	243	230	228	226	250	291	333	366	381	419	441	464
15	Standard Galv. Steel Guy Wire	254	236	227	233	233	235	249	253	252	252	251	253	254	255
16	Fibre Conduit	175	210	231	225	221	225	301	470	379	260	230	198	222	228
17	Plastic Conduit	158	183	197	189	188	199	280	409	366	316	289	237	251	260
18	Mercury Luminaires w/Standard	333	326	343	358	352	321	321	334	345	353	361	389	408	430
19	Power Wire & Control Cable	132	131	123	107	110	123	137	139	136	130	126	119	121	127
20	Overhead Conductor-Transmission	247	271	246	242	242	218	359	366	355	372	379	334	352	399
21	Underground Conductor-Transmission	270	268	256	242	277	281	298	328	405	461	469	477	477	485
22	Overhead Conductor-Distribution	252	266	259	249	244	229	349	366	354	363	366	322	341	386
23	Underground Conductor-Distribution	206	201	196	202	216	222	223	243	254	258	259	254	253	263
24	Service Cable	207	198	229	209	194	201	250	285	271	264	258	227	240	271
25	Condensers & Tubes	247	256	257	247	222	239	263	268	268	270	270	275	288	308
26	Turbo-Generators	242	256	266	270	270	274	292	302	306	312	315	325	333	343
27															
28	Gas Compressors	280	284	295	301	303	307	325	354	371	388	405	438	446	455
29	Gas Transmission Line Pipe	315	271	262	254	265	272	301	298	269	257	250	233	235	243
30	Steel Distribution Pipe	268	270	282	272	237	250	291	316	318	323	323	327	370	381
31	Plastic Pipe	132	149	157	146	146	159	218	283	285	290	275	230	235	244
32	Meters-Gas	158	146	147	158	166	165	170	177	185	190	190	191	189	190
33	House Regulators	217	221	230	237	236	243	247	253	269	280	283	297	303	302
34															
35	Cast Iron Pipe	234	254	247	265	244	244	266	282	278	275	275	275	278	266
36	Cast Iron Fittings	216	232	229	240	259	289	296	317	324	324	324	350	377	370
37	Ductile Iron Pipe	228	262	249	281	246	246	275	278	271	271	271	271	273	250
38	Chemical Feeders-Small	341	353	358	366	373	379	398	410	424	430	432	444	453	453
39	Chemical Feeders-Large	273	286	294	306	324	341	353	379	402	418	423	438	437	477
40	Gate Valves	321	358	375	395	417	441	468	517	530	540	548	561	524	540
41	Meter Yokes	336	389	389	383	394	399	445	470	478	507	516	551	566	603
42	Corporation Stops	189	200	207	212	220	220	240	254	257	273	279	303	308	318
43	Curb Stops	198	210	220	225	233	233	254	270	273	289	296	321	330	348
44	Hydrants	352	384	385	414	439	456	480	521	558	560	560	559	561	577
45	Meters-Water	128	141	148	135	135	137	140	143	152	160	173	195	175	200
46															
47															
48															
49															
50	Construction Equipment	263	269	273	276	280	286	295	281	298	320	316	324	331	333
51															
52															
53															
54															
55															
56															



# APPENDIX A-5.1 (AUS)

# M

## UTILITY PLANT MATERIALS

### ALL REGIONS (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS											
		2005		2006		2007		2008		2009		2010	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	Boilers	535	550	565	578	590	604	595.6	616	620	599	608	620
2	Coal & Ash Handling Equipment	426	426	425.4	431	441	453	478	537	543	513	499	503
3	Pumps	567	575	592.3	602	620	640	643.3	663	673	675	703	704
4	Steam Pipe	270	286	292	299	307	304	324.2	400	454	413	376	417
5	Cranes	817	817	816.8	817	817	817	816.8	899	899	899	899	899
6	Regulators	271	276	290.3	343	360	375	401.1	427	389	390	402	408
7	Switchboards	1111	1173	1227	1340	1447	1596	1791	1954	2077	2218	2373	2504
8	Power Transformers	540	545	583.7	591	648	671	694.4	725	746	745	780	788
9	Oil Switches	379	389	412	420	429	436	436.7	455	460	461	469	475
10	Motors	691	695	685.7	658	683	601	634.5	674	696	719	717	695
11	Line Transformers	250	258	298.8	345	397	405	614.6	505	534	560	588	617
12	Meters-Electric	276	276	276	283	283	291	291.7	293	295	295	307	307
13	Treated Pine Poles	541	554	562.3	601	600	604	610.9	643	653	665	672	686
14	Standard Cross Arms	440	435	451.1	456	487	471	463.5	486	518	501	482	465
15	Standard Galv. Steel Guy Wire	302	302	300.7	280	323	323	350.8	381	548	536	550	405
16	Fibre Conduit	284	284	432.2	432	460	390	411.2	420	468	468	380	380
17	Plastic Conduit	354	354	447.3	447	527	495	521.5	526	609	609	463	463
18	Mercury Luminaires w/Standard	601	615	637.4	774	808	826	839.2	899	1024	1053	1087	972
19	Power Wire & Control Cable	132	137	159.5	187	263	265	242.2	250	228	234	213	220
20	Overhead Conductor-Transmission	491	540	633.3	698	742	770	860.5	985	985	553	700	714
21	Underground Conductor-Transmission	536	559	614.6	615	615	615	876.7	927	919	929	906	885
22	Overhead Conductor-Distribution	467	515	600.3	648	692	715	793.2	898	898	539	661	682
23	Underground Conductor-Distribution	295	308	342.2	343	457	459	498.5	541	631	609	515	518
24	Service Cable	313	347	396	396	432	439	471.9	510	511	390	430	460
25	Condensers & Tubes	439	433	447.3	465	466	506	496.3	603	516	462	473	525
26	Turbo-Generators	411	400	401.8	424	440	452	457	538	468	417	439	488
27													
28	Gas Compressors	506	586	535.3	544	557	574	580.5	603	621	626	625	631
29	Gas Transmission Line Pipe	449	452	440.4	460	525	482	502	604	600	510	444	506
30	Steel Distribution Pipe	875	855	924.4	954	829	839	832.6	1122	1019	929	911	987
31	Plastic Pipe	351	351	393	393	509	509	541.2	541	644	644	464	464
32	Meters-Gas	185	184	187.6	197	205	231	240.8	250	261	252	257	252
33	House Regulators	336	339	343.8	356	377	377	387.2	392	412	400	406	414
34													
35	Cast Iron Pipe	341	341	345.9	346	402	402	420.8	468	541	541	563	563
36	Cast Iron Fittings	520	520	660.6	690	706	720	782.9	837	897	909	986	987
37	Ductile Iron Pipe	274	274	283.2	283	327	327	363	363	485	485	521	521
38	Chemical Feeders-Small	640	661	669.4	596	640	676	816.6	819	831	880	880	880
39	Chemical Feeders-Large	576	576	586.2	544	531	570	676.1	683	654	700	700	700
40	Gate Valves	718	718	718.4	720	720	720	735.9	736	759	759	736	778
41	Meter Yokes	769	794	793.6	1111	1111	1169	1169	1169	1202	1202	1202	1241
42	Corporation Stops	367	367	367.2	527	527	527	526.6	527	527	527	527	542
43	Curb Stops	403	403	402.7	577	577	577	577.2	577	577	577	577	582
44	Hydrants	989	989	989.2	1097	1097	1116	1133	1133	1155	1155	1150	1081
45	Meters-Water	207	207	234.7	248	260	262	373.1	373	373	373	374	376
46													
47													
48													
49													
50	Construction Equipment	427	443	448.3	461	463	470.6	473.7	483	499	502	502	501
51													
52													
53													
54													
55													
56													

# APPENDIX A-5.1 (AUS)

## M

### UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		2011		2012		2013		2014		2015		2016		2017	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	Boilers	624	634	649	649	669	653	661	665	669	691	697	698	700	681
2	Coal & Ash Handling Equipment	522	536	550	559	562	563	580	581	584	583	582	584	589	595
3	Pumps	706	756	781	787	799	846	859	922	958	963	1043	1076	1120	1244
4	Steam Pipe	419	448	438	455	439	425	429	431	417	416	404	411	421	415
5	Cranes	899	899	899	899	899	965	965	1007	1007	1007	1007	1007	1007	1007
6	Regulators	410	418	415	428	422	428	441	425	416	406	396	403	412	416
7	Switchboards	2616	2757	2879	3034	3173	3319	3471	3594	3757	3760	3931	3930	4109	4300
8	Power Transformers	804	814	818	826	815	814	813	816	812	801	795	798	822	827
9	Oil Switches	480	483	483	485	485	488	498	500	500	502	502	501	501	503
10	Motors	713	770	777	782	804	837	849	851	859	857	869	869	893	883
11	Line Transformers	630	650	673	690	737	756	799	819	854	856	884	882	918	946
12	Meters-Electric	295	294	288	291	295	298	303	305	307	307	307	298	298	298
13	Treated Pine Poles	664	678	687	697	700	700	675	675	670	658	676	678	670	730
14	Standard Cross Arms	446	446	452	453	464	466	440	434	458	448	457	458	456	451
15	Standard Galv. Steel Guy Wire	405	405	404	423	423	488	458	486	486	486	486	486	515	515
16	Fibre Conduit	390	390	419	419	417	417	497	497	475	475	430	430	412	412
17	Plastic Conduit	468	468	521	521	477	477	478	478	479	479	468	468	452	452
18	Mercury Luminaires w/Standard	990	1034	1052	1079	1061	1077	990	993	981	1018	986	981	998	942
19	Power Wire & Control Cable	245	251	268	270	271	270	267	254	258	253	224	221	225	228
20	Overhead Conductor-Transmission	675	782	650	659	701	729	729	740	743	743	777	777	740	740
21	Underground Conductor-Transmission	973	971	977	1016	1026	1052	1083	1093	1095	1103	1108	1108	1113	1180
22	Overhead Conductor-Distribution	672	772	647	656	686	710	716	735	747	750	768	768	741	745
23	Underground Conductor-Distribution	563	577	621	647	617	654	631	645	622	637	589	589	539	562
24	Service Cable	516	579	497	505	502	512	530	562	592	600	580	578	580	593
25	Condensers & Tubes	527	575	580	566	567	528	536	549	547	551	520	535	536	510
26	Turbo-Generators	474	501	498	487	564	480	478	483	485	551	538	561	579	506
27															
28	Gas Compressors	633	656	662	677	674	692	693	707	713	720	722	727	728	735
29	Gas Transmission Line Pipe	510	525	586	616	542	535	626	627	616	589	535	544	570	601
30	Steel Distribution Pipe	1081	1123	1350	1327	1305	1276	1253	1266	1243	1189	1088	1116	1175	1247
31	Plastic Pipe	470	470	535	535	464	464	403	403	403	403	403	403	394	394
32	Meters-Gas	252	256	261	271	271	272	341	342	372	372	388	388	442	442
33	House Regulators	425	430	432	438	443	443	454	454	469	469	481	481	487	487
34															
35	Cast Iron Pipe	550	550	565	676	688	697	770	779	758	748	731	731	809	808
36	Cast Iron Fittings	961	961	1091	1120	1148	1168	1230	1395	1278	1322	1380	1418	1478	1478
37	Ductile Iron Pipe	500	500	524	524	545	545	575	575	579	579	600	600	622	622
38	Chemical Feeders-Small	907	908	1068	1086	1092	1203	1249	1249	1316	1404	1471	1471	1496	1589
39	Chemical Feeders-Large	633	715	753	770	774	803	805	805	805	805	842	842	863	891
40	Gate Valves	762	762	755	755	770	790	803	824	814	814	868	868	825	825
41	Meter Yokes	1241	1241	1323	1594	1594	1594	1594	1594	1594	1594	1594	1594	1594	1706
42	Corporation Stops	542	542	542	723	723	723	723	723	723	723	723	723	723	723
43	Curb Stops	582	582	582	739	739	739	739	739	780	780	780	780	780	780
44	Hydrants	1089	1089	1132	1132	1166	1189	1221	1339	1418	1591	1694	1694	1681	1681
45	Meters-Water	379	379	379	379	380	381	381	381	400	400	403	403	404	418
46															
47															
48															
49															
50	Construction Equipment	505	516	527	539	547	552	554	562	564	568	570	574	575	579
51															
52															
53															
54															
55															
56															

ALL REGIONS (1973=100)

L i n e	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		2018		2019		2020		2021		2022		2023		2024	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	Boilers	683	707	710	739										
2	Coal & Ash Handling Equipment	596	608	620	630										
3	Pumps	1248	1345	1401	1492										
4	Steam Pipe	407	462	483	468										
5	Cranes	1041	1083	1108	1108										
6	Regulators	420	430	436	437										
7	Switchboards	4461	4629	4847	4852										
8	Power Transformers	868	879	901	901										
9	Oil Switches	505	507	511	521										
10	Motors	910	917	937	1006										
11	Line Transformers	982	1008	1048	1048										
12	Meters-Electric	304	304	306	306										
13	Treated Pine Poles	665	668	687	693										
14	Standard Cross Arms	450	450	456	456										
15	Standard Galv. Steel Guy Wire	515	515	541	541										
16	Fibre Conduit	511	511	523	523										
17	Plastic Conduit	514	514	521	521										
18	Mercury Luminaires w/Standard	964	1008	1130	1085										
19	Power Wire & Control Cable	246	253	255	257										
20	Overhead Conductor-Transmission	838	838	885	885										
21	Underground Conductor-Transmission	1252	1271	1329	1329										
22	Overhead Conductor-Distribution	785	801	818	834										
23	Underground Conductor-Distribution	561	572	605	605										
24	Service Cable	496	544	490	540										
25	Condensers & Tubes	516	569	583	574										
26	Turbo-Generators	507	537	560	548										
27															
28	Gas Compressors	747	759	779	783										
29	Gas Transmission Line Pipe	615	693	716	689										
30	Steel Distribution Pipe	1218	1382	1432	1394										
31	Plastic Pipe	410	410	413	413										
32	Meters-Gas	475	477	511	511										
33	House Regulators	533	533	558	565										
34															
35	Cast Iron Pipe	867	868	878	881										
36	Cast Iron Fittings	1481	1565	1627	1736										
37	Ductile Iron Pipe	715	715	721	721										
38	Chemical Feeders-Small	1618	1738	1792	1871										
39	Chemical Feeders-Large	900	939	965	990										
40	Gate Valves	771	789	812	832										
41	Meter Yokes	1706	1706	1706	1768										
42	Corporation Stops	723	723	773	861										
43	Curb Stops	780	780	835	929										
44	Hydrants	1735	1759	1803	1830										
45	Meters-Water	434	434	443	443										
46															
47															
48															
49															
50	Construction Equipment	580	575	600	609										
51															
52															
53															
54															
55															
56															



**BULLETIN No. 191**

1912 to January 1, 2020

THE  
**HANDY-WHITMAN INDEX**  
Of  
**Public Utility**  
**Construction Costs**®

---

**TRENDS OF**  
**CONSTRUCTION COSTS**

**Preliminaries**

*Compiled and Published by*

Whitman, Requardt and Associates, LLP  
801 South Caroline Street  
Baltimore, Maryland 21231  
(410) 235-3450

# APPENDIX A-5.1 (AUS)

## HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 191

BUILDING INDEXES 1/1/20

LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
2	617	489	569	469	510	601
3	664	554	634	557	621	662
4	609	539	577	519	545	580
5	625	512	588	460	491	638
6	565	445	527	409	460	573
9	492	630	592	581	583	667
10	243	332	274	322	334	332
11	333	335	331	327	329	338
12	757	1118	914	1083	1457	800
13	462	523	457	605	397	445
16	732	492	637	470	506	713
17	732	536	642	476	503	692
18	723	520	638	451	498	689
19	750	561	647	455	500	692
20	787	492	659	509	514	786
21	780	583	674	519	576	794
22	751	555	648	521	577	808

# APPENDIX A-5.1 (AUS)

## HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 191

MATERIAL INDEXES 1/1/20

LINE	INDEX
1	738
2	640
3	1526
4	481
5	1141
6	443
7	5080
8	902
9	530
10	1023
11	1086
12	323
13	799
14	508
15	623
16	525
17	549
18	1188
19	261
20	919
21	1339
22	868
23	622
24	567
25	509
26	462
28	787
29	680
30	1590
31	447
32	489
33	559
35	912
36	1883
37	768
38	2019
39	1080
40	863
41	1768
42	861
43	929
44	1886
45	459
50	613

# APPENDIX A-5.1 (AUS)

## HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 191

WATER INDEXES 1/1/20

LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
2	584	494	562	481	524	579
8	719	604	683	584	665	722
9	1374	1374	1374	1374	1374	1374
15	719	604	683	584	665	722
16	871	792	834	779	795	896
17	1012	952	986	946	960	1044
23	836	836	836	836	836	836
24	1244	1244	1244	1244	1244	1244
27	884	852	865	852	863	906
28	824	759	787	779	764	823
29	638	579	611	571	584	639
34	847	799	817	758	778	842
35	920	917	927	877	896	934
36	820	676	721	642	674	699
37	748	659	699	632	649	750
38	417	369	395	357	365	403
39	706	578	633	552	559	673
40	459	459	459	459	459	459
41	790	672	725	657	668	777
42	1101	1053	1055	1037	1040	1119
46	2470	2457	2461	2491	2472	2531
47	1523	1423	1504	1430	1480	1543
48	868	737	817	743	796	913

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Cost Indices**

**AUS Consultants Index of General Support Assets**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**  
**ail: weinertj@auswest.net**



AUS Telephone Plant Index

---



# AUS Telephone Plant Index

Cost Trend Tables from 1946 to January 1, 2020

---

Copyright © 2020 by AUS Consultants all rights reserved, including the right to reproduce this book or portions thereof in any form whatsoever.  
For information contact:

AUS Consultants  
3601 N. Progress Ave., Suite 202  
Harrisburg PA 17110  
717.763.9890

No guarantee or warranty on any kind is made in the sale of the AUS Telephone Plant Index. The right is reserved to change numbers previously published.



## AUS Telephone Plant Index

---

155 Gaither Drive  
Suite A  
Mount Laurel, NJ 08054  
856.234.9200

3601 N. Progress Ave.  
Suite 202  
Harrisburg, PA 17110  
717.763.9890

**An AUS Consultants Company**

---





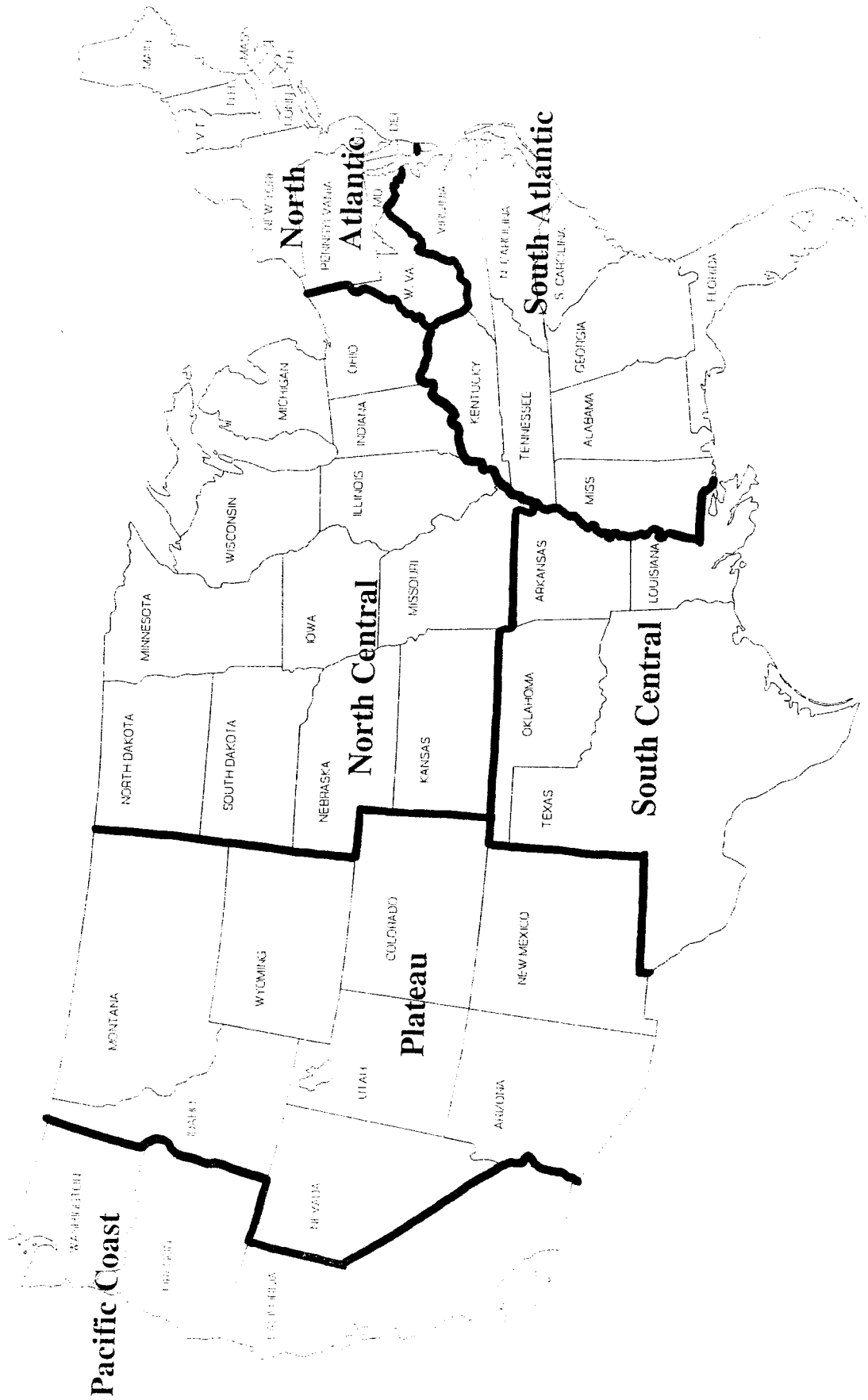
# Table of Contents

## Trends of Public Utility Construction

Map-Geographic .....	iv
Foreword .....	v
Telephone Plant Index Description .....	v
Index History .....	v
Index Design .....	vi
Index Functions .....	vii

## Telephone Plant Index

	Table	Page
North Atlantic Region .....	T-1	1-7
South Atlantic Region .....	T-2	8-14
North Central Region .....	T-3	15-21
South Central Region .....	T-4	22-28
Plateau Region .....	T-5	29-35
Pacific Region .....	T-6	36-42



# APPENDIX A-5.1 (AUS)

## FOREWORD

The AUS Telephone Plant Index, which follows this foreword was first introduced in 1977 by Associated Utility Services, Inc., and published as part of the Handy-Whitman Index of Public Utility Construction Costs through 1989. In 1990 AUS Consultants, the successor company to Associated Utility Services, Inc., decided to publish the Telephone Plant Index under the name C.A. Turner Utility Reports publication division. In 2005 the index changed its name from C.A. Turner Telephone Plant Index to AUS Telephone Plant Index.

The 1990 AUS Telephone Plant Index (TPI) was the first nationally available TPI based on the Federal Communication Commission (FCC) Uniform System of Accounts (USOA) Part 32. The prior published TPI, also prepared by AUS staff, was based on the earlier USOA Part 31 Standards.

### Telephone Plant Index Description

The TPI consists of a separate cost index series for each of six geographic regions shown on the map at page iv. These regions are designated: North Atlantic, South Atlantic, North Central, South Central, Plateau, and Pacific Coast. The regional designation are the same as those used in the prior issues of the cost index and are based on similarity of characteristics among the contiguous 48 states.

Each cost index series within a region consists of one index labeled "Total Plant Account" and up to 31 individual cost index series for the individual plant account identified in the left hand columns.

The Base Year for each cost index is 1973=100. Some plant accounts will not show an index number of 100 at year 1973 due to a subsequent adjustment for FCC Part 31 to Part 32, changes explained later in this foreword. In a few accounts the item described in the account was not included in the index series until after 1973 and the base year is considered the first year of entry.

The index for most plant accounts begins with a single entry in year 1946 and continues with a single number for each year through 1973. Beginning in 1974 there are two index numbers for each year; one for January 1 and one for July 1. These numbers represent the prevailing wages and material prices and weightings at that point in time.

### Index History

An index is a tool for identifying the relative price change of an item, or group of items over an identified period of time. Price indexes have been in use for many years for a variety of reasons. One example is an index developed in the eighteenth century by an Italian named Carli to determine the effect of the discovery of America upon the level of prices in Italy of three commodities between the years 1500 and 1750. In the current century, numerous organizations, including the United States Bureau of Statistic, have developed a variety of indexes ranging from the cost of basic commodities to manufactured goods and building construction cost.

# APPENDIX A-5.1 (AUS)

Interest in telephone utility cost indexes has varied over time depending on the need to develop reproduction cost values for utility properties. Previous uses of cost indexes included such things as the determination trended original cost in fair value rate jurisdictions and current cost pricing for FASB-33 financial accounting disclosures. Due to changes in rate regulation proceedings and financial disclosure requirements, the need in these two specific areas has declined. Other areas in which reproduction cost indexes were utilized included insurance valuations, property tax valuations, retirement accounting and cost forecasting, etc.

Most recently, interest in cost indexes for the telecommunication industry has increased due to the possible implementation of price cap regulation. This form of regulation incorporates the use of changes in price levels by regulators to set rates. Under one proposal, customer tariff prices are adjusted to give consideration to productivity improvements, therefore, the development of the construction cost indexes will have an indirect bearing on the level of the company revenue requirements.

## Index Design

The telephone plant index was designed as a product which could be utilized by any of the various telephone operating companies to develop the reproduction cost of the company's property at the selected test year date. Due to the variation of many design construction specifics from one company to another, it is impossible to produce an index which will exactly mirror the construction cost changes for each company. In circumstances where companies desire a more specific reproduction cost of their property, a custom index should be prepared or, alternately, the company's property should be inventoried and unit priced. Such unit cost work efforts, of course, will be significantly more expensive and time consuming to complete.

As indicated, the telephone plant index is a standard index which is published on a semi-annual basis. The yearly average index is calculated via a 1-2-1 weighting process which is the sum of 25% of the January index, 50 of the July index, and 25% of the succeeding year's January index.

In general terms, the telephone plant index was constructed around the FCC Part 32 system of accounts to aid companies in ease of application of the published index. Each embedded property account was reviewed to determine the components which comprise the large segment of the property investment in each account. In this manner, the resulting telephone plant index was a reasonable proxy for determining the reproduction cost of the embedded investment of the independent telephone industry.

With the exception of the General Support Asset Group, the FCC Part 32 based indexes were adjusted for all index years 1987 and prior to compensate for the change in overhead capitalization policies effective with the new regulations. That is, under FCC Part 31 regulation, a greater level of overheads were previously incorporated in the plant in service investments contained on the company's books and records. The adjusted indexes for the years 1946 through 1987, when applied to the company's original costs, will produce the applicable reproduction cost under FCC Part 32 accounting treatment. The index adjustment for Part 31 to Part 32 accounting results in the plant accounts not having an index number of 100 at the 1973 base year.

# APPENDIX A-5.1 (AUS)

The AUS Telephone Plant Index was designed around thirty-six component indexes representing the basic components of material and labor which make up the construction of the various telephone plant accounts. The components include such items as Buildings, Switching Equipment, Circuit Equipment, Poles, Cable, Wire Vehicles, Tools, Furniture, Installer Labor and Lineman Labor, etc. The components were composited together into account level indexes based upon material and labor weights derived from a study of independent telephone construction cost experience.

Introduction of new technologies into a reproduction cost index required the review of composite weight included in development of the account level index to reflex the new mix of property.

The goal of the telephone plant index was to produce a product which when utilized together with each companies' books and records would produce a reproduction cost value.

The AUS Telephone Plant Index does not reflect replacement cost inasmuch as it was designed to produce the reproduction cost (the cost in today's dollars to reproduce the company's embedded plant in service).

## Index Functions

The AUS Telephone Plant Index series was initially prepared to address a very specific function. That is, it was designed to enable companies to produce trended original cost values to the historical original cost of plant in service on the companies' books and records. This trended original cost is a general representation of the cost to reconstruct the property in question at the price level of the selected period. If a company desires a more specific estimate of reconstruction, the property specific indexes can be developed giving consideration to the actual history of the company's wages and material cost in comparison to the labor and material costs. For an even more specific cost estimated to rebuild the plant in serve, engineering estimated can be completed based upon the property inventory and the current unit costs for constructing the various plant categories.

In summary, the index was designed to be applied on a vintage and account level basis to determine the reproduction cost of local distribution companies' plant in service, as of the selected price level.

A tool can be utilized correctly only within the boundaries for which the product was originally designed. Uses above and beyond the scope of the original design may or may not produce reliable results. That is, the use of a generalized index to prepare a reproduction cost will provide general results within the range of reasonableness. If more specific or exact results are required, alternative methods or procedures (i.e., custom indexes or specific detail pricing) should be employed.

An effort has been made to carefully construct an index which produces a reasonable proxy of reproduction cost for the telephone plant or local distribution companies giving consideration to the fact that there are variances in material and labor costs, as well as, construction methods and practices from one company to another. Nevertheless, we believe that there is sufficient similarity in the cost trends to make the AUS Telephone Plant Index a useful tool when carefully applied to a company's historical cost base.

# North Atlantic

# APPENDIX A-5.1 (AUS)

SCHEDULE No. T-1

AUS TELEPHONE PLANT INDEX  
NORTH ATLANTIC REGION 1973=100

L I N E  N O	PLANT IN SERVICE  DESCRIPTION	F c  A c c t	COST INDEX NUMBER														L I N E  N O		
			1	1	1	1	1	1	1	1	1	1	1	1	1	1			
			9	9	9	9	9	9	9	9	9	9	9	9	9	9		9	
			4	4	4	4	5	5	5	5	5	5	5	5	5	6	6		
			6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	
1	Total Plant.....		85	89	91	91	92	95	96	96	94	94	97	97	96	96	97	96	1
2																			2
3																			3
4	Motor Vehicles.....	2112	57	57	63	67	67	70	74	74	74	77	81	84	87	89	88	87	4
5	Aircraft.....	2113	56	56	62	66	66	69	73	73	73	75	80	83	86	88	86	86	5
6	Special Purpose Vehicles.....	2114	30	34	38	41	42	46	47	48	49	51	56	60	62	65	66	67	6
7	Garage Work Equipment.....	2115	36	38	42	44	46	51	51	52	53	56	61	65	67	69	70	70	7
8	Other Work Equipment.....	2116	50	50	52	54	55	59	59	61	62	64	67	70	71	74	75	77	8
9																			9
10																			10
11	Buildings.....	2121	24	28	32	34	35	37	38	39	41	42	46	49	50	52	53	52	11
12	Furniture.....	2122	43	43	46	47	50	56	56	57	57	60	64	68	70	70	71	71	12
13	Office Equipment.....	2123	67	67	69	69	70	75	74	76	77	79	82	85	87	88	88	89	13
14	General Purpose Computer.....	2124	67	67	69	69	70	75	74	76	77	79	82	85	87	88	88	89	14
15																			15
16																			16
17	Analog Electronic Switching.....	2211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
18	Digital Electronic Switching.....	2212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
19																			19
20																			20
21	Electro Mechanical Switching.....	2215	36	48	49	57	62	64	67	66	64	65	68	70	69	72	70	72	21
22																			22
23	Operator Systems.....	2220	37	50	51	59	64	67	69	68	66	67	70	72	71	73	71	74	23
24																			24
25																			25
26	Radio System—Analog.....																		26
27	Radio Systems—Digital.....	22311	51	57	62	63	63	66	64	60	58	58	49	49	46	47	36	36	27
28	Circuit Equipment—Analog.....	22312	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
29	Circuit Equipment—Digital.....	22321	347	392	417	411	410	423	410	401	348	311	319	317	303	299	312	297	29
30		22322	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
31																			31
32	Public Telephone Term Eq.....	2351	148	151	145	145	148	154	143	144	146	158	159	164	164	164	165	165	32
33																			33
34																			34
35	Poles.....	2411	33	37	39	41	42	45	47	49	51	50	54	58	59	59	60	61	35
36	Aerial Cable—Metallic.....	24211	44	47	49	49	51	58	61	64	64	68	74	72	70	71	72	70	36
37	Aerial Cable—Fiber.....	24212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
38	Underground Cable—Metallic.....	24221	48	52	54	53	55	64	67	71	69	75	82	78	75	76	78	75	38
39	Underground Cable—Fiber.....	24222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
40	Buried Cable—Metallic.....	24231	50	54	56	55	57	66	70	74	72	78	85	81	77	78	80	76	40
41	Buried Cable—Fiber.....	24232	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
42	Submarine Cable—Metallic.....	24241	43	45	48	48	50	56	59	62	61	65	71	69	68	69	71	70	42
43	Submarine Cable—Fiber.....	24242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
44	Intra Building Cable—Metallic.....	24261	43	47	49	48	50	58	61	64	63	68	74	71	69	70	72	70	44
45	Intra Building Cable—Fiber.....	24262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
46	Aerial Wire.....	2431	33	36	38	38	40	45	47	50	50	55	58	57	57	59	61	62	46
47	Conduit Systems.....	2441	54	55	57	59	60	63	64	64	65	65	67	69	71	72	73	74	47
48																			48
49	Aerial Cable-FTTP (Distribution)...	24213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
50	Underground Cable-FTTP (Dist.)...	24223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51	Buried Cable-FTTP (Distribution)...	24233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52	Submarine Cable-FTTP (Dist.).....	24243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
53	Intra Building Cable-FTTP (Dist.)...	24263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
54																			54





# APPENDIX A-5.1 (AUS)

SCHEDULE No. T-1

AUS TELEPHONE PLANT INDEX  
NORTH ATLANTIC REGION 1973=100

LINE NO	PLANT IN SERVICE DESCRIPTION	F c c A c c e t	COST INDEX NUMBER															LINE NO	
			1980		1981		1982		1983		1984		1985		1986		1987		
			J a n	J u l	J a n	J u l	J a n	J u l	J a n	J u l	J a n	J u l	J a n	J u l	J a n	J u l	J a n		J u l
1	Total Plant.....		140	146	146	149	150	152	156	159	156	154	156	158	156	154	154	155	1
2																		2	
3																		3	
4	Motor Vehicles.....	2112	162	167	178	186	195	195	201	199	203	204	206	210	215	215	227	220	4
5	Aircraft.....	2113	170	180	195	205	215	217	224	223	227	228	230	234	238	237	233	231	5
6	Special Purpose Vehicles.....	2114	206	220	231	245	254	263	266	270	271	274	274	277	278	281	283	287	6
7	Garage Work Equipment.....	2115	200	213	223	234	241	248	250	251	253	257	260	263	264	267	268	270	7
8	Other Work Equipment.....	2116	153	165	170	181	183	189	189	189	189	190	192	197	199	202	204	205	8
9																		9	
10																		10	
11	Buildings.....	2121	176	183	188	193	192	198	200	206	210	218	223	224	228	234	234	239	11
12	Furniture.....	2122	174	182	187	199	210	213	215	222	224	229	232	238	242	245	248	252	12
13	Office Equipment.....	2123	125	130	132	136	137	140	140	143	142	142	140	142	143	143	143	146	13
14	General Purpose Computer.....	2124	90	90	90	90	87	83	76	69	59	48	48	48	48	47	47	47	14
15																		15	
16																		16	
17	Analog Electronic Switching.....	2211	130	140	149	163	168	175	183	188	193	199	202	204	205	208	210	210	17
18	Digital Electronic Switching.....	2212	96	96	97	97	94	90	84	77	67	57	57	57	57	56	56	56	18
19																		19	
20																		20	
21	Electro Mechanical Switching.....	2215	167	188	199	213	219	226	232	248	268	277	282	281	283	286	287	287	21
22																		22	
23	Operator Systems.....	2220	146	157	166	176	180	185	191	197	204	211	213	215	216	218	219	219	23
24																		24	
25																		25	
26																		26	
27	Radio System—Analog.....	22311	100	100	101	102	90	91	94	94	79	80	80	81	77	78	82	82	27
28	Radio Systems—Digital.....	22312	0	0	0	0	0	0	115	115	115	117	119	121	122	124	126	124	28
29	Circuit Equipment—Analog.....	22321	125	130	129	128	130	132	121	154	153	152	153	152	147	144	145	146	29
30	Circuit Equipment—Digital.....	22322	114	107	100	93	93	94	95	96	89	82	80	78	68	59	49	39	30
31																		31	
32	Public Telephone Term Eq.....	2351	132	141	145	150	158	167	190	196	201	206	210	212	213	217	219	218	32
33																		33	
34																		34	
35	Poles.....	2411	220	232	240	249	254	259	263	268	272	273	280	283	287	292	295	297	35
36	Aerial Cable—Metallic.....	24211	182	193	191	197	202	204	208	213	211	209	219	231	227	223	225	228	36
37	Aerial Cable—Fiber.....	24212	0	0	0	0	0	0	136	138	132	127	119	111	108	105	108	110	37
38	Underground Cable—Metallic.....	24221	181	192	187	191	195	196	199	203	197	193	204	217	212	205	206	209	38
39	Underground Cable—Fiber.....	24222	0	0	0	0	0	0	130	131	125	119	110	101	98	94	97	100	39
40	Buried Cable—Metallic.....	24231	180	192	186	189	192	193	195	199	192	187	198	212	205	198	198	201	40
41	Buried Cable—Fiber.....	24232	0	0	0	0	0	0	129	131	124	118	109	100	97	93	96	98	41
42	Submarine Cable—Metallic.....	24241	181	192	193	199	205	209	214	219	219	218	227	238	237	235	238	240	42
43	Submarine Cable—Fiber.....	24242	0	0	0	0	0	0	147	149	145	141	134	128	126	124	127	130	43
44	Intra Building Cable—Metallic.....	24261	182	193	191	197	202	205	209	214	211	210	220	231	228	224	226	230	44
45	Intra Building Cable—Fiber.....	24262	0	0	0	0	0	0	136	138	132	127	119	111	108	105	108	111	45
46	Aerial Wire.....	2431	182	191	198	206	210	214	219	225	232	239	243	248	250	252	253	253	46
47	Conduit Systems.....	2441	188	196	203	211	219	220	228	240	246	253	257	262	267	271	276	278	47
48																		48	
49	Aerial Cable-FTTP (Distribution)...	24213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
50	Underground Cable-FTTP (Dist.)...	24223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51	Buried Cable-FTTP (Distribution)...	24233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52	Submarine Cable-FTTP (Dist.).....	24243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
53	Intra Building Cable-FTTP (Dist.)...	24263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
54																		54	

# APPENDIX A-5.1 (AUS)

SCHEDULE No. T-1

AUS TELEPHONE PLANT INDEX

NORTH ATLANTIC REGION 1973=100

L I N E  N O	COST INDEX NUMBER																						L I N E  N O		
	1988		1989		1990		1991		1992		1993		1994		1995		1996		1997		1998			1999	
	J a n 1	J u l y 1	J a n 1	J u l y 1	J a n 1	J u l y 1	J a n 1	J u l y 1	J a n 1	J u l y 1	J a n 1	J u l y 1	J a n 1	J u l y 1	J a n 1	J u l y 1	J a n 1	J u l y 1	J a n 1	J u l y 1	J a n 1	J u l y 1		J a n 1	J u l y 1
1	150	153	158	165	164	165	167	165	165	165	167	168	169	170	174	178	182	182	184	185	186	184	184	181	1
2																									2
3																									3
4	221	222	231	229	236	232	244	241	254	251	258	261	267	271	275	270	279	276	277	271	270	263	273	266	4
5	234	234	234	240	246	254	261	271	274	284	285	291	297	300	304	312	318	322	326	328	327	328	329	330	5
6	289	293	298	309	312	319	325	328	333	337	343	348	348	351	353	360	362	368	370	374	377	382	383	388	6
7	273	279	286	294	298	305	309	316	318	322	324	328	332	336	338	345	349	354	356	359	361	364	366	368	7
8	206	210	215	218	221	228	230	234	235	240	240	243	244	250	250	254	254	258	258	260	260	262	263	265	8
9																									9
10																									10
11	242	254	257	268	268	272	272	274	270	279	283	290	295	306	310	310	311	312	323	329	331	338	341	343	11
12	255	263	269	274	278	284	287	290	291	294	296	299	302	309	309	315	320	322	326	328	330	330	330	333	12
13	147	149	151	153	154	154	152	153	153	156	154	155	155	155	154	156	155	156	155	157	156	157	156	157	13
14	45	43	37	31	30	29	26	24	23	21	21	21	21	21	21	20	17	15	14	14	14	14	13	13	14
15																									15
16																									16
17	204	207	210	212	214	211	212	214	213	213	216	215	216	216	213	212	211	204	204	200	196	194	193	192	17
18	52	50	45	40	39	38	36	33	32	31	31	31	32	32	32	31	28	27	26	26	26	26	25	25	18
19																									19
20																									20
21	278	284	289	291	291	292	296	302	303	304	309	317	316	324	329	327	334	333	336	339	331	336	338	342	21
22																									22
23	213	216	217	218	218	220	223	224	224	227	231	231	236	238	236	239	240	239	239	239	234	237	237	239	23
24																									24
25																									25
26																									26
27	80	80	81	81	81	82	81	82	84	85	86	87	87	87	89	89	91	91	91	93	94	95	95	96	27
28	117	117	117	118	118	118	116	116	117	118	119	120	119	120	120	121	121	122	123	125	125	123	123	124	28
29	140	141	142	144	145	144	145	146	147	147	147	149	150	150	152	149	149	146	146	145	143	143	142	143	29
30	36	35	35	35	35	34	34	34	37	38	39	39	39	39	37	37	37	38	35	36	36	36	36	35	30
31																									31
32	205	209	212	214	216	213	213	215	214	214	213	216	215	216	213	212	211	204	204	200	196	195	194	192	32
33																									33
34																									34
35	278	285	291	295	300	304	310	315	319	327	331	338	352	365	368	369	379	385	400	402	406	413	418	421	35
36	226	237	257	275	273	277	282	277	279	275	281	282	283	282	294	310	319	323	325	328	333	324	322	314	36
37	94	87	85	89	89	89	90	90	89	90	89	89	88	87	88	89	90	91	91	92	93	94	94	95	37
38	210	221	244	265	261	265	270	261	263	256	262	260	260	257	270	289	299	304	305	308	312	299	297	285	38
39	84	75	73	77	76	76	77	77	76	76	75	74	73	72	72	73	74	75	75	76	76	77	77	77	39
40	204	215	240	262	257	261	265	256	257	249	256	253	252	249	262	283	293	298	298	301	306	291	288	275	40
41	82	73	71	75	74	74	75	75	74	74	73	72	71	69	70	71	72	73	73	74	74	75	75	75	41
42	235	244	260	274	274	277	283	278	282	279	285	286	287	288	298	310	319	323	324	327	332	325	325	319	42
43	114	107	106	111	111	111	113	113	113	114	113	114	113	113	114	115	118	119	119	120	121	122	123	123	43
44	227	238	257	275	273	277	282	277	279	275	281	282	282	282	293	309	318	323	324	328	333	324	322	314	44
45	95	87	85	90	89	89	90	91	90	90	89	89	88	87	88	89	91	92	92	93	94	94	95	95	45
46	249	261	270	278	279	283	290	291	293	298	302	305	307	312	320	324	329	332	334	337	341	344	342	342	46
47	269	277	301	309	311	309	316	308	307	310	314	320	325	331	336	340	345	347	350	353	355	358	362	366	47
48																									48
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
54																									54

# APPENDIX A-5.1 (AUS)

## SCHEDULE No. T-1

## AUS TELEPHONE PLANT INDEX

NORTH ATLANTIC REGION 1973=100

L I N E  N O	PLANT IN SERVICE  DESCRIPTION	F C C  A c c t	COST INDEX NUMBER														L I N E  N O		
			2000		2001		2002		2003		2004		2005		2006			2007	
			J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1		J a n 1	J u n 1
1	Total Plant.....		182	185	188	190	191	193	194	197	201	206	210	213	227	244	244	249	1
2																		2	
3																		3	
4	Motor Vehicles.....	2112	275	269	276	266	270	263	264	257	268	266	272	261	262	258	264	257	4
5	Aircraft.....	2113	334	343	351	359	362	364	369	377	387	393	408	417	424	438	447	450	5
6	Special Purpose Vehicles.....	2114	388	392	392	392	392	398	400	404	404	413	428	445	449	462	465	472	6
7	Garage Work Equipment.....	2115	369	372	373	377	376	376	377	378	379	387	393	403	408	416	422	430	7
8	Other Work Equipment.....	2116	266	267	268	273	271	272	271	273	273	275	276	278	278	275	278	279	8
9																		9	
10																		10	
11	Buildings.....	2121	353	359	364	374	377	384	385	385	407	412	425	431	441	443	457	472	11
12	Furniture.....	2122	335	337	338	341	341	341	344	346	346	350	360	368	372	376	380	386	12
13	Office Equipment.....	2123	156	157	157	158	159	158	158	157	159	160	158	162	161	161	160	161	13
14	General Purpose Computer.....	2124	12	11	9	9	7	7	6	4.8	3.4	3.4	3.3	3.3	3.0	2.8	2.6	2.7	14
15																		15	
16																		16	
17	Analog Electronic Switching.....	2211	193	193	193	190	189	190	189	190	189	190	190	189	187	193	196	186	17
18	Digital Electronic Switching.....	2212	25	24	22	23	23	23	21	22	22	22	22	22	22	23	23	23	18
19																		19	
20																		20	
21	Electro Mechanical Switching.....	2215	344	348	350	358	366	376	379	386	391	395	403	405	414	421	430	432	21
22																		22	
23	Operator Systems.....	2220	241	242	243	247	251	257	258	261	264	266	271	272	276	282	287	287	23
24																		24	
25																		25	
26																		26	
27	Radio System—Analog.....	22311	96	96	96	95	95	95	95	95	95	96	95	95	94	97	98	94	27
28	Radio Systems—Digital.....	22312	125	125	126	127	128	127	125	125	125	126	127	127	128	129	130	130	28
29	Circuit Equipment—Analog.....	22321	143	144	144	142	143	143	143	144	143	145	145	145	144	148	150	144	29
30	Circuit Equipment—Digital.....	22322	36	36	36	37	37	38	38	39	38	38	39	39	39	40	40	41	30
31																		31	
32	Public Telephone Term Eq.....	2351	193	193	193	191	190	190	190	191	190	191	190	189	187	193	195	186	32
33																		33	
34																		34	
35	Poles.....	2411	421	429	434	446	451	459	463	472	477	490	495	503	502	521	526	529	35
36	Aerial Cable—Metallic.....	24211	313	322	328	333	335	338	340	349	357	371	379	386	430	486	477	492	36
37	Aerial Cable—Fiber.....	24212	96	98	100	102	104	105	105	108	110	112	114	116	118	119	121	122	37
38	Underground Cable—Metallic.....	24221	281	289	295	299	298	299	299	307	314	326	334	340	394	461	448	466	38
39	Underground Cable—Fiber.....	24222	78	80	82	83	84	86	85	87	89	91	92	94	95	96	98	98	39
40	Buried Cable—Metallic.....	24231	271	278	284	287	285	289	286	293	300	312	320	326	383	456	441	460	40
41	Buried Cable—Fiber.....	24232	76	77	79	80	81	83	82	84	85	87	89	90	91	92	93	94	41
42	Submarine Cable—Metallic.....	24241	320	327	334	338	341	343	346	353	362	372	379	384	417	459	454	466	42
43	Submarine Cable—Fiber.....	24242	125	127	130	132	134	136	136	138	141	144	146	148	149	150	153	154	43
44	Intra Building Cable—Metallic.....	24261	313	322	328	333	335	338	340	349	357	370	378	385	429	483	474	489	44
45	Intra Building Cable—Fiber.....	24262	97	99	101	103	104	106	106	108	110	113	115	117	118	120	121	122	45
46	Aerial Wire.....	2431	348	355	362	368	372	377	381	391	399	412	419	427	446	466	465	472	46
47	Conduit Systems.....	2441	375	380	391	395	403	412	418	422	432	442	453	458	474	478	495	493	47
48																		48	
49	Aerial Cable-FTTP (Distribution)...	24213	0	0	0	0	0	0	0	0	100	97	95	92	89	88	87	49	49
50	Underground Cable-FTTP (Dist.)...	24223	0	0	0	0	0	0	0	0	100	99	98	98	97	96	96	50	50
51	Buried Cable-FTTP (Distribution)...	24233	0	0	0	0	0	0	0	0	100	102	105	104	103	103	102	51	51
52	Submarine Cable-FTTP (Dist.).....	24243	0	0	0	0	0	0	0	0	100	99	98	98	97	96	96	52	52
53	Intra Building Cable-FTTP (Dist.)...	24263	0	0	0	0	0	0	0	0	100	100	100	100	100	101	103	53	53
54																		54	

# APPENDIX A-5.1 (AUS)

SCHEDULE No. T-1

AUS TELEPHONE PLANT INDEX

NORTH ATLANTIC REGION 1973=100

L I N E  N O	COST INDEX NUMBER																				L I N E  N O				
	2008		2009		2010		2011		2012		2013		2014		2015		2016		2017			2018		2019	
	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1		J a n 1	J u n 1	J a n 1	J u n 1
1	251	256	245	248	258	260	279	282	282	282	285	283	284	285	289	287	283	282	288	290	298	304	304	304	1
2																									2
3																									3
4	263	257	272	273	274	269	272	273	280	279	286	282	291	287	291	295	299	298	305	301	307	304	309	305	4
5	461	471	495	480	485	490	497	502	514	520	523	528	532	537	541	543	543	547	548	553	557	562	567	574	5
6	476	485	499	504	503	503	507	518	529	541	548	555	557	564	566	570	572	576	577	581	583	578	602	612	6
7	435	445	457	457	456	458	462	474	479	485	489	494	497	503	505	509	510	513	514	519	522	533	541	550	7
8	281	286	290	286	286	288	288	290	291	294	295	296	304	307	309	315	318	322	322	324	327	330	333	335	8
9																									9
10																									10
11	492	497	506	494	506	507	521	518	530	532	542	539	550	552	585	580	586	589	604	608	633	647	647	643	11
12	389	402	417	415	418	420	415	429	433	437	433	437	439	450	449	454	454	455	457	461	464	482	491	497	12
13	162	171	184	171	169	169	170	171	173	173	164	165	166	166	171	172	172	172	173	171	171	169	170	172	13
14	2.7	2.6	2.6	2.1	2.01	1.98	1.97	1.49	0.82	0.66	0.67	0.50	0.57	0.60	0.55	0.63	0.64	0.65	0.73	0.71	0.67	0.64	0.60	0.60	14
15																									15
16																									16
17	180	179	178	178	177	177	174	175	174	174	174	175	176	176	176	176	177	177	177	179	177	179	179	179	17
18	24	24	25	25	25	25	25	25	26	26	26	27	27	27	27	28	28	28	28	29	29	29	29	29	18
19																									19
20																									20
21	439	445	456	458	460	469	474	481	486	478	484	491	497	495	499	499	496	497	502	502	509	506	513	517	21
22																									22
23	288	292	297	299	300	305	307	311	313	309	312	317	320	319	322	322	320	321	324	325	328	327	331	333	23
24																									24
25																									25
26																									26
27	91	90	90	90	89	89	88	89	88	88	88	88	89	89	89	89	89	89	89	90	90	90	90	90	27
28	131	132	134	134	135	137	138	138	137	138	138	138	138	138	139	140	140	140	140	141	141	142	143	143	28
29	140	139	139	139	138	138	137	138	137	137	137	138	139	139	140	140	141	141	141	142	142	143	143	143	29
30	41	41	41	41	40	40	40	41	41	42	42	42	43	43	44	44	44	45	45	45	46	46	47	47	30
31																									31
32	180	179	177	178	177	177	174	175	173	174	173	174	175	175	176	176	177	177	177	179	177	179	179	179	32
33																									33
34																									34
35	537	547	554	563	570	578	576	587	594	600	603	607	605	616	620	621	629	633	634	652	643	652	661	670	35
36	494	507	461	473	506	509	573	582	577	576	582	572	573	573	578	570	555	551	566	568	590	604	601	602	36
37	123	124	126	127	128	130	131	133	135	136	137	138	140	142	143	144	146	148	149	151	153	155	157	158	37
38	465	481	421	435	475	476	555	562	554	552	556	544	542	540	544	533	513	506	523	524	548	563	558	557	38
39	100	100	102	103	103	105	106	108	109	110	111	112	113	114	116	116	118	119	120	122	123	125	126	127	39
40	459	475	410	425	467	467	553	560	550	547	552	538	536	533	537	524	501	493	511	511	537	552	545	544	40
41	95	96	97	98	99	100	101	103	104	105	106	107	108	109	111	111	113	114	115	116	118	120	121	122	41
42	468	479	447	458	484	486	535	541	539	540	545	539	541	542	547	544	534	532	546	548	566	578	578	580	42
43	155	157	159	161	163	164	166	168	170	172	173	174	177	179	181	183	185	187	189	191	194	196	199	200	43
44	491	504	459	471	504	507	570	578	573	573	578	569	569	570	575	567	553	549	564	566	588	602	599	600	44
45	124	125	127	128	129	131	132	134	135	137	138	139	141	142	144	145	147	148	150	152	154	158	158	159	45
46	475	488	469	478	496	501	519	528	525	527	531	530	533	538	543	543	540	541	551	556	569	580	583	586	46
47	502	507	525	530	516	521	526	532	545	550	549	552	559	565	571	577	581	586	591	596	611	618	626	631	47
48																									48
49	82	77	75	73	65	58	55	53	52	50	50	50	50	50	50	49	50	49	49	50	50	50	51	51	49
50	94	92	89	87	83	80	75	70	66	62	58	54	54	54	53	53	54	54	54	55	55	55	56	56	50
51	92	82	78	74	71	68	66	63	61	59	57	54	54	55	54	54	54	53	53	54	54	54	55	55	51
52	94	92	89	87	83	80	75	70	66	62	58	54	54	54	53	53	54	54	54	55	55	55	56	56	52
53	104	105	90	75	68	61	54	47	43	39	39	39	39	39	38	38	39	44	44	44	44	44	45	45	53
54																									54

# APPENDIX A-5.1 (AUS)

**SCHEDULE No. T-1**

**AUS TELEPHONE PLANT INDEX  
NORTH ATLANTIC REGION 1973=100**

L I N E  N O	PLANT IN SERVICE  DESCRIPTION	F C C  A c c e t	COST INDEX NUMBER														L I N E  N O		
			2020		2021		2022		2023		2024		2025		2026			2027	
			J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1	J a n 1	J u n 1		J a n 1	J u n 1
1	Total Plant.....		305															1	
2																		2	
3																		3	
4	Motor Vehicles.....	2112	309															4	
5	Aircraft.....	2113	575															5	
6	Special Purpose Vehicles.....	2114	616															6	
7	Garage Work Equipment.....	2115	551															7	
8	Other Work Equipment.....	2116	336															8	
9																		9	
10																		10	
11	Buildings.....	2121	643															11	
12	Furniture.....	2122	503															12	
13	Office Equipment.....	2123	171															13	
14	General Purpose Computer.....	2124	0.51															14	
15																		15	
16																		16	
17	Analog Electronic Switching.....	2211	180															17	
18	Digital Electronic Switching.....	2212	30															18	
19																		19	
20																		20	
21	Electro Mechanical Switching.....	2215	518															21	
22																		22	
23	Operator Systems.....	2220	334															23	
24																		24	
25																		25	
26																		26	
27	Radio System—Analog.....	22311	91															27	
28	Radio Systems—Digital.....	22312	145															28	
29	Circuit Equipment—Analog.....	22321	144															29	
30	Circuit Equipment—Digital.....	22322	47															30	
31																		31	
32	Public Telephone Term Eq.....	2351	181															32	
33																		33	
34																		34	
35	Poles.....	2411	676															35	
36	Aerial Cable—Metallic.....	24211	603															36	
37	Aerial Cable—Fiber.....	24212	160															37	
38	Underground Cable—Metallic.....	24221	557															38	
39	Underground Cable—Fiber.....	24222	128															39	
40	Buried Cable—Metallic.....	24231	543															40	
41	Buried Cable—Fiber.....	24232	123															41	
42	Submarine Cable—Metallic.....	24241	583															42	
43	Submarine Cable—Fiber.....	24242	202															43	
44	Intra Building Cable—Metallic.....	24261	602															44	
45	Intra Building Cable—Fiber.....	24262	161															45	
46	Aerial Wire.....	2431	590															46	
47	Conduit Systems.....	2441	637															47	
48																		48	
49	Aerial Cable-FTTP (Distribution)...	24213	51															49	
50	Underground Cable-FTTP (Dist.)...	24223	56															50	
51	Buried Cable-FTTP (Distribution)...	24233	55															51	
52	Submarine Cable-FTTP (Dist.).....	24243	56															52	
53	Intra Building Cable-FTTP (Dist.)...	24263	45															53	
54																		54	

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Cost Indices**

**United States Bureau of Labor Statistics – General Inf Cost Indexes**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**  
**ail: weinertj@auswest.net**

# APPENDIX A-5.1 (AUS)

S:\Cost Indices\BLS Indexes\BLS Indexes

AUS Consultants  
Bureau of Labor Statistics Indexes

Index	Table	Region	Year	Begin Date	End Date	CPI	1	2	3
								Communic Equipment pcu3342	Technical Labor ecu11221
								linked	CIU20154
Earliest Year							1913	1986	1985
Index	Table	Region					1	2	3
BLS	BLS	All	1913	1/1/1913	12/31/1913	10	7	6	
BLS	BLS	All	1914	1/1/1914	12/31/1914	10	7	6	
BLS	BLS	All	1915	1/1/1915	12/31/1915	10	7	6	
BLS	BLS	All	1916	1/1/1916	12/31/1916	11	8	7	
BLS	BLS	All	1917	1/1/1917	12/31/1917	13	10	8	
BLS	BLS	All	1918	1/1/1918	12/31/1918	15	11	9	
BLS	BLS	All	1919	1/1/1919	12/31/1919	17	12	10	
BLS	BLS	All	1920	1/1/1920	12/31/1920	20	14	12	
BLS	BLS	All	1921	1/1/1921	12/31/1921	18	13	11	
BLS	BLS	All	1922	1/1/1922	12/31/1922	17	12	10	
BLS	BLS	All	1923	1/1/1923	12/31/1923	17	12	10	
BLS	BLS	All	1924	1/1/1924	12/31/1924	17	12	10	
BLS	BLS	All	1925	1/1/1925	12/31/1925	18	13	11	
BLS	BLS	All	1926	1/1/1926	12/31/1926	18	13	11	
BLS	BLS	All	1927	1/1/1927	12/31/1927	17	12	10	
BLS	BLS	All	1928	1/1/1928	12/31/1928	17	12	10	
BLS	BLS	All	1929	1/1/1929	12/31/1929	17	12	10	
BLS	BLS	All	1930	1/1/1930	12/31/1930	17	12	10	
BLS	BLS	All	1931	1/1/1931	12/31/1931	15	11	9	
BLS	BLS	All	1932	1/1/1932	12/31/1932	14	10	8	
BLS	BLS	All	1933	1/1/1933	12/31/1933	13	9	7	
BLS	BLS	All	1934	1/1/1934	12/31/1934	13	9	7	
BLS	BLS	All	1935	1/1/1935	12/31/1935	14	10	7	
BLS	BLS	All	1936	1/1/1936	12/31/1936	14	10	7	
BLS	BLS	All	1937	1/1/1937	12/31/1937	14	10	7	
BLS	BLS	All	1938	1/1/1938	12/31/1938	14	10	7	
BLS	BLS	All	1939	1/1/1939	12/31/1939	14	10	7	
BLS	BLS	All	1940	1/1/1940	12/31/1940	14	10	7	
BLS	BLS	All	1941	1/1/1941	12/31/1941	15	11	8	
BLS	BLS	All	1942	1/1/1942	12/31/1942	16	12	9	
BLS	BLS	All	1943	1/1/1943	12/31/1943	17	13	10	
BLS	BLS	All	1944	1/1/1944	12/31/1944	18	14	11	
BLS	BLS	All	1945	1/1/1945	12/31/1945	18	14	11	
BLS	BLS	All	1946	1/1/1946	12/31/1946	20	16	12	
BLS	BLS	All	1947	1/1/1947	12/31/1947	22	18	13	
BLS	BLS	All	1948	1/1/1948	12/31/1948	24	20	14	
BLS	BLS	All	1949	1/1/1949	12/31/1949	24	20	14	
BLS	BLS	All	1950	1/1/1950	12/31/1950	24	20	14	
BLS	BLS	All	1951	1/1/1951	12/31/1951	26	22	15	

# APPENDIX A-5.1 (AUS)

S:\Cost Indices\BLS Indexes\BLS Indexes

AUS Consultants  
Bureau of Labor Statistics Indexes

Index	Table	Region	Year	Begin Date	End Date	CPI	1 Communic Equipment pcu3342	2 Technical Labor ecu11221 linked CIU20154	3 1985
Earliest Year							1913	1986	1985
Index	Table	Region					1	2	3
BLS	BLS	All	1952	1/1/1952	12/31/1952	27	23	16	
BLS	BLS	All	1953	1/1/1953	12/31/1953	27	23	16	
BLS	BLS	All	1954	1/1/1954	12/31/1954	27	23	16	
BLS	BLS	All	1955	1/1/1955	12/31/1955	27	23	16	
BLS	BLS	All	1956	1/1/1956	12/31/1956	27	23	16	
BLS	BLS	All	1957	1/1/1957	12/31/1957	28	24	17	
BLS	BLS	All	1958	1/1/1958	12/31/1958	29	25	18	
BLS	BLS	All	1959	1/1/1959	12/31/1959	29	25	18	
BLS	BLS	All	1960	1/1/1960	12/31/1960	30	26	19	
BLS	BLS	All	1961	1/1/1961	12/31/1961	30	26	19	
BLS	BLS	All	1962	1/1/1962	12/31/1962	30	26	19	
BLS	BLS	All	1963	1/1/1963	12/31/1963	31	27	20	
BLS	BLS	All	1964	1/1/1964	12/31/1964	31	27	20	
BLS	BLS	All	1965	1/1/1965	12/31/1965	32	28	21	
BLS	BLS	All	1966	1/1/1966	12/31/1966	32	28	21	
BLS	BLS	All	1967	1/1/1967	12/31/1967	33	29	22	
BLS	BLS	All	1968	1/1/1968	12/31/1968	35	31	23	
BLS	BLS	All	1969	1/1/1969	12/31/1969	37	33	24	
BLS	BLS	All	1970	1/1/1970	12/31/1970	39	35	25	
BLS	BLS	All	1971	1/1/1971	12/31/1971	41	37	26	
BLS	BLS	All	1972	1/1/1972	12/31/1972	42	38	27	
BLS	BLS	All	1973	1/1/1973	12/31/1973	44	40	28	
BLS	BLS	All	1974	1/1/1974	12/31/1974	49	44	31	
BLS	BLS	All	1975	1/1/1975	12/31/1975	54	49	34	
BLS	BLS	All	1976	1/1/1976	12/31/1976	57	52	36	
BLS	BLS	All	1977	1/1/1977	12/31/1977	61	56	38	
BLS	BLS	All	1978	1/1/1978	12/31/1978	65	60	40	
BLS	BLS	All	1979	1/1/1979	12/31/1979	73	67	45	
BLS	BLS	All	1980	1/1/1980	12/31/1980	82	75	50	
BLS	BLS	All	1981	1/1/1981	12/31/1981	91	83	55	
BLS	BLS	All	1982	1/1/1982	12/31/1982	97	89	59	
BLS	BLS	All	1983	1/1/1983	12/31/1983	100	92	61	
BLS	BLS	All	1984	1/1/1984	12/31/1984	104	96	63	
BLS	BLS	All	1985	1/1/1985	12/31/1985	108	100	65	
BLS	BLS	All	1986	1/1/1986	12/31/1986	110	102	66	
BLS	BLS	All	1987	1/1/1987	12/31/1987	114	104	69	
BLS	BLS	All	1988	1/1/1988	12/31/1988	118	104	72	
BLS	BLS	All	1989	1/1/1989	12/31/1989	124	106	76	
BLS	BLS	All	1990	1/1/1990	12/31/1990	131	108	80	

BLS Indexes



# APPENDIX A-5.1 (AUS)

S:\Cost Indices\BLS Indexes\BLS Indexes

AUS Consultants  
Bureau of Labor Statistics Indexes

Index	Table	Region	Year	Begin Date	End Date	CPI	1 Communic Equipment pcu3342	2 Technical Labor ecu111221 linked CIU20154	3
Earliest Year						1913	1986	1985	
Index	Table	Region				1	2	3	
BLS	BLS	All	1991	1/1/1991	12/31/1991	136	109	84	
BLS	BLS	All	1992	1/1/1992	12/31/1992	140	110	88	
BLS	BLS	All	1993	1/1/1993	12/31/1993	145	112	92	
BLS	BLS	All	1994	1/1/1994	12/31/1994	148	113	95	
BLS	BLS	All	1995	1/1/1995	12/31/1995	152	114	97	
BLS	BLS	All	1996	1/1/1996	12/31/1996	157	115	100	
BLS	BLS	All	1997	1/1/1997	12/31/1997	161	116	102	
BLS	BLS	All	1998	1/1/1998	12/31/1998	163	115	106	
BLS	BLS	All	1999	1/1/1999	12/31/1999	167	113	109	
BLS	BLS	All	2000	1/1/2000	12/31/2000	172	110	114	
BLS	BLS	All	2001	1/1/2001	12/31/2001	177	109	119	
BLS	BLS	All	2002	1/1/2002	12/31/2002	180	105	123	
BLS	BLS	All	2003	1/1/2003	12/31/2003	184	102	127	
BLS	BLS	All	2004	1/1/2004	12/31/2004	189	98	132	
BLS	BLS	All	2005	1/1/2005	12/31/2005	195	97	135	
BLS	BLS	All	2006	1/1/2006	12/31/2006	202	97	139	
BLS	BLS	All	2007	1/1/2007	12/31/2007	207	96	146	
BLS	BLS	All	2008	1/1/2008	12/31/2008	215	97	152	
BLS	BLS	All	2009	1/1/2009	12/31/2009	215	97	155	
BLS	BLS	All	2010	1/1/2010	12/31/2010	218	97	157	
BLS	BLS	All	2011	1/1/2011	12/31/2011	225	96	161	
BLS	BLS	All	2012	1/1/2012	12/31/2012	230	96	164	
BLS	BLS	All	2013	1/1/2013	12/31/2013	233	95	167	
BLS	BLS	All	2014	1/1/2014	12/31/2014	237	96	170	
BLS	BLS	All	2015	1/1/2015	12/31/2015	237	96	173	
BLS	BLS	All	2016	1/1/2016	12/31/2016	240	95	176	
BLS	BLS	All	2017	1/1/2017	12/31/2017	245	94	179	
BLS	BLS	All	2018	1/1/2018	12/31/2018	251	93	183	
BLS	BLS	All	2019	1/1/2019	12/31/2019	256	93	187	
BLS	BLS	All	2020	1/1/2020	12/31/2020	258	94	188	

# APPENDIX A-5.1 (AUS)

S:\Cost Indices\Communications Power\Central Office Power 1-1-2020

Index	Table	Region	Year	Begin Date	End Date	1	2	3	4	5	6	7
						Switch Gear PCU3353 13335313	Relays PCU3353 14335314	Battery Systems PCU3359 12335912	Power Systems Calculation	Alarm Systems PCU33429 03342901	Motors & Generators PCU33531 2335312	Emergency Generators Means Ref 26 32 13.13 2600
						30%	30%	40%	Composite			
Earliest Year						1987	1987	1987	1987	1987	1987	1987
Index	Table	Region				1	2	3	4	5	6	7
POW	POW	All	1987	1/1/1987	12/31/1987	103.6	103.9	125.0	112.3	100.1	110.8	83.4
POW	POW	All	1988	1/1/1988	12/31/1988	106.7	106.6	126.7	114.7	101.6	116.4	83.7
POW	POW	All	1989	1/1/1989	12/31/1989	113.5	110.9	133.5	120.7	104.3	123.3	83.9
POW	POW	All	1990	1/1/1990	12/31/1990	118.5	115.4	137.6	125.2	103.4	127.5	84.1
POW	POW	All	1991	1/1/1991	12/31/1991	121.8	120.5	142.7	129.8	101.9	129.7	84.3
POW	POW	All	1992	1/1/1992	12/31/1992	123.6	123.3	146.1	132.5	102.2	131.5	84.8
POW	POW	All	1993	1/1/1993	12/31/1993	125.9	126.9	149.3	135.6	103.2	133.5	85.0
POW	POW	All	1994	1/1/1994	12/31/1994	128.7	128.3	151.2	137.6	104.2	134.2	90.6
POW	POW	All	1995	1/1/1995	12/31/1995	132.4	130.7	154.5	140.7	106.5	137.5	95.1
POW	POW	All	1996	1/1/1996	12/31/1996	133.6	133.6	157.5	143.2	108.3	139.1	95.3
POW	POW	All	1997	1/1/1997	12/31/1997	135.0	137.8	158.3	145.2	109.4	138.6	99.1
POW	POW	All	1998	1/1/1998	12/31/1998	138.2	140.4	164.2	149.3	111.3	139.8	99.6
POW	POW	All	1999	1/1/1999	12/31/1999	141.0	142.8	165.5	151.3	109.4	139.9	99.8
POW	POW	All	2000	1/1/2000	12/31/2000	143.3	144.4	169.9	154.3	108.4	140.4	100.0
POW	POW	All	2001	1/1/2001	12/31/2001	147.6	148.2	178.2	160.0	109.0	141.6	102.9
POW	POW	All	2002	1/1/2002	12/31/2002	149.8	150.0	179.4	161.7	110.4	142.0	103.4
POW	POW	All	2003	1/1/2003	12/31/2003	151.1	152.3	165.1	157.1	110.8	142.4	103.8
POW	POW	All	2004	1/1/2004	12/31/2004	153.7	155.2	165.1	158.7	109.8	145.8	104.3
POW	POW	All	2005	1/1/2005	12/31/2005	160.4	160.0	166.9	162.9	110.6	154.4	104.7
POW	POW	All	2006	1/1/2006	12/31/2006	167.5	167.6	175.6	170.8	113.1	161.8	104.9
POW	POW	All	2007	1/1/2007	12/31/2007	179.4	173.0	182.5	178.7	113.8	169.6	111.0
POW	POW	All	2008	1/1/2008	12/31/2008	187.5	179.3	189.4	185.8	116.0	177.7	123.0
POW	POW	All	2009	1/1/2009	12/31/2009	193.1	184.7	193.4	190.7	116.8	181.8	126.4
POW	POW	All	2010	1/1/2010	12/31/2010	195.1	190.3	191.8	192.3	117.8	185.4	130.9
POW	POW	All	2011	1/1/2011	12/31/2011	195.1	190.3	192.8	192.7	118.4	196.5	130.9
POW	POW	All	2012	1/1/2012	12/31/2012	198.2	194.5	197.1	196.7	119.9	201.1	139.8
POW	POW	All	2013	1/1/2013	12/31/2013	199.0	196.4	198.4	198.0	121.5	203.2	121.9
POW	POW	All	2014	1/1/2014	12/31/2014	201.5	200.1	198.9	200.0	122.2	206.1	106.5
POW	POW	All	2015	1/1/2015	12/31/2015	200.3	202.7	198.4	200.3	123.2	206.4	111.9
POW	POW	All	2016	1/1/2016	12/31/2016	199.3	205.7	196.6	200.1	123.9	204.6	111.9
POW	POW	All	2017	1/1/2017	12/31/2017	199.6	206.9	203.9	203.5	124.6	206.5	111.9
POW	POW	All	2018	1/1/2018	12/31/2018	200.4	209.8	215.5	209.3	123.9	211.9	119.7
POW	POW	All	2019	1/1/2019	12/31/2019	204.7	211.8	218.3	212.3	124.3	215.6	119.7
POW	POW	All	2020	1/1/2019	12/31/2019	211.5	215.1	220.3	216.1	125.0	217.6	119.7

# **Statistical Analyses of Industrial Property Retirements**

by  
**Robley Winfrey**



**BULLETIN 125  
REVISED**

**ENGINEERING RESEARCH INSTITUTE  
IOWA STATE UNIVERSITY • AMES, IOWA**

## IOWA CURVES

Iowa-type survivor curves are based on a set of empirical data collected (mainly in the 1930s) for the purpose of statistically predicting future service expectancy (remaining service) for physical properties.

The techniques used and methods applied are exactly analogous to those used by the insurance industry for the purpose of predicting human mortality (life expectancy) when determining appropriate insurance premium rates. The only distinction to be made is that the life insurance companies are investigating the life or longevity characteristics of human beings and the studies which developed the Iowa-type survivor curves were developed to predict the longevity or service life experience for physical, inanimate objects. The seminal statistical analyses for industrial property were conducted under the auspices of the Iowa Research Station now known as Iowa State University and were published in Statistical Analyses of Industrial Property Retirements, Bulletin 125, Engineering Research Institute, Iowa State University.

From the preface to the revised 1967 edition of Bulletin 125:

"With the original publication of Bulletin 125 by the Iowa Engineering Experiment Station in 1935 (now known as the Engineering Research Institute), a significant contribution was made to the practice of industrial property life estimation. This was in the form, first, of a single volume, readily available, which presented in considerable detail the procedures for statistically analyzing historical property retirement data. Secondly, but no less significant, was the presentation of a set of 18 generalized density functions descriptive of industrial property retirement dispersion, mathematically described in terms of the Pearson frequency curve family, but with parameters established empirically from the analysis of a wide range of actual retirement experience.

These curves, the cumulative form of which are commonly referred to as the Iowa-type Survivor Curves, have been used extensively since their introduction and, at the present time, the set is accepted as the standard of industrial property retirement dispersion. Because of the very simple mnemonic coding system which suggests the varying statistical characteristics involved, the Iowa Curves have also become widely used and recognized in the identification or classification of retirement dispersions, even for patterns derived in terms of analytical techniques not using the Curves."

The tables which follow this discussion are the ones used to estimate the remaining life of investment at particular age for an account with a particular service life.

# **Statistical Analyses of Industrial Property Retirements**

by Robley Whitrey

(Revised April, 1967 by Harold  
A. Cowles, Professor, Department  
of Industrial Engineering)

---

Originally printed as  
BULLETIN 125  
of the  
IOWA ENGINEERING EXPERIMENT STATION  
December, 1935

ENGINEERING RESEARCH INSTITUTE  
Iowa State University, Ames, Iowa

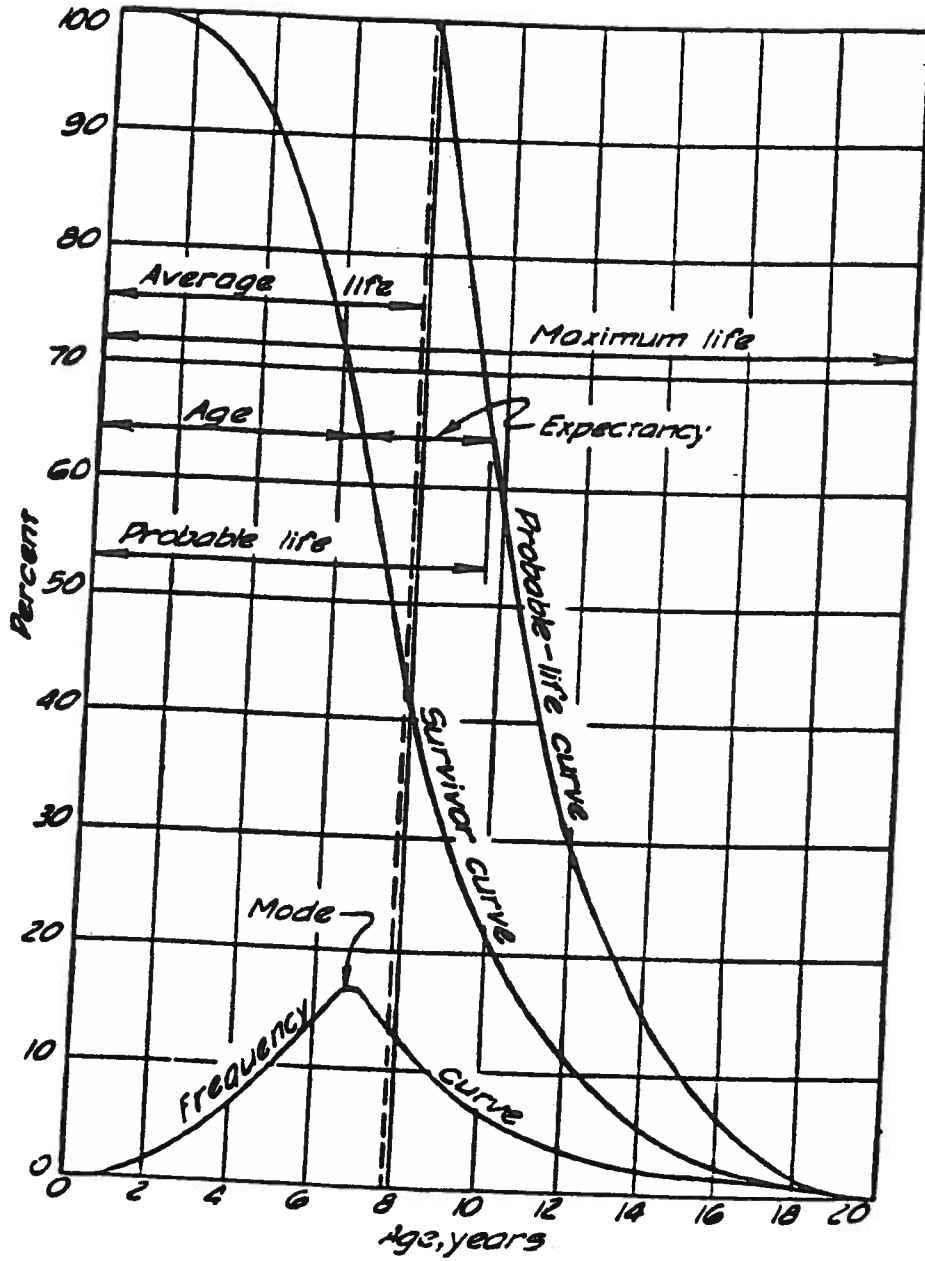


Fig. 1.—A typical survivor curve and its derived curves.

8. The *service life* of a unit is that period of time (or service) extending from the date of its installation to the date of its retirement from service. While the service life of physical property is usually expressed in years it may also be expressed in terms of units of production (screws, wheels, cars, pounds, miles, car-miles), time units of less than a year (months, hours, minutes), or combinations of physical units or services and time (lamp-hours, ten-years).

9. The *probable service life* of an individual unit is that period of time extending from its date of installation to the forecasted date when it probably will be retired from service.

10. The *expectancy of life* of an individual unit is that period of time extending from the observation age (usually the present) to the forecasted date when the unit probably will be retired from service. Age plus expectancy always equals probable life.

11. The *average service life* of a group of individual units is the quotient obtained by dividing the sum of the service lives of all the units by the number of units. The average service life (in years) is equal to the area under the survivor curve in percent-years (or unit-years) divided by 100 percent (or the total number of units).

12. The *probable average service life* of a group of individual units is the average of the probable service lives of the units of the group.

13. The *expectancy of life* of a group of individual units is that period of time extending from the observation age (usually the present) to the average of the forecasted dates when the units probably will be retired. The observation age plus the expectancy always equals the probable average service life.

**Note:** Service life and average service life are always known quantities since they represent completed service life; probable service life and probable average service life always must be estimated since they are forecasts of uncompleted service.

14. *Maximum life* or *maximum age* is the age of the last unit of a given group to be retired from service; it is also the age at which the survivor curve has a zero ordinate, or zero percent surviving.

15. Property units which are taken out of service for any reason whatsoever are called *retirements*. Retirements may include original units (units of the initial installation) as well as "second-generation" units, that is, replacements (or renewals) which were installed to take the place of the original units as they were removed.

16. *Replacements* are the units put in service to replace retirements.

17. *Renewals* are replacements "in kind" which have exactly the same life characteristics as the retirements.

18. *Installations* are new units placed in service, not as replacement units, but as additions to the property.

19. All renewals, replacements, and installations are *placements*.

20. *Survivor curves* show the number of units of a given group

which are surviving in service at given ages. The ordinates to the curve give at any particular age the percentage (or the actual number) of the original number which are yet surviving in service. The abscissa is measured in years or other suitable service unit. The *original survivor curve* is the curve drawn through the points calculated from the original data without adjustment. Since this original survivor curve is generally irregular it is smoothed to produce a *smoothed survivor curve*, sometimes referred to as an *adjusted curve*.

Survivor curves have in some publications been referred to as *mortality curves*. However, the term *survivor curve* is used in this report because the curves referred to show the *percent surviving*, not the *percent retired*, and because the term *mortality* suggests human beings and not inanimate objects.

21. A *stub survivor curve* is an incomplete survivor curve; that is, one which does not extend to zero percent surviving because of a lack of retirement data on the longer-lived units.

22. A *probable-life curve* shows the probable average life of the survivors at any age from zero to maximum life.

23. If the percent surviving is read at the beginning of each successive age-interval and the differences in these successive readings plotted at ages corresponding to the midpoints of the intervals, the resulting points form a *frequency curve*, or *distribution curve*. Since the ordinates indicate the percentage of the units retired during each interval, the curve shows in what manner the retirements are distributed over the period from zero age to maximum life.

24. The point on the frequency curve having the highest ordinate is called the *mode*. The year in which the mode occurs is called the *modal year*.

25. A *maximum-life cycle* is a period of time corresponding in length to the maximum life of the units. An industrial property may continue to be operated through several maximum-life cycles of some of the units of which it is composed.

26. An *average-life cycle* is a period of time corresponding in length to the *average life*.

27. If a property is continued in service for a long time and maintained with a constant number of like units of substantially the same potential average life, it will reach a *normal condition* or *stabilized condition*, after which the average age of the units in service and the annual renewals will be constant year after year.

28. *Normal renewals* are the annual renewals after the property group has reached a stabilized condition. Normal renewals, in percent of the original number of units, are equal to 100 percent divided by the average life.

29. *Generalized curves* are those whose ordinates are expressed in percent of the total number of units and whose abscissas (age) are expressed in percent of average life.



30. *Type curves* are those theoretical curves derived by the methods described in this report from a study of actual retirements. They depict typical survivor and frequency curves for industrial property. Actual survivor curves are compared with type survivor curves in the process of determining probable average lives.

#### MORTALITY TABLES AND CURVES OF HUMAN BEINGS

By a study of population and deaths, life insurance companies have arrived at life tables for human beings of different nationalities. From these life tables the normal death rate and life expectancy for people at different ages can be determined as a basis for life insurance premiums and reserves. Life tables can be prepared from the vital statistics for any desired number of years in combination with census returns. By means of mathematical formulas a life table is adjusted to remove any slight irregularities that may exist in the original data.

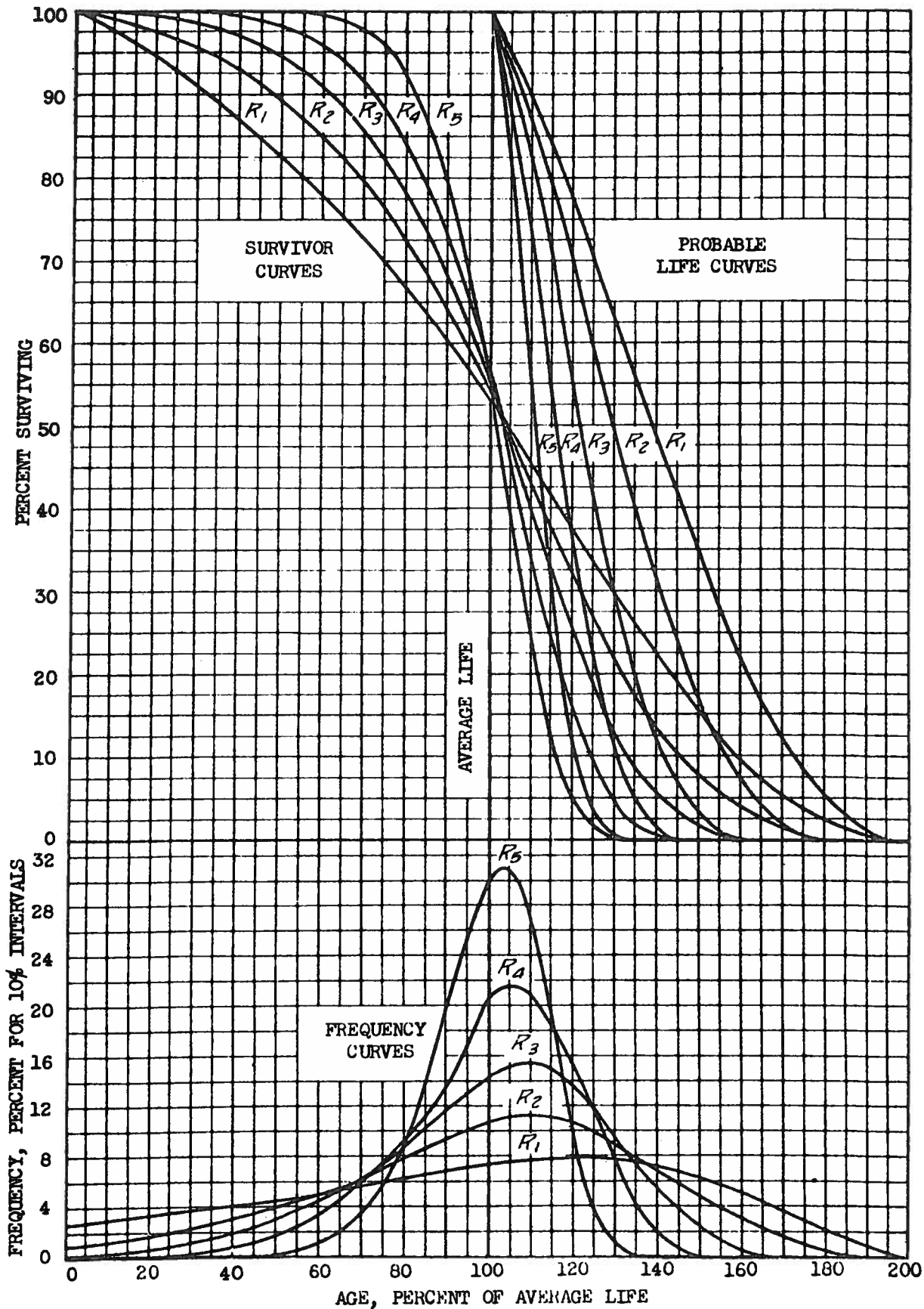
Table 1 is the United States life table for white males, based upon deaths for the 10 years from 1901 to 1910. Unlike industrial property units whose average lives are continually being affected by many forces, the human average life and distribution of deaths according to age change very little over several generations. The life curve, however, varies considerably for different races as is illustrated in Fig. 2. The deaths at different ages are shown for the United States by the frequency curves in Fig. 3.

This reference to the United States life tables is made to show the similarity between the life characteristics of human beings and industrial properties. The essential differences are three. First, human beings experience a heavy infant mortality which results in a bi-modal frequency curve, one mode occurring between ages 0 and 1, and the other between ages 75 and 76. Second, the mode at the age-interval 75-76 occurs at a much greater percentage of average life than is usually found with physical property employed in industry. Third, the curves for industrial equipment vary in shape over wide limits while human mortality curves vary relatively little. The Makehamized curve in Fig. 3 is one that has been smoothed. (It does not represent the same group of lives as the lower curves of the figure.)

#### ANALYZING RETIREMENT DATA

The foregoing section discussed the life tables for humans and the accompanying curves. Similar analyses can be made of the behavior of the physical equipment employed in industry when sufficient information is available. The processes employed for analyzing the retirements of industrial property are not so easily handled as are those employed for mortality data of human beings, nor are the results usually as uniform because of the small number of units observed and the more numerous, less uniform causes of retirement of industrial

SURVIVOR, PROBABLE LIFE AND FREQUENCY CURVES  
FOR THE RIGHT-MODAL IOWA TYPE CURVES



# APPENDIX A-5.1 (AUS)

CHART NO. 8

SURVIVOR, PROBABLE LIFE AND FREQUENCY CURVES  
FOR THE SYMMETRICAL IOWA TYPE CURVES

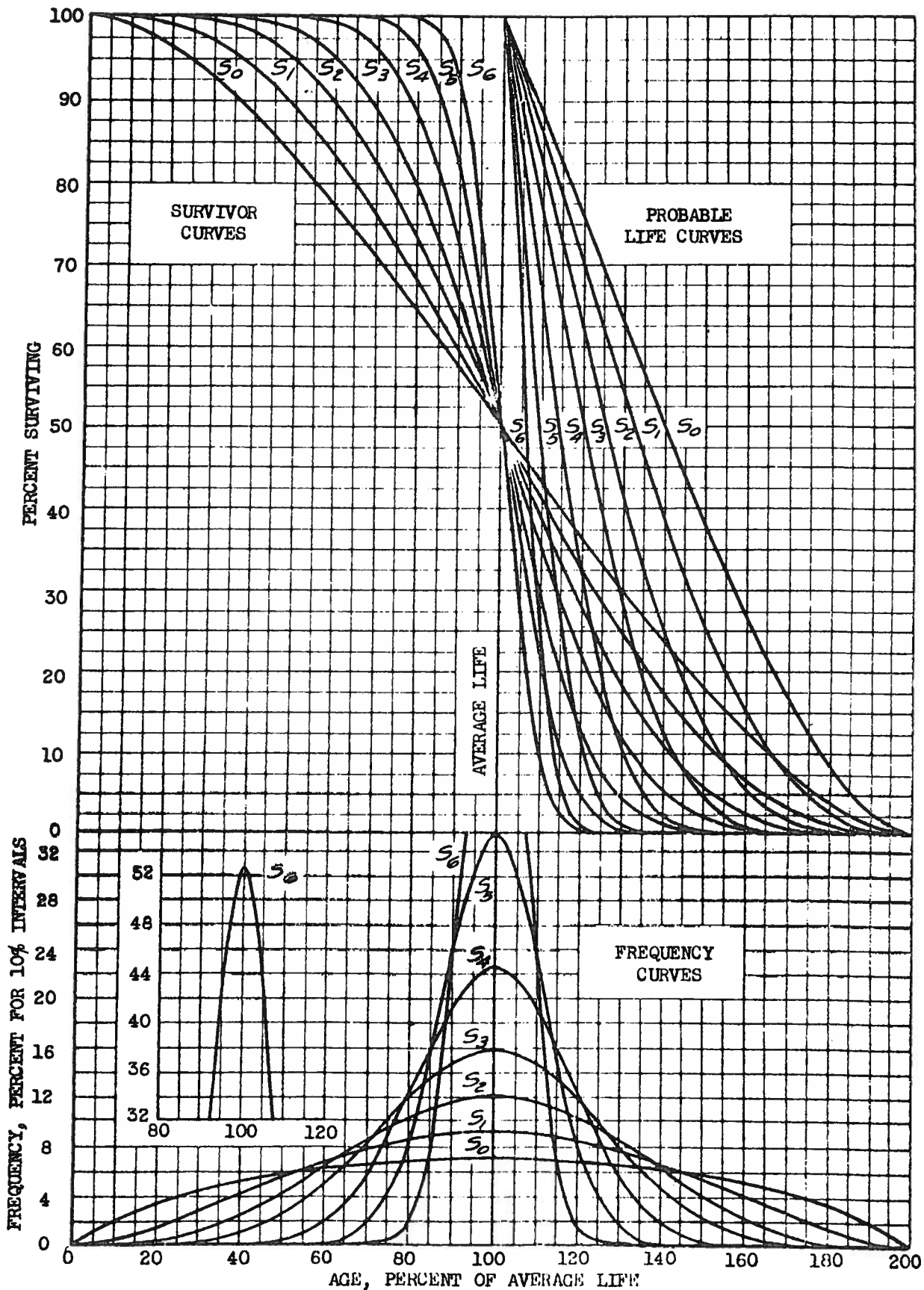
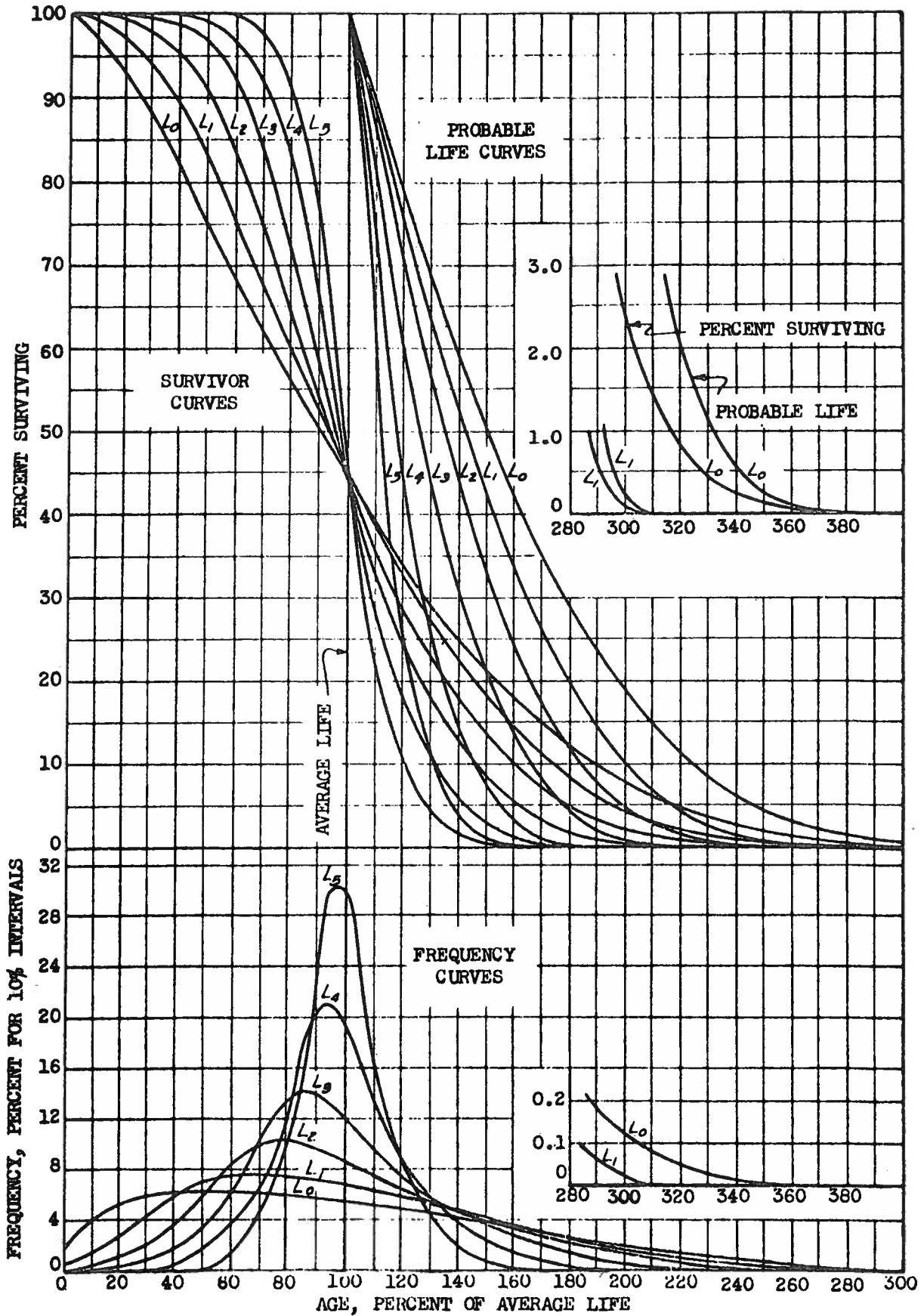
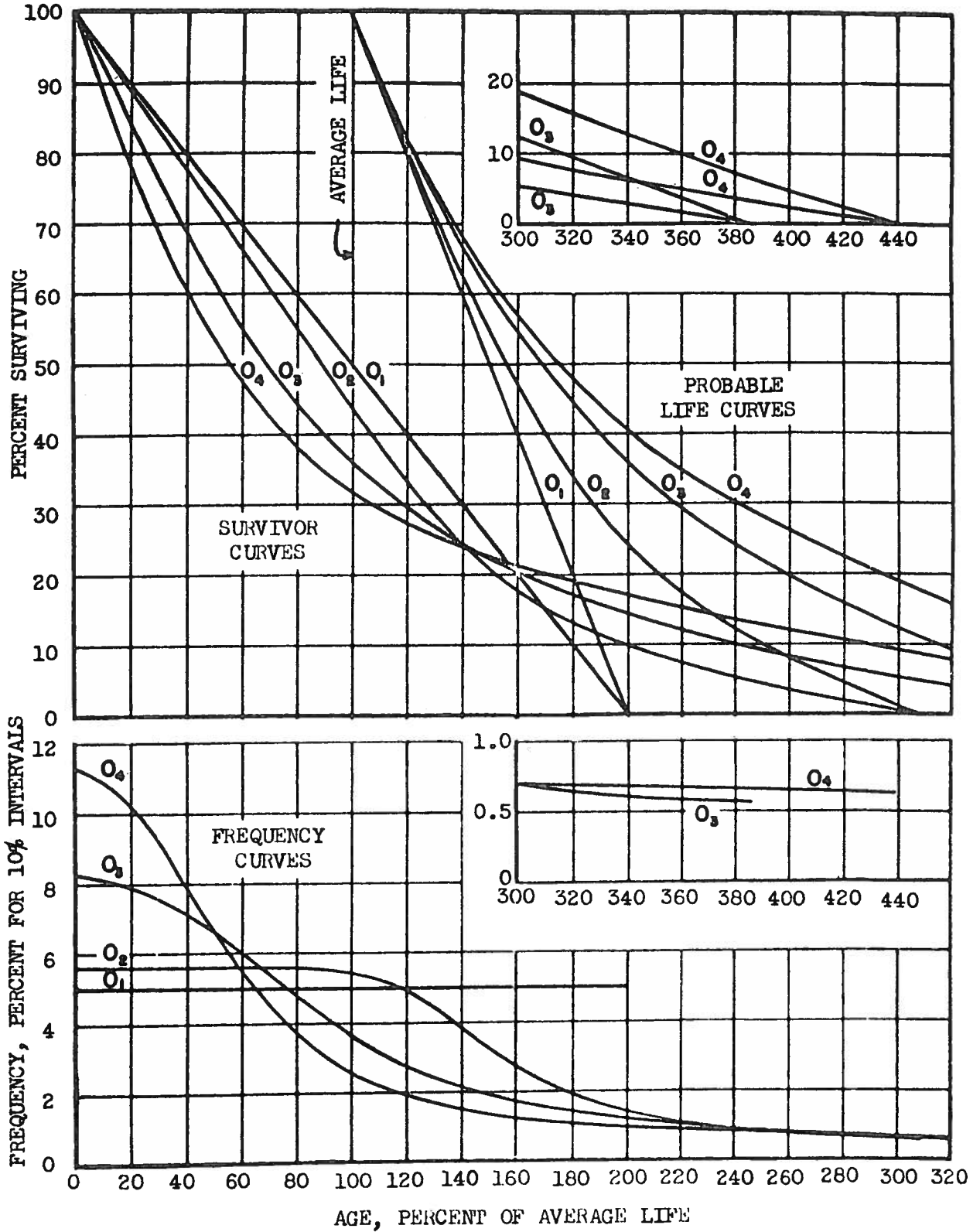


CHART NO. 7

SURVIVOR, PROBABLE LIFE AND FREQUENCY CURVES  
FOR THE LEFT-MODAL IOWA TYPE CURVES



SURVIVOR, PROBABLE LIFE AND FREQUENCY CURVES  
FOR THE ORIGIN-MODAL TYPE CURVES



# APPENDIX A-5.1 (AUS)

Iowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R2.0000	R2.0	0	0.0948315	100.0000000	100.0000000	0.0000000
R2.0001	R2.0	1	0.0981016	99.9051685	99.0944462	0.9055538
R2.0002	R2.0	2	0.1014623	99.8070669	98.1913567	1.8086433
R2.0003	R2.0	3	0.1049099	99.7056046	97.2907686	2.7092314
R2.0004	R2.0	4	0.1084509	99.6006947	96.3927202	3.6072798
R2.0005	R2.0	5	0.1120825	99.4922438	95.4972458	4.5027542
R2.0006	R2.0	6	0.1158104	99.3801613	94.6043863	5.3956137
R2.0007	R2.0	7	0.1196318	99.2643509	93.7141762	6.2858238
R2.0008	R2.0	8	0.1235532	99.1447191	92.8266525	7.1733475
R2.0009	R2.0	9	0.1275731	99.0211659	91.9418526	8.0581474
R2.0010	R2.0	10	0.1316938	98.8935928	91.0598126	8.9401874
R2.0011	R2.0	11	0.1359167	98.7618990	90.1805687	9.8194313
R2.0012	R2.0	12	0.1402454	98.6259823	89.3041592	10.6958408
R2.0013	R2.0	13	0.1446791	98.4857369	88.4306173	11.5693827
R2.0014	R2.0	14	0.1492214	98.3410578	87.5599813	12.4400187
R2.0015	R2.0	15	0.1538735	98.1918364	86.6922846	13.3077154
R2.0016	R2.0	16	0.1586370	98.0379629	85.8275662	14.1724338
R2.0017	R2.0	17	0.1635142	97.8793259	84.9658604	15.0341396
R2.0018	R2.0	18	0.1685056	97.7158117	84.1072016	15.8927984
R2.0019	R2.0	19	0.1736164	97.5473061	83.2516279	16.7483721
R2.0020	R2.0	20	0.1788426	97.3736897	82.3991718	17.6008282
R2.0021	R2.0	21	0.1841926	97.1948471	81.5498714	18.4501286
R2.0022	R2.0	22	0.1896649	97.0106545	80.7037592	19.2962408
R2.0023	R2.0	23	0.1952619	96.8209896	79.8608723	20.1391277
R2.0024	R2.0	24	0.2009860	96.6257277	79.0212450	20.9787550
R2.0025	R2.0	25	0.2068376	96.4247417	78.1849127	21.8150873
R2.0026	R2.0	26	0.2128210	96.2179041	77.3519096	22.6480904
R2.0027	R2.0	27	0.2189369	96.0050831	76.5222740	23.4777260
R2.0028	R2.0	28	0.2251892	95.7861462	75.6960373	24.3039627
R2.0029	R2.0	29	0.2315760	95.5609570	74.8732357	25.1267643
R2.0030	R2.0	30	0.2381039	95.3293810	74.0539045	25.9460955
R2.0031	R2.0	31	0.2447710	95.0912771	73.2380800	26.7619200
R2.0032	R2.0	32	0.2515831	94.8465061	72.4257956	27.5742044
R2.0033	R2.0	33	0.2585392	94.5949230	71.6170883	28.3829117
R2.0034	R2.0	34	0.2656450	94.3363838	70.8119927	29.1880073
R2.0035	R2.0	35	0.2728977	94.0707388	70.0105457	29.9894543
R2.0036	R2.0	36	0.2803049	93.7978411	69.2127819	30.7872181
R2.0037	R2.0	37	0.2878657	93.5175362	68.4187384	31.5812616
R2.0038	R2.0	38	0.2955808	93.2296705	67.6284504	32.3715496
R2.0039	R2.0	39	0.3034544	92.9340897	66.8419552	33.1580448
R2.0040	R2.0	40	0.3114920	92.6306353	66.0592899	33.9407101
R2.0041	R2.0	41	0.3196878	92.3191433	65.2808571	34.7191429
R2.0042	R2.0	42	0.3280507	91.9994555	64.5055971	35.4944029
R2.0043	R2.0	43	0.3365783	91.6714048	63.7346439	36.2653561
R2.0044	R2.0	44	0.3452769	91.3348265	62.9676700	37.0323300

# APPENDIX A-5.1 (AUS)

lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R2.0045	R2.0	45	0.3541450	90.9895496	62.2047148	37.7952852
R2.0046	R2.0	46	0.3631840	90.6354046	61.4458170	38.5541830
R2.0047	R2.0	47	0.3723984	90.2722206	60.6910148	39.3089852
R2.0048	R2.0	48	0.3817892	89.8998222	59.9403491	40.0596509
R2.0049	R2.0	49	0.3913574	89.5180330	59.1938582	40.8061418
R2.0050	R2.0	50	0.4011030	89.1266756	58.4515839	41.5484161
R2.0051	R2.0	51	0.4110289	88.7255726	57.7135668	42.2864332
R2.0052	R2.0	52	0.4211368	88.3145437	56.9798470	43.0201530
R2.0053	R2.0	53	0.4314261	87.8934069	56.2504678	43.7495322
R2.0054	R2.0	54	0.4419002	87.4619808	55.5254688	44.4745312
R2.0055	R2.0	55	0.4525547	87.0200806	54.8048959	45.1951041
R2.0056	R2.0	56	0.4633961	86.5675259	54.0887899	45.9112101
R2.0057	R2.0	57	0.4744196	86.1041298	53.3771148	46.6228852
R2.0058	R2.0	58	0.4856272	85.6297102	52.6701531	47.3298469
R2.0059	R2.0	59	0.4970178	85.1440830	51.9677110	48.0322890
R2.0060	R2.0	60	0.5085907	84.6470652	51.2699108	48.7300892
R2.0061	R2.0	61	0.5203457	84.1384745	50.5767999	49.4232001
R2.0062	R2.0	62	0.5322781	83.6181288	49.8884211	50.1115789
R2.0063	R2.0	63	0.5443878	83.0858507	49.2042208	50.7957792
R2.0064	R2.0	64	0.5566711	82.5414629	48.5260449	51.4739551
R2.0065	R2.0	65	0.5691252	81.9847918	47.8521390	52.1478610
R2.0066	R2.0	66	0.5817490	81.4156666	47.1831479	52.8168521
R2.0067	R2.0	67	0.5945339	80.8339176	46.5191188	53.4808812
R2.0068	R2.0	68	0.6074762	80.2393837	45.8600979	54.1399021
R2.0069	R2.0	69	0.6205731	79.6319075	45.2061300	54.7938700
R2.0070	R2.0	70	0.6338167	79.0113344	44.5572619	55.4427381
R2.0071	R2.0	71	0.6471968	78.3775177	43.9135399	56.0864601
R2.0072	R2.0	72	0.6607103	77.7303209	43.2750101	56.7249899
R2.0073	R2.0	73	0.6743469	77.0696106	42.6417151	57.3582849
R2.0074	R2.0	74	0.6880913	76.3952637	42.0137038	57.9862962
R2.0075	R2.0	75	0.7019453	75.7071724	41.3910160	58.6089840
R2.0076	R2.0	76	0.7158861	75.0052271	40.7736988	59.2263012
R2.0077	R2.0	77	0.7299071	74.2893410	40.1617951	59.8382049
R2.0078	R2.0	78	0.7439918	73.5594339	39.5553460	60.4446540
R2.0079	R2.0	79	0.7581263	72.8154421	38.9543939	61.0456061
R2.0080	R2.0	80	0.7722978	72.0573158	38.3589792	61.6410208
R2.0081	R2.0	81	0.7864914	71.2850180	37.7691412	62.2308588
R2.0082	R2.0	82	0.8006802	70.4985266	37.1849198	62.8150802
R2.0083	R2.0	83	0.8148537	69.6978464	36.6063528	63.3936472
R2.0084	R2.0	84	0.8289880	68.8829927	36.0334740	63.9665260
R2.0085	R2.0	85	0.8430577	68.0540047	35.4663181	64.5336819
R2.0086	R2.0	86	0.8570489	67.2109470	34.9049168	65.0950832
R2.0087	R2.0	87	0.8709355	66.3538981	34.3493028	65.6506972
R2.0088	R2.0	88	0.8846855	65.4829626	33.7995038	66.2004962
R2.0089	R2.0	89	0.8982801	64.5982771	33.2555461	66.7444539

# APPENDIX A-5.1 (AUS)

lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R2.0090	R2.0	90	0.9116889	63.6999970	32.7174568	67.2825432
R2.0091	R2.0	91	0.9248881	62.7883081	32.1852560	67.8147440
R2.0092	R2.0	92	0.9378390	61.8634200	31.6589661	68.3410339
R2.0093	R2.0	93	0.9505158	60.9255810	31.1386020	68.8613980
R2.0094	R2.0	94	0.9628930	59.9750652	30.6241779	69.3758221
R2.0095	R2.0	95	0.9749274	59.0121722	30.1157100	69.8842900
R2.0096	R2.0	96	0.9865956	58.0372448	29.6132040	70.3867960
R2.0097	R2.0	97	0.9978571	57.0506492	29.1166680	70.8833320
R2.0098	R2.0	98	1.0086742	56.0527921	28.6261051	71.3738949
R2.0099	R2.0	99	1.0190200	55.0441179	28.1415110	71.8584890
R2.0100	R2.0	100	1.0288558	54.0250979	27.6628840	72.3371160
R2.0101	R2.0	101	1.0381442	52.9962421	27.1902180	72.8097820
R2.0102	R2.0	102	1.0468449	51.9580979	26.7234991	73.2765009
R2.0103	R2.0	103	1.0549312	50.9112530	26.2627111	73.7372889
R2.0104	R2.0	104	1.0623607	49.8563218	25.8078351	74.1921649
R2.0105	R2.0	105	1.0691033	48.7939611	25.3588469	74.6411531
R2.0106	R2.0	106	1.0751200	47.7248578	24.9157200	75.0842800
R2.0107	R2.0	107	1.0803718	46.6497378	24.4784200	75.5215800
R2.0108	R2.0	108	1.0848422	45.5693660	24.0469079	75.9530921
R2.0109	R2.0	109	1.0884819	44.4845238	23.6211450	76.3788550
R2.0110	R2.0	110	1.0912700	43.3960419	23.2010810	76.7989190
R2.0111	R2.0	111	1.0931697	42.3047719	22.7866659	77.2133341
R2.0112	R2.0	112	1.0941701	41.2116022	22.3778369	77.6221631
R2.0113	R2.0	113	1.0942240	40.1174321	21.9745369	78.0254631
R2.0114	R2.0	114	1.0933342	39.0232081	21.5766909	78.4233091
R2.0115	R2.0	115	1.0914621	37.9298739	21.1842289	78.8157711
R2.0116	R2.0	116	1.0885978	36.8384118	20.7970691	79.2029309
R2.0117	R2.0	117	1.0847301	35.7498140	20.4151239	79.5848761
R2.0118	R2.0	118	1.0798369	34.6650839	20.0383019	79.9616981
R2.0119	R2.0	119	1.0739369	33.5852470	19.6665001	80.3334999
R2.0120	R2.0	120	1.0669980	32.5113101	19.2996221	80.7003779
R2.0121	R2.0	121	1.0590372	31.4443121	18.9375479	81.0624521
R2.0122	R2.0	122	1.0501070	30.3852749	18.5801630	81.4198370
R2.0123	R2.0	123	1.0400660	29.3351679	18.2273769	81.7726231
R2.0124	R2.0	124	1.0290709	28.2951019	17.8789959	82.1210041
R2.0125	R2.0	125	1.0170991	27.2660310	17.5349121	82.4650879
R2.0126	R2.0	126	1.0041568	26.2489319	17.1949849	82.8050151
R2.0127	R2.0	127	0.9902881	25.2447751	16.8590529	83.1409471
R2.0128	R2.0	128	0.9755079	24.2544870	16.5269830	83.4730170
R2.0129	R2.0	129	0.9598532	23.2789791	16.1985951	83.8014049
R2.0130	R2.0	130	0.9433670	22.3191259	15.8737270	84.1262730
R2.0131	R2.0	131	0.9260879	21.3757589	15.5522090	84.4477910
R2.0132	R2.0	132	0.9080550	20.4496710	15.2338660	84.7661340
R2.0133	R2.0	133	0.8893190	19.5416160	14.9185150	85.0814850
R2.0134	R2.0	134	0.8699369	18.6522970	14.6059730	85.3940270



# APPENDIX A-5.1 (AUS)

lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R2.0135	R2.0	135	0.8499541	17.7823601	14.2960570	85.7039430
R2.0136	R2.0	136	0.8294290	16.9324060	13.9885750	86.0114250
R2.0137	R2.0	137	0.8084200	16.1029770	13.6833420	86.3166580
R2.0138	R2.0	138	0.7869870	15.2945570	13.3801709	86.6198291
R2.0139	R2.0	139	0.7651829	14.5075700	13.0788760	86.9211240
R2.0140	R2.0	140	0.7430681	13.7423871	12.7792740	87.2207260
R2.0141	R2.0	141	0.7207081	12.9993190	12.4811831	87.5188169
R2.0142	R2.0	142	0.6981599	12.2786109	12.1844341	87.8155659
R2.0143	R2.0	143	0.6754730	11.5804510	11.8888620	88.1111380
R2.0144	R2.0	144	0.6527110	10.9049780	11.5943070	88.4056930
R2.0145	R2.0	145	0.6299220	10.2522670	11.3006270	88.6993730
R2.0146	R2.0	146	0.6071579	9.6223450	11.0076849	88.9923151
R2.0147	R2.0	147	0.5844650	9.0151870	10.7153600	89.2846400
R2.0148	R2.0	148	0.5618890	8.4307220	10.4235460	89.5764540
R2.0149	R2.0	149	0.5394630	7.8688330	10.1321560	89.8678440
R2.0150	R2.0	150	0.5172310	7.3293700	9.8411110	90.1588891
R2.0151	R2.0	151	0.4952170	6.8121390	9.5503610	90.4496390
R2.0152	R2.0	152	0.4734520	6.3169220	9.2598670	90.7401331
R2.0153	R2.0	153	0.4519570	5.8434700	8.9696111	91.0303890
R2.0154	R2.0	154	0.4307510	5.3915130	8.6795980	91.3204020
R2.0155	R2.0	155	0.4098480	4.9607620	8.3898460	91.6101540
R2.0156	R2.0	156	0.3892590	4.5509140	8.1003940	91.8996060
R2.0157	R2.0	157	0.3689940	4.1616550	7.8112940	92.1887060
R2.0158	R2.0	158	0.3490550	3.7926610	7.5226200	92.4773800
R2.0159	R2.0	159	0.3294490	3.4436060	7.2344580	92.7655420
R2.0160	R2.0	160	0.3101780	3.1141570	6.9468990	93.0531010
R2.0161	R2.0	161	0.2912410	2.8039790	6.6600590	93.3399410
R2.0162	R2.0	162	0.2726440	2.5127380	6.3740460	93.6259540
R2.0163	R2.0	163	0.2543900	2.2400940	6.0889820	93.9110180
R2.0164	R2.0	164	0.2364840	1.9857040	5.8049920	94.1950080
R2.0165	R2.0	165	0.2189350	1.7492200	5.5221940	94.4778060
R2.0166	R2.0	166	0.2017570	1.5302850	5.2407130	94.7592870
R2.0167	R2.0	167	0.1849660	1.3285280	4.9606590	95.0393410
R2.0168	R2.0	168	0.1685830	1.1435620	4.6821490	95.3178510
R2.0169	R2.0	169	0.1526310	0.9749790	4.4052860	95.5947140
R2.0170	R2.0	170	0.1371620	0.8223480	4.1301220	95.8698780
R2.0171	R2.0	171	0.1221950	0.6851860	3.8568020	96.1431980
R2.0172	R2.0	172	0.1077830	0.5629910	3.5853840	96.4146160
R2.0173	R2.0	173	0.0939780	0.4552080	3.3159460	96.6840540
R2.0174	R2.0	174	0.0808330	0.3612300	3.0485230	96.9514770
R2.0175	R2.0	175	0.0684150	0.2803970	2.7832120	97.2167880
R2.0176	R2.0	176	0.0567860	0.2119820	2.5201260	97.4798740
R2.0177	R2.0	177	0.0460210	0.1551960	2.2592980	97.7407020
R2.0178	R2.0	178	0.0361913	0.1091750	2.0008840	97.9991160
R2.0179	R2.0	179	0.0273739	0.0729837	1.7451020	98.2548980

# APPENDIX A-5.1 (AUS)

S:\Depreciation\lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R2.5000	R2.5	0	0.0551548	100.0000000	100.0000000	0.0000000
R2.5001	R2.5	1	0.0574713	99.9448452	99.0549097	0.9450903
R2.5002	R2.5	2	0.0598783	99.8873739	98.1116142	1.8883858
R2.5003	R2.5	3	0.0623808	99.8274956	97.1701632	2.8298368
R2.5004	R2.5	4	0.0649805	99.7651148	96.2306089	3.7693911
R2.5005	R2.5	5	0.0676823	99.7001343	95.2930031	4.7069969
R2.5006	R2.5	6	0.0704880	99.6324520	94.3573971	5.6426029
R2.5007	R2.5	7	0.0734014	99.5619640	93.4238472	6.5761528
R2.5008	R2.5	8	0.0764256	99.4885626	92.4924040	7.5075960
R2.5009	R2.5	9	0.0795669	99.4121370	91.5631256	8.4368744
R2.5010	R2.5	10	0.0828257	99.3325701	90.6360693	9.3639307
R2.5011	R2.5	11	0.0862064	99.2497444	89.7112904	10.2887096
R2.5012	R2.5	12	0.0897122	99.1635380	88.7888441	11.2111559
R2.5013	R2.5	13	0.0933485	99.0738258	87.8687897	12.1312103
R2.5014	R2.5	14	0.0971183	98.9804773	86.9511881	13.0488119
R2.5015	R2.5	15	0.1010247	98.8833590	86.0360956	13.9639044
R2.5016	R2.5	16	0.1050710	98.7823343	85.1235743	14.8764257
R2.5017	R2.5	17	0.1092635	98.6772633	84.2136803	15.7863197
R2.5018	R2.5	18	0.1136026	98.5679998	83.3064766	16.6935234
R2.5019	R2.5	19	0.1180954	98.4543972	82.4020252	17.5979748
R2.5020	R2.5	20	0.1227426	98.3363018	81.5003834	18.4996166
R2.5021	R2.5	21	0.1275521	98.2135592	80.6016140	19.3983860
R2.5022	R2.5	22	0.1325226	98.0860071	79.7057791	20.2942209
R2.5023	R2.5	23	0.1376619	97.9534845	78.8129368	21.1870632
R2.5024	R2.5	24	0.1429729	97.8158226	77.9231520	22.0768480
R2.5025	R2.5	25	0.1484576	97.6728497	77.0364828	22.9635172
R2.5026	R2.5	26	0.1541233	97.5243921	76.1529923	23.8470077
R2.5027	R2.5	27	0.1599703	97.3702688	75.2727404	24.7272596
R2.5028	R2.5	28	0.1660032	97.2102985	74.3957863	25.6042137
R2.5029	R2.5	29	0.1722278	97.0442953	73.5221920	26.4778080
R2.5030	R2.5	30	0.1786452	96.8720675	72.6520176	27.3479824
R2.5031	R2.5	31	0.1852608	96.6934223	71.7853222	28.2146778
R2.5032	R2.5	32	0.1920747	96.5081615	70.9221630	29.0778370
R2.5033	R2.5	33	0.1990958	96.3160868	70.0626001	29.9373999
R2.5034	R2.5	34	0.2063245	96.1169910	69.2066917	30.7933083
R2.5035	R2.5	35	0.2137642	95.9106665	68.3544951	31.6455049
R2.5036	R2.5	36	0.2214194	95.6969023	67.5060663	32.4939337
R2.5037	R2.5	37	0.2292928	95.4754829	66.6614609	33.3385391
R2.5038	R2.5	38	0.2373877	95.2461901	65.8207359	34.1792641
R2.5039	R2.5	39	0.2457084	95.0088024	64.9839459	35.0160541
R2.5040	R2.5	40	0.2542592	94.7630940	64.1511440	35.8488560
R2.5041	R2.5	41	0.2630376	94.5088348	63.3223858	36.6776142
R2.5042	R2.5	42	0.2720566	94.2457972	62.4977222	37.5022778
R2.5043	R2.5	43	0.2813111	93.9737406	61.6772060	38.3227940
R2.5044	R2.5	44	0.2908077	93.6924295	60.8608909	39.1391091

database

Iowa Survivor Curves

# APPENDIX A-5.1 (AUS)

S:\Depreciation\lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R2.5045	R2.5	45	0.3005543	93.4016218	60.0488248	39.9511752
R2.5046	R2.5	46	0.3105459	93.1010675	59.2410641	40.7589359
R2.5047	R2.5	47	0.3207922	92.7905216	58.4376559	41.5623441
R2.5048	R2.5	48	0.3312959	92.4697294	57.6386509	42.3613491
R2.5049	R2.5	49	0.3420601	92.1384335	56.8441010	43.1558990
R2.5050	R2.5	50	0.3530903	91.7963734	56.0540552	43.9459448
R2.5051	R2.5	51	0.3643885	91.4432831	55.2685661	44.7314339
R2.5052	R2.5	52	0.3759584	91.0788946	54.4876838	45.5123162
R2.5053	R2.5	53	0.3878079	90.7029362	53.7114601	46.2885399
R2.5054	R2.5	54	0.3999405	90.3151283	52.9399471	47.0600529
R2.5055	R2.5	55	0.4123592	89.9151878	52.1731982	47.8268018
R2.5056	R2.5	56	0.4250708	89.5028286	51.4112682	48.5887318
R2.5057	R2.5	57	0.4380798	89.0777578	50.6542120	49.3457880
R2.5058	R2.5	58	0.4513912	88.6396780	49.9020872	50.0979128
R2.5059	R2.5	59	0.4650126	88.1882868	49.1549511	50.8450489
R2.5060	R2.5	60	0.4789476	87.7232742	48.4128661	51.5871339
R2.5061	R2.5	61	0.4932022	87.2443266	47.6758952	52.3241048
R2.5062	R2.5	62	0.5077830	86.7511244	46.9441018	53.0558982
R2.5063	R2.5	63	0.5226945	86.2433414	46.2175550	53.7824450
R2.5064	R2.5	64	0.5379439	85.7206469	45.4963250	54.5036750
R2.5065	R2.5	65	0.5535354	85.1827030	44.7804852	55.2195148
R2.5066	R2.5	66	0.5694743	84.6291676	44.0701108	55.9298892
R2.5067	R2.5	67	0.5857687	84.0596933	43.3652830	56.6347170
R2.5068	R2.5	68	0.6024160	83.4739246	42.6660848	57.3339152
R2.5069	R2.5	69	0.6194267	82.8715086	41.9726019	58.0273981
R2.5070	R2.5	70	0.6368008	82.2520819	41.2849250	58.7150750
R2.5071	R2.5	71	0.6545391	81.6152811	40.6031480	59.3968520
R2.5072	R2.5	72	0.6726418	80.9607420	39.9273682	60.0726318
R2.5073	R2.5	73	0.6911087	80.2881002	39.2576852	60.7423148
R2.5074	R2.5	74	0.7099390	79.5969915	38.5942020	61.4057980
R2.5075	R2.5	75	0.7291259	78.8870525	37.9370279	62.0629721
R2.5076	R2.5	76	0.7486620	78.1579266	37.2862740	62.7137260
R2.5077	R2.5	77	0.7685376	77.4092646	36.6420512	63.3579488
R2.5078	R2.5	78	0.7887430	76.6407270	36.0044770	63.9955230
R2.5079	R2.5	79	0.8092565	75.8519840	35.3736682	64.6263318
R2.5080	R2.5	80	0.8300667	75.0427275	34.7497439	65.2502561
R2.5081	R2.5	81	0.8511477	74.2126608	34.1328259	65.8671741
R2.5082	R2.5	82	0.8724718	73.3615131	33.5230379	66.4769621
R2.5083	R2.5	83	0.8940096	72.4890413	32.9204998	67.0795002
R2.5084	R2.5	84	0.9157238	71.5950317	32.3253360	67.6746640
R2.5085	R2.5	85	0.9375753	70.6793079	31.7376659	68.2623341
R2.5086	R2.5	86	0.9595194	69.7417326	31.1576109	68.8423891
R2.5087	R2.5	87	0.9815073	68.7822132	30.5852881	69.4147119
R2.5088	R2.5	88	1.0034790	67.8007059	30.0208130	69.9791870
R2.5089	R2.5	89	1.0253773	66.7972269	29.4642980	70.5357020

database

Iowa Survivor Curves

# APPENDIX A-5.1 (AUS)

S:\Depreciation\lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1 Lookup	2 Curve	3 Age %	4 % Ret	5 % Surv	6 % Cond	7 % Depr Resv
R2.5090	R2.5	90	1.0471344	65.7718496	28.9158480	71.0841520
R2.5091	R2.5	91	1.0686831	64.7247152	28.3755679	71.6244321
R2.5092	R2.5	92	1.0899420	63.6560321	27.8435540	72.1564460
R2.5093	R2.5	93	1.1108289	62.5660901	27.3198969	72.6801031
R2.5094	R2.5	94	1.1312651	61.4552612	26.8046770	73.1953230
R2.5095	R2.5	95	1.1511522	60.3239961	26.2979729	73.7020271
R2.5096	R2.5	96	1.1704039	59.1728439	25.7998481	74.2001519
R2.5097	R2.5	97	1.1889191	58.0024400	25.3103621	74.6896379
R2.5098	R2.5	98	1.2065949	56.8135209	24.8295610	75.1704390
R2.5099	R2.5	99	1.2233358	55.6069260	24.3574791	75.6425209
R2.5100	R2.5	100	1.2390403	54.3835902	23.8941431	76.1058569
R2.5101	R2.5	101	1.2536021	53.1445499	23.4395671	76.5604329
R2.5102	R2.5	102	1.2669158	51.8909478	22.9937501	77.0062499
R2.5103	R2.5	103	1.2788939	50.6240320	22.5566781	77.4433219
R2.5104	R2.5	104	1.2894273	49.3451381	22.1283281	77.8716719
R2.5105	R2.5	105	1.2984328	48.0557108	21.7086580	78.2913420
R2.5106	R2.5	106	1.3058210	46.7572780	21.2976141	78.7023859
R2.5107	R2.5	107	1.3115058	45.4514570	20.8951299	79.1048701
R2.5108	R2.5	108	1.3154220	44.1399512	20.5011189	79.4988811
R2.5109	R2.5	109	1.3175020	42.8245292	20.1154850	79.8845150
R2.5110	R2.5	110	1.3176890	41.5070272	19.7381129	80.2618871
R2.5111	R2.5	111	1.3159404	40.1893382	19.3688741	80.6311259
R2.5112	R2.5	112	1.3122248	38.8733978	19.0076220	80.9923780
R2.5113	R2.5	113	1.3065191	37.5611730	18.6541979	81.3458021
R2.5114	R2.5	114	1.2988228	36.2546539	18.3084259	81.6915741
R2.5115	R2.5	115	1.2891360	34.9558311	17.9701180	82.0298820
R2.5116	R2.5	116	1.2774830	33.6666951	17.6390679	82.3609321
R2.5117	R2.5	117	1.2638931	32.3892121	17.3150611	82.6849389
R2.5118	R2.5	118	1.2484150	31.1253190	16.9978631	83.0021369
R2.5119	R2.5	119	1.2311139	29.8769040	16.6872311	83.3127689
R2.5120	R2.5	120	1.2120590	28.6457901	16.3829119	83.6170881
R2.5121	R2.5	121	1.1913381	27.4337311	16.0846400	83.9153600
R2.5122	R2.5	122	1.1690731	26.2423930	15.7921439	84.2078561
R2.5123	R2.5	123	1.1452968	25.0733199	15.5051580	84.4948420
R2.5124	R2.5	124	1.1201971	23.9280231	15.2233681	84.7766319
R2.5125	R2.5	125	1.0938761	22.8078260	14.9465010	85.0534990
R2.5126	R2.5	126	1.0664589	21.7139499	14.6742671	85.3257329
R2.5127	R2.5	127	1.0380819	20.6474910	14.4063790	85.5936210
R2.5128	R2.5	128	1.0088780	19.6094091	14.1425540	85.8574460
R2.5129	R2.5	129	0.9789822	18.6005311	13.8825150	86.1174850
R2.5130	R2.5	130	0.9485328	17.6215489	13.6259940	86.3740060
R2.5131	R2.5	131	0.9176611	16.6730161	13.3727360	86.6272640
R2.5132	R2.5	132	0.8864870	15.7553550	13.1224999	86.8775001
R2.5133	R2.5	133	0.8551400	14.8688680	12.8750581	87.1249419
R2.5134	R2.5	134	0.8237340	14.0137280	12.6302040	87.3697960

database

Iowa Survivor Curves

# APPENDIX A-5.1 (AUS)

S:\Depreciation\lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R2.5135	R2.5	135	0.7923711	13.1899940	12.3877521	87.6122479
R2.5136	R2.5	136	0.7611500	12.3976229	12.1475360	87.8524640
R2.5137	R2.5	137	0.7301579	11.6364729	11.9094091	88.0905909
R2.5138	R2.5	138	0.6994760	10.9063150	11.6732490	88.3267510
R2.5139	R2.5	139	0.6691670	10.2068390	11.4389530	88.5610470
R2.5140	R2.5	140	0.6392890	9.5376720	11.2064340	88.7935660
R2.5141	R2.5	141	0.6098980	8.8983830	10.9756200	89.0243800
R2.5142	R2.5	142	0.5810320	8.2884851	10.7464550	89.2535450
R2.5143	R2.5	143	0.5527210	7.7074530	10.5188921	89.4811079
R2.5144	R2.5	144	0.5249980	7.1547320	10.2928760	89.7071240
R2.5145	R2.5	145	0.4978830	6.6297340	10.0683579	89.9316421
R2.5146	R2.5	146	0.4713970	6.1318510	9.8452730	90.1547270
R2.5147	R2.5	147	0.4455530	5.6604540	9.6235380	90.3764620
R2.5148	R2.5	148	0.4203759	5.2149010	9.4030380	90.5969620
R2.5149	R2.5	149	0.3958700	4.7945250	9.1836420	90.8163580
R2.5150	R2.5	150	0.3720580	4.3986550	8.9651520	91.0348480
R2.5151	R2.5	151	0.3489550	4.0265970	8.7473331	91.2526670
R2.5152	R2.5	152	0.3265810	3.6776420	8.5298860	91.4701140
R2.5153	R2.5	153	0.3049580	3.3510610	8.3124470	91.6875531
R2.5154	R2.5	154	0.2841100	3.0461030	8.0945830	91.9054170
R2.5155	R2.5	155	0.2640620	2.7619930	7.8757930	92.1242070
R2.5156	R2.5	156	0.2448380	2.4979310	7.6555050	92.3444950
R2.5157	R2.5	157	0.2264680	2.2530930	7.4330760	92.5669240
R2.5158	R2.5	158	0.2089740	2.0266250	7.2078220	92.7921780
R2.5159	R2.5	159	0.1923820	1.8176510	6.9790150	93.0209850
R2.5160	R2.5	160	0.1767130	1.6252690	6.7459320	93.2540680
R2.5161	R2.5	161	0.1619790	1.4485560	6.5078890	93.4921110
R2.5162	R2.5	162	0.1481900	1.2865770	6.2642780	93.7357220
R2.5163	R2.5	163	0.1353470	1.1383870	6.0146450	93.9853550
R2.5164	R2.5	164	0.1234370	1.0030400	5.7587730	94.2412270
R2.5165	R2.5	165	0.1124400	0.8796030	5.4967510	94.5032490
R2.5166	R2.5	166	0.1023100	0.7671630	5.2291050	94.7708950
R2.5167	R2.5	167	0.0929890	0.6648530	4.9568360	95.0431640
R2.5168	R2.5	168	0.0843740	0.5718640	4.6815480	95.3184520
R2.5169	R2.5	169	0.0763160	0.4874900	4.4052840	95.5947160
R2.5170	R2.5	170	0.0685810	0.4111740	4.1301250	95.8698750
R2.5171	R2.5	171	0.0610970	0.3425930	3.8568110	96.1431890
R2.5172	R2.5	172	0.0538920	0.2814960	3.5853870	96.4146130
R2.5173	R2.5	173	0.0469890	0.2276040	3.3159430	96.6840570
R2.5174	R2.5	174	0.0404160	0.1806150	3.0485420	96.9514580
R2.5175	R2.5	175	0.0342080	0.1401990	2.7832260	97.2167740
R2.5176	R2.5	176	0.0283930	0.1059910	2.5201240	97.4798760
R2.5177	R2.5	177	0.0230100	0.0775980	2.2592850	97.7407150
R2.5178	R2.5	178	0.0181160	0.0545880	2.0008610	97.9991390
R2.5179	R2.5	179	0.0136670	0.0364720	1.7451220	98.2548780

database

Iowa Survivor Curves

# APPENDIX A-5.1 (AUS)

S:\Depreciation\lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R2.5180	R2.5	180	0.0098240	0.0228050	1.4924140	98.5075860
R2.5181	R2.5	181	0.0065460	0.0129810	1.2434710	98.7565290
R2.5182	R2.5	182	0.0038930	0.0064350	0.9997670	99.0002330
R2.5183	R2.5	183	0.0019010	0.0025420	0.7651460	99.2348540
R2.5184	R2.5	184	0.0006080	0.0006410	0.5514820	99.4485180
R2.5185	R2.5	185	0.0000330	0.0000330	0.5000000	99.5000000
R2.5186	R2.5	186	0.0000000	0.0000000	0.0000000	100.0000000

# APPENDIX A-5.1 (AUS)

C:\Depreciation\lowacurves

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R3.0000	R3.0	0	0.0154791	100.0000000	100.0000000	0.0000000
R3.0001	R3.0	1	0.0168400	99.9845209	99.0154038	0.9845962
R3.0002	R3.0	2	0.0182953	99.9676809	98.0319996	1.9680004
R3.0003	R3.0	3	0.0198507	99.9493856	97.0498524	2.9501476
R3.0004	R3.0	4	0.0215111	99.9295349	96.0690317	3.9309683
R3.0005	R3.0	5	0.0232811	99.9080238	95.0896082	4.9103918
R3.0006	R3.0	6	0.0251655	99.8847427	94.1116552	5.8883448
R3.0007	R3.0	7	0.0271702	99.8595772	93.1352463	6.8647537
R3.0008	R3.0	8	0.0292997	99.8324070	92.1604576	7.8395424
R3.0009	R3.0	9	0.0315600	99.8031073	91.1873674	8.8126326
R3.0010	R3.0	10	0.0339584	99.7715473	90.2160540	9.7839460
R3.0011	R3.0	11	0.0364952	99.7375889	89.2465992	10.7534008
R3.0012	R3.0	12	0.0391798	99.7010937	88.2790852	11.7209148
R3.0013	R3.0	13	0.0420189	99.6619139	87.3135939	12.6864061
R3.0014	R3.0	14	0.0450144	99.6198950	86.3502102	13.6497898
R3.0015	R3.0	15	0.0481758	99.5748806	85.3890209	14.6109791
R3.0016	R3.0	16	0.0515060	99.5267048	84.4301109	15.5698891
R3.0017	R3.0	17	0.0550118	99.4751988	83.4735680	16.5264320
R3.0018	R3.0	18	0.0586996	99.4201870	82.5194798	17.4805202
R3.0019	R3.0	19	0.0625744	99.3614874	81.5679340	18.4320660
R3.0020	R3.0	20	0.0666428	99.2989130	80.6190205	19.3809795
R3.0021	R3.0	21	0.0709104	99.2322702	79.6728268	20.3271732
R3.0022	R3.0	22	0.0753794	99.1613598	78.7294426	21.2705574
R3.0023	R3.0	23	0.0800638	99.0859804	77.7889566	22.2110434
R3.0024	R3.0	24	0.0849600	99.0059166	76.8514566	23.1485434
R3.0025	R3.0	25	0.0900774	98.9209566	75.9170332	24.0829668
R3.0026	R3.0	26	0.0954256	98.8308792	74.9857712	25.0142288
R3.0027	R3.0	27	0.1010027	98.7354536	74.0577602	25.9422398
R3.0028	R3.0	28	0.1068191	98.6344509	73.1330843	26.8669157
R3.0029	R3.0	29	0.1128788	98.5276318	72.2118292	27.7881708
R3.0030	R3.0	30	0.1191874	98.4147530	71.2940807	28.7059193
R3.0031	R3.0	31	0.1257477	98.2955656	70.3799210	29.6200790
R3.0032	R3.0	32	0.1325683	98.1698179	69.4694319	30.5305681
R3.0033	R3.0	33	0.1396523	98.0372496	68.5626936	31.4373064
R3.0034	R3.0	34	0.1470041	97.8975973	67.6597862	32.3402138
R3.0035	R3.0	35	0.1546307	97.7505932	66.7607861	33.2392139
R3.0036	R3.0	36	0.1625337	97.5959625	65.8657694	34.1342306
R3.0037	R3.0	37	0.1707211	97.4334288	64.9748087	35.0251913
R3.0038	R3.0	38	0.1791944	97.2627077	64.0879793	35.9120207
R3.0039	R3.0	39	0.1879616	97.0835133	63.2053480	36.7946520
R3.0040	R3.0	40	0.1970244	96.8955517	62.3269858	37.6730142
R3.0041	R3.0	41	0.2063894	96.6985273	61.4529600	38.5470400
R3.0042	R3.0	42	0.2160606	96.4921379	60.5833340	39.4166660
R3.0043	R3.0	43	0.2260437	96.2760773	59.7181711	40.2818289
R3.0044	R3.0	44	0.2363405	96.0500336	58.8575339	41.1424661

# APPENDIX A-5.1 (AUS)

C:\Depreciation\lowacurves

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R3.0045	R3.0	45	0.2469616	95.8136931	58.0014839	41.9985161
R3.0046	R3.0	46	0.2579089	95.5667315	57.1500778	42.8499222
R3.0047	R3.0	47	0.2691869	95.3088226	56.3033738	43.6966262
R3.0048	R3.0	48	0.2808028	95.0396357	55.4614301	44.5385699
R3.0049	R3.0	49	0.2927637	94.7588329	54.6243000	45.3757000
R3.0050	R3.0	50	0.3050775	94.4660692	53.7920389	46.2079611
R3.0051	R3.0	51	0.3177452	94.1609917	52.9647021	47.0352979
R3.0052	R3.0	52	0.3307829	93.8432465	52.1423440	47.8576560
R3.0053	R3.0	53	0.3441897	93.5124636	51.3250179	48.6749821
R3.0054	R3.0	54	0.3579797	93.1682739	50.5127802	49.4872198
R3.0055	R3.0	55	0.3721629	92.8102942	49.7056861	50.2943139
R3.0056	R3.0	56	0.3867464	92.4381313	48.9037910	51.0962090
R3.0057	R3.0	57	0.4017400	92.0513849	48.1071558	51.8928442
R3.0058	R3.0	58	0.4171553	91.6496449	47.3158379	52.6841621
R3.0059	R3.0	59	0.4330063	91.2324896	46.5299010	53.4700990
R3.0060	R3.0	60	0.4493046	90.7994833	45.7494102	54.2505898
R3.0061	R3.0	61	0.4660597	90.3501787	44.9744310	55.0255690
R3.0062	R3.0	62	0.4832878	89.8841190	44.2050362	55.7949638
R3.0063	R3.0	63	0.5010013	89.4008312	43.4412990	56.5587010
R3.0064	R3.0	64	0.5192156	88.8998299	42.6832981	57.3167019
R3.0065	R3.0	65	0.5379458	88.3806143	41.9311161	58.0688839
R3.0066	R3.0	66	0.5572013	87.8426685	41.1848378	58.8151622
R3.0067	R3.0	67	0.5770016	87.2854672	40.4445572	59.5554428
R3.0068	R3.0	68	0.5973559	86.7084656	39.7103682	60.2896318
R3.0069	R3.0	69	0.6182804	86.1111097	38.9823709	61.0176291
R3.0070	R3.0	70	0.6397857	85.4928293	38.2606740	61.7393260
R3.0071	R3.0	71	0.6618805	84.8530436	37.5453868	62.4546132
R3.0072	R3.0	72	0.6845751	84.1911631	36.8366242	63.1633758
R3.0073	R3.0	73	0.7078676	83.5065880	36.1345072	63.8654928
R3.0074	R3.0	74	0.7317868	82.7987204	35.4391561	64.5608439
R3.0075	R3.0	75	0.7563066	82.0669336	34.7507062	65.2492938
R3.0076	R3.0	76	0.7814388	81.3106270	34.0692878	65.9307122
R3.0077	R3.0	77	0.8071690	80.5291882	33.3950372	66.6049628
R3.0078	R3.0	78	0.8334932	79.7220192	32.7280932	67.2719068
R3.0079	R3.0	79	0.8603878	78.8885260	32.0685968	67.9314032
R3.0080	R3.0	80	0.8878355	78.0281382	31.4166920	68.5833080
R3.0081	R3.0	81	0.9158049	77.1403027	30.7725229	69.2274771
R3.0082	R3.0	82	0.9442616	76.2244978	30.1362350	69.8637650
R3.0083	R3.0	83	0.9731655	75.2802362	29.5079711	70.4920289
R3.0084	R3.0	84	1.0024595	74.3070707	28.8878751	71.1121249
R3.0085	R3.0	85	1.0320921	73.3046112	28.2760870	71.7239130
R3.0086	R3.0	86	1.0619917	72.2725191	27.6727450	72.3272550
R3.0087	R3.0	87	1.0920782	71.2105274	27.0779829	72.9220171
R3.0088	R3.0	88	1.1222725	70.1184492	26.4919291	73.5080709
R3.0089	R3.0	89	1.1524744	68.9961767	25.9147060	74.0852940



# APPENDIX A-5.1 (AUS)

C:\Depreciation\lowacurves

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R3.0090	R3.0	90	1.1825809	67.8437023	25.3464310	74.6535690
R3.0091	R3.0	91	1.2124787	66.6611214	24.7872109	75.2127891
R3.0092	R3.0	92	1.2420444	65.4486427	24.2371471	75.7628529
R3.0093	R3.0	93	1.2711425	64.2065983	23.6963310	76.3036690
R3.0094	R3.0	94	1.2996359	62.9354558	23.1648400	76.8351600
R3.0095	R3.0	95	1.3273778	61.6358199	22.6427441	77.3572559
R3.0096	R3.0	96	1.3542113	60.3084421	22.1301019	77.8698981
R3.0097	R3.0	97	1.3799820	58.9542308	21.6269579	78.3730421
R3.0098	R3.0	98	1.4045148	57.5742488	21.1333439	78.8666561
R3.0099	R3.0	99	1.4276528	56.1697340	20.6492770	79.3507230
R3.0100	R3.0	100	1.4492231	54.7420812	20.1747630	79.8252370
R3.0101	R3.0	101	1.4690599	53.2928581	19.7097900	80.2902100
R3.0102	R3.0	102	1.4869881	51.8237982	19.2543340	80.7456660
R3.0103	R3.0	103	1.5028572	50.3368101	18.8083510	81.1916490
R3.0104	R3.0	104	1.5164928	48.8339529	18.3717880	81.6282120
R3.0105	R3.0	105	1.5277629	47.3174601	17.9445670	82.0554330
R3.0106	R3.0	106	1.5365224	45.7896972	17.5266011	82.4733989
R3.0107	R3.0	107	1.5426388	44.2531748	17.1177840	82.8822160
R3.0108	R3.0	108	1.5460029	42.7105360	16.7179930	83.2820070
R3.0109	R3.0	109	1.5465211	41.1645331	16.3270869	83.6729131
R3.0110	R3.0	110	1.5441080	39.6180120	15.9449101	84.0550899
R3.0111	R3.0	111	1.5387101	38.0739040	15.5712870	84.4287130
R3.0112	R3.0	112	1.5302810	36.5351939	15.2060260	84.7939740
R3.0113	R3.0	113	1.5188141	35.0049129	14.8489180	85.1510820
R3.0114	R3.0	114	1.5043109	33.4860988	14.4997360	85.5002640
R3.0115	R3.0	115	1.4868099	31.9817879	14.1582340	85.8417660
R3.0116	R3.0	116	1.4663680	30.4949780	13.8241530	86.1758470
R3.0117	R3.0	117	1.4430571	29.0286100	13.4972171	86.5027829
R3.0118	R3.0	118	1.4169929	27.5855529	13.1771280	86.8228720
R3.0119	R3.0	119	1.3882911	26.1685600	12.8635780	87.1364220
R3.0120	R3.0	120	1.3571188	24.7802689	12.5562360	87.4437640
R3.0121	R3.0	121	1.3236401	23.4231501	12.2547650	87.7452350
R3.0122	R3.0	122	1.2880390	22.0995100	11.9588110	88.0411890
R3.0123	R3.0	123	1.2505269	20.8114710	11.6680059	88.3319941
R3.0124	R3.0	124	1.2113230	19.5609441	11.3819740	88.6180260
R3.0125	R3.0	125	1.1706541	18.3496211	11.1003320	88.8996680
R3.0126	R3.0	126	1.1287601	17.1789670	10.8226880	89.1773120
R3.0127	R3.0	127	1.0858769	16.0502069	10.5486490	89.4513510
R3.0128	R3.0	128	1.0422470	14.9643300	10.2778220	89.7221780
R3.0129	R3.0	129	0.9981119	13.9220830	10.0098190	89.9901810
R3.0130	R3.0	130	0.9536992	12.9239711	9.7442570	90.2557430
R3.0131	R3.0	131	0.9092329	11.9702719	9.4807680	90.5192320
R3.0132	R3.0	132	0.8649200	11.0610390	9.2190000	90.7810000
R3.0133	R3.0	133	0.8209611	10.1961190	8.9586190	91.0413810
R3.0134	R3.0	134	0.7775309	9.3751580	8.6993200	91.3006800

# APPENDIX A-5.1 (AUS)

C:\Depreciation\lowacurves

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R3.0135	R3.0	135	0.7347881	8.5976270	8.4408310	91.5591691
R3.0136	R3.0	136	0.6928700	7.8628390	8.1829081	91.8170919
R3.0137	R3.0	137	0.6518970	7.1699690	7.9253460	92.0746540
R3.0138	R3.0	138	0.6119650	6.5180720	7.6679810	92.3320190
R3.0139	R3.0	139	0.5731500	5.9061070	7.4106960	92.5893040
R3.0140	R3.0	140	0.5355110	5.3329570	7.1534120	92.8465880
R3.0141	R3.0	141	0.4990880	4.7974460	6.8960930	93.1039070
R3.0142	R3.0	142	0.4639030	4.2983580	6.6387510	93.3612490
R3.0143	R3.0	143	0.4299690	3.8344550	6.3814340	93.6185660
R3.0144	R3.0	144	0.3972850	3.4044860	6.1242290	93.8757710
R3.0145	R3.0	145	0.3658450	3.0072010	5.8672540	94.1327460
R3.0146	R3.0	146	0.3356360	2.6413560	5.6106530	94.3893470
R3.0147	R3.0	147	0.3066410	2.3057200	5.3545910	94.6454090
R3.0148	R3.0	148	0.2788620	1.9990790	5.0992460	94.9007540
R3.0149	R3.0	149	0.2522770	1.7202170	4.8448220	95.1551780
R3.0150	R3.0	150	0.2268850	1.4679400	4.5915160	95.4084840
R3.0151	R3.0	151	0.2026930	1.2410550	4.3395140	95.6604860
R3.0152	R3.0	152	0.1797100	1.0383620	4.0890000	95.9110000
R3.0153	R3.0	153	0.1579600	0.8586520	3.8401530	96.1598470
R3.0154	R3.0	154	0.1374690	0.7006920	3.5931400	96.4068600
R3.0155	R3.0	155	0.1182750	0.5632230	3.3480970	96.6519030
R3.0156	R3.0	156	0.1004170	0.4449480	3.1051630	96.8948370
R3.0157	R3.0	157	0.0839420	0.3445310	2.8644800	97.1355200
R3.0158	R3.0	158	0.0688930	0.2605890	2.6261500	97.3738500
R3.0159	R3.0	159	0.0553160	0.1916960	2.3902580	97.6097420
R3.0160	R3.0	160	0.0432485	0.1363800	2.1569580	97.8430420
R3.0161	R3.0	161	0.0327163	0.0931315	1.9263620	98.0736380
R3.0162	R3.0	162	0.0237359	0.0604152	1.6987790	98.3012210
R3.0163	R3.0	163	0.0163033	0.0366793	1.4745100	98.5254900
R3.0164	R3.0	164	0.0103913	0.0203760	1.2542690	98.7457310
R3.0165	R3.0	165	0.0059434	0.0099847	1.0392430	98.9607570
R3.0166	R3.0	166	0.0028646	0.0040413	0.8322900	99.1677100
R3.0167	R3.0	167	0.0010104	0.0011767	0.6413070	99.3586930
R3.0168	R3.0	168	0.0001662	0.0001662	0.4999820	99.5000180
R3.0169	R3.0	169	0.0000000	0.0000000	0.0000000	100.0000000

# APPENDIX A-5.1 (AUS)

lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R4.0000	R4.0	0	0.0008278	100.0000000	100.0000000	0.0000000
R4.0001	R4.0	1	0.0009632	99.9991722	99.0013161	0.9986839
R4.0002	R4.0	2	0.0011139	99.9982090	98.0022631	1.9977369
R4.0003	R4.0	3	0.0012894	99.9970951	97.0033197	2.9966803
R4.0004	R4.0	4	0.0014858	99.9958057	96.0045939	3.9954061
R4.0005	R4.0	5	0.0017109	99.9943199	95.0060129	4.9939871
R4.0006	R4.0	6	0.0019645	99.9926090	94.0076304	5.9923696
R4.0007	R4.0	7	0.0022536	99.9906445	93.0094681	6.9905319
R4.0008	R4.0	8	0.0025768	99.9883909	92.0115519	7.9884481
R4.0009	R4.0	9	0.0029430	99.9858141	91.0139113	8.9860887
R4.0010	R4.0	10	0.0033541	99.9828711	90.0165749	9.9834251
R4.0011	R4.0	11	0.0038157	99.9795170	89.0195789	10.9804211
R4.0012	R4.0	12	0.0043325	99.9757013	88.0229569	11.9770431
R4.0013	R4.0	13	0.0049095	99.9713688	87.0267496	12.9732504
R4.0014	R4.0	14	0.0055561	99.9664593	86.0310001	13.9689999
R4.0015	R4.0	15	0.0062743	99.9609032	85.0357533	14.9642467
R4.0016	R4.0	16	0.0070753	99.9546289	84.0410605	15.9589395
R4.0017	R4.0	17	0.0079612	99.9475536	83.0469732	16.9530268
R4.0018	R4.0	18	0.0089484	99.9395924	82.0535498	17.9464502
R4.0019	R4.0	19	0.0100383	99.9306440	81.0608521	18.9391479
R4.0020	R4.0	20	0.0112429	99.9206057	80.0689449	19.9310551
R4.0021	R4.0	21	0.0125732	99.9093628	79.0778990	20.9221010
R4.0022	R4.0	22	0.0140372	99.8967896	78.0877886	21.9122114
R4.0023	R4.0	23	0.0156517	99.8827524	77.0986939	22.9013061
R4.0024	R4.0	24	0.0174217	99.8671007	76.1106977	23.8893023
R4.0025	R4.0	25	0.0193634	99.8496790	75.1238899	24.8761101
R4.0026	R4.0	26	0.0214911	99.8303156	74.1383648	25.8616352
R4.0027	R4.0	27	0.0238161	99.8088245	73.1542206	26.8457794
R4.0028	R4.0	28	0.0263576	99.7850084	72.1715622	27.8284378
R4.0029	R4.0	29	0.0291262	99.7586508	71.1904984	28.8095016
R4.0030	R4.0	30	0.0321426	99.7295246	70.2111445	29.7888555
R4.0031	R4.0	31	0.0354223	99.6973820	69.2336187	30.7663813
R4.0032	R4.0	32	0.0389815	99.6619597	68.2580481	31.7419519
R4.0033	R4.0	33	0.0428438	99.6229782	67.2845621	32.7154379
R4.0034	R4.0	34	0.0470247	99.5801344	66.3132954	33.6867046
R4.0035	R4.0	35	0.0515423	99.5331097	65.3443880	34.6556120
R4.0036	R4.0	36	0.0564251	99.4815674	64.3779860	35.6220140
R4.0037	R4.0	37	0.0616894	99.4251423	63.4142370	36.5857630
R4.0038	R4.0	38	0.0673580	99.3634529	62.4532971	37.5467029
R4.0039	R4.0	39	0.0734539	99.2960949	61.4953232	38.5046768
R4.0040	R4.0	40	0.0800018	99.2226410	60.5404782	39.4595218
R4.0041	R4.0	41	0.0870266	99.1426392	59.5889268	40.4110732
R4.0042	R4.0	42	0.0945492	99.0556126	58.6408401	41.3591599
R4.0043	R4.0	43	0.1025982	98.9610634	57.6963892	42.3036108
R4.0044	R4.0	44	0.1111975	98.8584652	56.7557492	43.2442508

# APPENDIX A-5.1 (AUS)

lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R4.0045	R4.0	45	0.1203727	98.7472677	55.8190970	44.1809030
R4.0046	R4.0	46	0.1301480	98.6268950	54.8866129	45.1133871
R4.0047	R4.0	47	0.1405506	98.4967470	53.9584770	46.0415230
R4.0048	R4.0	48	0.1516085	98.3561964	53.0348692	46.9651308
R4.0049	R4.0	49	0.1633424	98.2045879	52.1159720	47.8840280
R4.0050	R4.0	50	0.1757803	98.0412455	51.2019682	48.7980318
R4.0051	R4.0	51	0.1889468	97.8654652	50.2930360	49.7069640
R4.0052	R4.0	52	0.2028656	97.6765184	49.3893561	50.6106439
R4.0053	R4.0	53	0.2175588	97.4736528	48.4911060	51.5088940
R4.0054	R4.0	54	0.2326536	97.2560940	47.5984602	52.4015398
R4.0055	R4.0	55	0.2497578	97.0234404	46.7115922	53.2884078
R4.0056	R4.0	56	0.2665119	96.7736826	45.8306670	54.1693330
R4.0057	R4.0	57	0.2845173	96.5071707	44.9558511	55.0441489
R4.0058	R4.0	58	0.3034000	96.2226534	44.0873008	55.9126992
R4.0059	R4.0	59	0.3231707	95.9192534	43.2251711	56.7748289
R4.0060	R4.0	60	0.3438416	95.5960827	42.3696070	57.6303930
R4.0061	R4.0	61	0.3654260	95.2522411	41.5207481	58.4792519
R4.0062	R4.0	62	0.3879290	94.8868151	40.6787262	59.3212738
R4.0063	R4.0	63	0.4113550	94.4988861	39.8436651	60.1563349
R4.0064	R4.0	64	0.4357090	94.0875311	39.0156770	60.9843230
R4.0065	R4.0	65	0.4609852	93.6518221	38.1948690	61.8051310
R4.0066	R4.0	66	0.4871807	93.1908369	37.3813329	62.6186671
R4.0067	R4.0	67	0.5142860	92.7036562	36.5751538	63.4248462
R4.0068	R4.0	68	0.5422850	92.1893702	35.7764020	64.2235980
R4.0069	R4.0	69	0.5711651	91.6470852	34.9851360	65.0148640
R4.0070	R4.0	70	0.6009006	91.0759201	34.2014031	65.7985969
R4.0071	R4.0	71	0.6314631	90.4750195	33.4252348	66.5747652
R4.0072	R4.0	72	0.6628237	89.8435564	32.6566491	67.3433509
R4.0073	R4.0	73	0.6949434	89.1807327	31.8956490	68.1043510
R4.0074	R4.0	74	0.7277765	88.4857893	31.1422219	68.8577781
R4.0075	R4.0	75	0.7612782	87.7580128	30.3963370	69.6036630
R4.0076	R4.0	76	0.7953930	86.9967346	29.6579499	70.3420501
R4.0077	R4.0	77	0.8300562	86.2013416	28.9269941	71.0730059
R4.0078	R4.0	78	0.8652038	85.3712854	28.2033880	71.7966120
R4.0079	R4.0	79	0.9007626	84.5060816	27.4870250	72.5129750
R4.0080	R4.0	80	0.9366550	83.6053190	26.7777820	73.2222180
R4.0081	R4.0	81	0.9727898	82.6686640	26.0755160	73.9244840
R4.0082	R4.0	82	1.0092020	81.6958742	25.3800550	74.6199450
R4.0083	R4.0	83	1.0464849	80.6866722	24.6912470	75.3087530
R4.0084	R4.0	84	1.0855894	79.6401873	24.0091240	75.9908760
R4.0085	R4.0	85	1.1274805	78.5545979	23.3340089	76.6659911
R4.0086	R4.0	86	1.1729546	77.4271174	22.6665139	77.3334861
R4.0087	R4.0	87	1.2225552	76.2541628	22.0074830	77.9925170
R4.0088	R4.0	88	1.2765531	75.0316076	21.3579230	78.6420770
R4.0089	R4.0	89	1.3349047	73.7550545	20.7189319	79.2810681

# APPENDIX A-5.1 (AUS)

lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R4.0090	R4.0	90	1.3973417	72.4201498	20.0916240	79.9083760
R4.0091	R4.0	91	1.4632540	71.0228081	19.4770801	80.5229199
R4.0092	R4.0	92	1.5318708	69.5595541	18.8762820	81.1237180
R4.0093	R4.0	93	1.6022349	68.0276833	18.2900851	81.7099149
R4.0094	R4.0	94	1.6732702	66.4254484	17.7191961	82.2808039
R4.0095	R4.0	95	1.7437983	64.7521782	17.1641600	82.8358400
R4.0096	R4.0	96	1.8126111	63.0083799	16.6253510	83.3746490
R4.0097	R4.0	97	1.8785019	61.1957688	16.1029799	83.8970201
R4.0098	R4.0	98	1.9403057	59.3172669	15.5971090	84.4028910
R4.0099	R4.0	99	1.9969244	57.3769612	15.1076440	84.8923560
R4.0100	R4.0	100	2.0473556	55.3800368	14.6343750	85.3656250
R4.0101	R4.0	101	2.0907240	53.3326812	14.1769710	85.8230290
R4.0102	R4.0	102	2.1262794	51.2419572	13.7350060	86.2649940
R4.0103	R4.0	103	2.1534547	49.1156778	13.3079650	86.6920350
R4.0104	R4.0	104	2.1718040	46.9622231	12.8952750	87.1047250
R4.0105	R4.0	105	2.1810722	44.7904191	12.4962990	87.5037010
R4.0106	R4.0	106	2.1811419	42.6093469	12.1103610	87.8896390
R4.0107	R4.0	107	2.1720638	40.4282050	11.7367520	88.2632480
R4.0108	R4.0	108	2.1540241	38.2561412	11.3747400	88.6252600
R4.0109	R4.0	109	2.1273389	36.1021171	11.0235781	88.9764219
R4.0110	R4.0	110	2.0924511	33.9747782	10.6825140	89.3174860
R4.0111	R4.0	111	2.0498882	31.8823271	10.3507971	89.6492029
R4.0112	R4.0	112	2.0002858	29.8324389	10.0276790	89.9723210
R4.0113	R4.0	113	1.9443300	27.8321531	9.7124300	90.2875700
R4.0114	R4.0	114	1.8827472	25.8878231	9.4043380	90.5956620
R4.0115	R4.0	115	1.8162958	24.0050759	9.1027160	90.8972840
R4.0116	R4.0	116	1.7457612	22.1887801	8.8069040	91.1930960
R4.0117	R4.0	117	1.6718969	20.4430189	8.5162840	91.4837160
R4.0118	R4.0	118	1.5954540	18.7711220	8.2302750	91.7697250
R4.0119	R4.0	119	1.5171400	17.1756680	7.9483430	92.0516570
R4.0120	R4.0	120	1.4376240	15.6585280	7.6700060	92.3299940
R4.0121	R4.0	121	1.3575180	14.2209040	7.3948390	92.6051610
R4.0122	R4.0	122	1.2773730	12.8633860	7.1224760	92.8775240
R4.0123	R4.0	123	1.1976880	11.5860130	6.8526120	93.1473880
R4.0124	R4.0	124	1.1188790	10.3883250	6.5850130	93.4149870
R4.0125	R4.0	125	1.0413181	9.2694460	6.3195140	93.6804860
R4.0126	R4.0	126	0.9653040	8.2281280	6.0560060	93.9439940
R4.0127	R4.0	127	0.8910890	7.2628240	5.7944580	94.2055420
R4.0128	R4.0	128	0.8188760	6.3717350	5.5348880	94.4651120
R4.0129	R4.0	129	0.7488360	5.5528590	5.2773810	94.7226190
R4.0130	R4.0	130	0.6811100	4.8040230	5.0220640	94.9779360
R4.0131	R4.0	131	0.6158200	4.1229130	4.7691140	95.2308860
R4.0132	R4.0	132	0.5530780	3.5070930	4.5187400	95.4812600
R4.0133	R4.0	133	0.4930080	2.9540150	4.2715210	95.7284790
R4.0134	R4.0	134	0.4357350	2.4610070	4.0273490	95.9726510

# APPENDIX A-5.1 (AUS)

lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
R4.0135	R4.0	135	0.3814000	2.0252720	3.7864600	96.2135400
R4.0136	R4.0	136	0.3301680	1.6438720	3.5490210	96.4509790
R4.0137	R4.0	137	0.2822160	1.3137040	3.3315155	66.6848450
R4.0138	R4.0	138	0.2377380	1.0314880	3.0849780	96.9150220
R4.0139	R4.0	139	0.1969280	0.7937500	2.8585810	97.1414190
R4.0140	R4.0	140	0.1599700	0.5968220	2.6360510	97.3639490
R4.0141	R4.0	141	0.1270220	0.4368520	2.4174760	97.5825240
R4.0142	R4.0	142	0.0981870	0.3098300	2.2029340	97.7970660
R4.0143	R4.0	143	0.0734960	0.2116430	1.9925030	98.0074970
R4.0144	R4.0	144	0.0529003	0.1381470	1.7862840	98.2137160
R4.0145	R4.0	145	0.0362607	0.0852467	1.5844010	98.4155990
R4.0146	R4.0	146	0.0233463	0.0489860	1.3870900	98.6129100
R4.0147	R4.0	147	0.0138307	0.0256397	1.1948260	98.8051740
R4.0148	R4.0	148	0.0072948	0.0118090	1.0086400	98.9913600
R4.0149	R4.0	149	0.0032339	0.0045142	0.8306070	99.1693930
R4.0150	R4.0	150	0.0010741	0.0012803	0.6657290	99.3342710
R4.0151	R4.0	151	0.0002001	0.0002061	0.5292780	99.4707220
R4.0152	R4.0	152	0.0000060	0.0000060	0.5000830	99.4999170
R4.0153	R4.0	153	0.0000000	0.0000000	0.0000000	100.0000000

# APPENDIX A-5.1 (AUS)

S:\Depreciation\lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
S3.0000	S3.0	0	0.0000000	100.0000000	100.0000000	0.0000000
S3.0001	S3.0	1	0.0000000	100.0000000	99.0000000	1.0000000
S3.0002	S3.0	2	0.0000000	100.0000000	98.0000000	2.0000000
S3.0003	S3.0	3	0.0000000	100.0000000	97.0000000	3.0000000
S3.0004	S3.0	4	0.0000000	100.0000000	96.0000000	4.0000000
S3.0005	S3.0	5	0.0000000	100.0000000	95.0000000	5.0000000
S3.0006	S3.0	6	0.0000009	100.0000000	94.0000000	6.0000000
S3.0007	S3.0	7	0.0000029	99.9999991	93.0000010	6.9999990
S3.0008	S3.0	8	0.0000057	99.9999962	92.0000038	7.9999962
S3.0009	S3.0	9	0.0000124	99.9999905	91.0000086	8.9999914
S3.0010	S3.0	10	0.0000229	99.9999781	90.0000200	9.9999800
S3.0011	S3.0	11	0.0000410	99.9999552	89.0000401	10.9999599
S3.0012	S3.0	12	0.0000706	99.9999142	88.0000773	11.9999227
S3.0013	S3.0	13	0.0001154	99.9998436	87.0001392	12.9998608
S3.0014	S3.0	14	0.0001821	99.9997282	86.0002394	13.9997606
S3.0015	S3.0	15	0.0002785	99.9995461	85.0003939	14.9996061
S3.0016	S3.0	16	0.0004120	99.9992676	84.0006294	15.9993706
S3.0017	S3.0	17	0.0005932	99.9988556	83.0009728	16.9990272
S3.0018	S3.0	18	0.0008402	99.9982624	82.0014629	17.9985371
S3.0019	S3.0	19	0.0011616	99.9974222	81.0021467	18.9978533
S3.0020	S3.0	20	0.0015783	99.9962606	80.0030832	19.9969168
S3.0021	S3.0	21	0.0021086	99.9946823	79.0043373	20.9956627
S3.0022	S3.0	22	0.0027761	99.9925737	78.0059929	21.9940071
S3.0023	S3.0	23	0.0036030	99.9897976	77.0081453	22.9918547
S3.0024	S3.0	24	0.0046177	99.9861946	76.0109024	23.9890976
S3.0025	S3.0	25	0.0058498	99.9815769	75.0143890	24.9856110
S3.0026	S3.0	26	0.0073300	99.9757271	74.0187492	25.9812508
S3.0027	S3.0	27	0.0090951	99.9683971	73.0241404	26.9758596
S3.0028	S3.0	28	0.0111771	99.9593020	72.0307388	27.9692612
S3.0029	S3.0	29	0.0136185	99.9481249	71.0387383	28.9612617
S3.0030	S3.0	30	0.0164585	99.9345064	70.0483513	29.9516487
S3.0031	S3.0	31	0.0197382	99.9180479	69.0598068	30.9401932
S3.0032	S3.0	32	0.0235014	99.8983097	68.0733528	31.9266472
S3.0033	S3.0	33	0.0277939	99.8748083	67.0892544	32.9107456
S3.0034	S3.0	34	0.0326624	99.8470144	66.1077900	33.8922100
S3.0035	S3.0	35	0.0381479	99.8143520	65.1292582	34.8707418
S3.0036	S3.0	36	0.0443048	99.7762041	64.1539688	35.8460312
S3.0037	S3.0	37	0.0511732	99.7318993	63.1822462	36.8177538
S3.0038	S3.0	38	0.0588046	99.6807261	62.2144260	37.7855740
S3.0039	S3.0	39	0.0672397	99.6219215	61.2508540	38.7491460
S3.0040	S3.0	40	0.0765267	99.5546818	60.2918859	39.7081141
S3.0041	S3.0	41	0.0867071	99.4781551	59.3378830	40.6621170
S3.0042	S3.0	42	0.0978231	99.3914480	58.3892121	41.6107879
S3.0043	S3.0	43	0.1099110	99.2936249	57.4462428	42.5537572
S3.0044	S3.0	44	0.1230097	99.1837139	56.5093489	43.4906511

database

# APPENDIX A-5.1 (AUS)

S:\Depreciation\lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
S3.0045	S3.0	45	0.1371507	99.0607042	55.5788989	44.4211011
S3.0046	S3.0	46	0.1523667	98.9235535	54.6552620	45.3447380
S3.0047	S3.0	47	0.1686792	98.7711868	53.7388029	46.2611971
S3.0048	S3.0	48	0.1861134	98.6025076	52.8298788	47.1701212
S3.0049	S3.0	49	0.2046880	98.4163942	51.9288392	48.0711608
S3.0050	S3.0	50	0.2244149	98.2117062	51.0360251	48.9639749
S3.0051	S3.0	51	0.2453012	97.9872913	50.1517639	49.8482361
S3.0052	S3.0	52	0.2673512	97.7419901	49.2763739	50.7236261
S3.0053	S3.0	53	0.2905626	97.4746389	48.4101572	51.5898428
S3.0054	S3.0	54	0.3149290	97.1840763	47.5534000	52.4466000
S3.0055	S3.0	55	0.3404341	96.8691473	46.7063732	53.2936268
S3.0056	S3.0	56	0.3670616	96.5287132	45.8693328	54.1306672
S3.0057	S3.0	57	0.3947830	96.1616516	45.0425129	54.9574871
S3.0058	S3.0	58	0.4235687	95.7668686	44.2261319	55.7738681
S3.0059	S3.0	59	0.4533825	95.3432999	43.4203882	56.5796118
S3.0060	S3.0	60	0.4841824	94.8899174	42.6254621	57.3745379
S3.0061	S3.0	61	0.5159149	94.4057350	41.8415122	58.1584878
S3.0062	S3.0	62	0.5485287	93.8898201	41.0686789	58.9313211
S3.0063	S3.0	63	0.5819635	93.3412914	40.3070850	59.6929150
S3.0064	S3.0	64	0.6161499	92.7593279	39.5568309	60.4431691
S3.0065	S3.0	65	0.6510201	92.1431780	38.8179989	61.1820011
S3.0066	S3.0	66	0.6864967	91.4921579	38.0906539	61.9093461
S3.0067	S3.0	67	0.7224970	90.8056612	37.3748412	62.6251588
S3.0068	S3.0	68	0.7589350	90.0831642	36.6705899	63.3294101
S3.0069	S3.0	69	0.7957239	89.3242292	35.9779110	64.0220890
S3.0070	S3.0	70	0.8327675	88.5285053	35.2967982	64.7032018
S3.0071	S3.0	71	0.8699665	87.6957378	34.6272311	65.3727689
S3.0072	S3.0	72	0.9072227	86.8257713	33.9691749	66.0308251
S3.0073	S3.0	73	0.9444323	85.9185486	33.3225799	66.6774201
S3.0074	S3.0	74	0.9814892	84.9741163	32.6873822	67.3126178
S3.0075	S3.0	75	1.0182848	83.9926271	32.0635042	67.9364958
S3.0076	S3.0	76	1.0547151	82.9743423	31.4508619	68.5491381
S3.0077	S3.0	77	1.0906649	81.9196272	30.8493540	69.1506460
S3.0078	S3.0	78	1.1260299	80.8289623	30.2588730	69.7411270
S3.0079	S3.0	79	1.1606951	79.7029324	29.6793010	70.3206990
S3.0080	S3.0	80	1.1945553	78.5422373	29.1105120	70.8894880
S3.0081	S3.0	81	1.2275000	77.3476820	28.5523710	71.4476290
S3.0082	S3.0	82	1.2594261	76.1201820	28.0047390	71.9952610
S3.0083	S3.0	83	1.2902269	74.8607559	27.4674680	72.5325320
S3.0084	S3.0	84	1.3198013	73.5705290	26.9404030	73.0595970
S3.0085	S3.0	85	1.3480530	72.2507277	26.4233890	73.5766110
S3.0086	S3.0	86	1.3748846	70.9026747	25.9162619	74.0837381
S3.0087	S3.0	87	1.4002104	69.5277901	25.4188600	74.5811400
S3.0088	S3.0	88	1.4239378	68.1275797	24.9310110	75.0689890
S3.0089	S3.0	89	1.4459896	66.7036419	24.4525449	75.5474551

database

Iowa Survivor Curves



# APPENDIX A-5.1 (AUS)

S:\Depreciation\lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
S3.0090	S3.0	90	1.4662924	65.2576523	23.9832900	76.0167100
S3.0091	S3.0	91	1.4847698	63.7913599	23.5230711	76.4769289
S3.0092	S3.0	92	1.5013619	62.3065901	23.0717111	76.9282889
S3.0093	S3.0	93	1.5160102	60.8052282	22.6290381	77.3709619
S3.0094	S3.0	94	1.5286632	59.2892180	22.1948710	77.8051290
S3.0095	S3.0	95	1.5392757	57.7605548	21.7690370	78.2309630
S3.0096	S3.0	96	1.5478119	56.2212791	21.3513601	78.6486399
S3.0097	S3.0	97	1.5542393	54.6734672	20.9416640	79.0583360
S3.0098	S3.0	98	1.5585370	53.1192279	20.5397761	79.4602239
S3.0099	S3.0	99	1.5606909	51.5606909	20.1455231	79.8544769
S3.0100	S3.0	100	1.5606909	50.0000000	19.7587349	80.2412651
S3.0101	S3.0	101	1.5585370	48.4393091	19.3792419	80.6207581
S3.0102	S3.0	102	1.5542393	46.8807721	19.0068769	80.9931231
S3.0103	S3.0	103	1.5478119	45.3265328	18.6414750	81.3585250
S3.0104	S3.0	104	1.5392757	43.7787209	18.2828729	81.7171271
S3.0105	S3.0	105	1.5286631	42.2394452	17.9309101	82.0690899
S3.0106	S3.0	106	1.5160103	40.7107821	17.5854299	82.4145701
S3.0107	S3.0	107	1.5013619	39.1947718	17.2462750	82.7537250
S3.0108	S3.0	108	1.4847698	37.6934099	16.9132950	83.0867050
S3.0109	S3.0	109	1.4662919	36.2086401	16.5863359	83.4136641
S3.0110	S3.0	110	1.4459901	34.7423482	16.2652550	83.7347450
S3.0111	S3.0	111	1.4239380	33.2963581	15.9499090	84.0500910
S3.0112	S3.0	112	1.4002102	31.8724201	15.6401500	84.3598500
S3.0113	S3.0	113	1.3748848	30.4722099	15.3358450	84.6641550
S3.0114	S3.0	114	1.3480530	29.0973251	15.0368600	84.9631400
S3.0115	S3.0	115	1.3198011	27.7492721	14.7430561	85.2569439
S3.0116	S3.0	116	1.2902269	26.4294710	14.4543080	85.5456920
S3.0117	S3.0	117	1.2594261	25.1392441	14.1704850	85.8295150
S3.0118	S3.0	118	1.2275000	23.8798180	13.8914710	86.1085290
S3.0119	S3.0	119	1.1945550	22.6523180	13.6171401	86.3828599
S3.0120	S3.0	120	1.1606951	21.4577630	13.3473700	86.6526300
S3.0121	S3.0	121	1.1260300	20.2970679	13.0820510	86.9179490
S3.0122	S3.0	122	1.0906648	19.1710379	12.8210681	87.1789319
S3.0123	S3.0	123	1.0547152	18.0803731	12.5643160	87.4356840
S3.0124	S3.0	124	1.0182848	17.0256579	12.3116800	87.6883200
S3.0125	S3.0	125	0.9814891	16.0073731	12.0630680	87.9369320
S3.0126	S3.0	126	0.9444329	15.0258840	11.8183630	88.1816370
S3.0127	S3.0	127	0.9072221	14.0814511	11.5774790	88.4225210
S3.0128	S3.0	128	0.8699670	13.1742290	11.3403140	88.6596860
S3.0129	S3.0	129	0.8327670	12.3042620	11.1067700	88.8932300
S3.0130	S3.0	130	0.7957240	11.4714950	10.8767610	89.1232390
S3.0131	S3.0	131	0.7589350	10.6757710	10.6501980	89.3498020
S3.0132	S3.0	132	0.7224970	9.9168360	10.4270001	89.5729999
S3.0133	S3.0	133	0.6864971	9.1943390	10.2070690	89.7929310
S3.0134	S3.0	134	0.6510199	8.5078420	9.9903250	90.0096750

database

# APPENDIX A-5.1 (AUS)

S:\Depreciation\lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
S3.0135	S3.0	135	0.6161500	7.8568220	9.7766990	90.2233011
S3.0136	S3.0	136	0.5819630	7.2406720	9.5661089	90.4338911
S3.0137	S3.0	137	0.5485290	6.6587090	9.3584729	90.6415271
S3.0138	S3.0	138	0.5159150	6.1101800	9.1537210	90.8462790
S3.0139	S3.0	139	0.4841820	5.5942650	8.9517880	91.0482121
S3.0140	S3.0	140	0.4533830	5.1100830	8.7525981	91.2474020
S3.0141	S3.0	141	0.4235690	4.6567000	8.5560840	91.4439160
S3.0142	S3.0	142	0.3947830	4.2331310	8.3621800	91.6378200
S3.0143	S3.0	143	0.3670610	3.8383480	8.1708230	91.8291770
S3.0144	S3.0	144	0.3404340	3.4712870	7.9819520	92.0180480
S3.0145	S3.0	145	0.3149290	3.1308530	7.7955040	92.2044960
S3.0146	S3.0	146	0.2905630	2.8159240	7.6114220	92.3885780
S3.0147	S3.0	147	0.2673510	2.5253610	7.4296480	92.5703520
S3.0148	S3.0	148	0.2453010	2.2580100	7.2501270	92.7498730
S3.0149	S3.0	149	0.2244150	2.0127090	7.0728060	92.9271940
S3.0150	S3.0	150	0.2046880	1.7882940	6.8976320	93.1023680
S3.0151	S3.0	151	0.1861140	1.5836060	6.7245530	93.2754470
S3.0152	S3.0	152	0.1686790	1.3974920	6.5535220	93.4464780
S3.0153	S3.0	153	0.1523660	1.2288130	6.3844900	93.6155100
S3.0154	S3.0	154	0.1371510	1.0764470	6.2174110	93.7825890
S3.0155	S3.0	155	0.1230100	0.9392960	6.0522380	93.9477620
S3.0156	S3.0	156	0.1099110	0.8162860	5.8889290	94.1110710
S3.0157	S3.0	157	0.0978230	0.7063750	5.7274410	94.2725590
S3.0158	S3.0	158	0.0867070	0.6085520	5.5677320	94.4322680
S3.0159	S3.0	159	0.0765270	0.5218450	5.4097620	94.5902380
S3.0160	S3.0	160	0.0672400	0.4453180	5.2534920	94.7465080
S3.0161	S3.0	161	0.0588040	0.3780780	5.0988860	94.9011140
S3.0162	S3.0	162	0.0511730	0.3192740	4.9459060	95.0540940
S3.0163	S3.0	163	0.0443050	0.2681010	4.7945200	95.2054800
S3.0164	S3.0	164	0.0381480	0.2237960	4.6446910	95.3553090
S3.0165	S3.0	165	0.0326620	0.1856480	4.4963870	95.5036130
S3.0166	S3.0	166	0.0277940	0.1529860	4.3495800	95.6504200
S3.0167	S3.0	167	0.0235020	0.1251920	4.2042330	95.7957670
S3.0168	S3.0	168	0.0197375	0.1016900	4.0603190	95.9396810
S3.0169	S3.0	169	0.0164582	0.0819525	3.9178100	96.0821900
S3.0170	S3.0	170	0.0136189	0.0654943	3.7766790	96.2233210
S3.0171	S3.0	171	0.0111777	0.0518754	3.6369070	96.3630930
S3.0172	S3.0	172	0.0090944	0.0406977	3.4984640	96.5015360
S3.0173	S3.0	173	0.0073307	0.0316033	3.3613300	96.6386700
S3.0174	S3.0	174	0.0058498	0.0242726	3.2254840	96.7745160
S3.0175	S3.0	175	0.0046178	0.0184228	3.0909090	96.9090910
S3.0176	S3.0	176	0.0036030	0.0138050	2.9575850	97.0424150
S3.0177	S3.0	177	0.0027755	0.0102020	2.8255000	97.1745000
S3.0178	S3.0	178	0.0021089	0.0074265	2.6946400	97.3053600
S3.0179	S3.0	179	0.0015783	0.0053176	2.5649990	97.4350010

database

# APPENDIX A-5.1 (AUS)

S:\Depreciation\lowacurves.xls

## Iowa-type Retirement - Survival Tables

Percent Retired, Surviving, Condition, and Depreciation Reserve  
as a function of Age as a Percent of Average Service Life

1	2	3	4	5	6	7
Lookup	Curve	Age %	% Ret	% Surv	% Cond	% Depr Resv
S3.0180	S3.0	180	0.0011617	0.0037393	2.4365660	97.5634340
S3.0181	S3.0	181	0.0008396	0.0025776	2.3093440	97.6906560
S3.0182	S3.0	182	0.0005946	0.0017381	2.1833410	97.8166590
S3.0183	S3.0	183	0.0004116	0.0011435	2.0585660	97.9414340
S3.0184	S3.0	184	0.0002778	0.0007319	1.9350420	98.0649580
S3.0185	S3.0	185	0.0001821	0.0004541	1.8128020	98.1871980
S3.0186	S3.0	186	0.0001156	0.0002720	1.6918880	98.3081120
S3.0187	S3.0	187	0.0000706	0.0001564	1.5723710	98.4276290
S3.0188	S3.0	188	0.0000413	0.0000858	1.4543500	98.5456500
S3.0189	S3.0	189	0.0000229	0.0000446	1.3379620	98.6620380
S3.0190	S3.0	190	0.0000119	0.0000217	1.2234140	98.7765860
S3.0191	S3.0	191	0.0000058	0.0000097	1.1110030	98.8889970
S3.0192	S3.0	192	0.0000025	0.0000040	1.0011880	98.9988120
S3.0193	S3.0	193	0.0000010	0.0000014	0.8946340	99.1053660
S3.0194	S3.0	194	0.0000003	0.0000004	0.7925260	99.2074740
S3.0195	S3.0	195	0.0000001	0.0000001	0.6968450	99.3031550
S3.0196	S3.0	196	0.0000000	0.0000000	0.6112800	99.3887200
S3.0197	S3.0	197	0.0000000	0.0000000	0.5431250	99.4568750
S3.0198	S3.0	198	0.0000000	0.0000000	0.5056800	99.4943200
S3.0199	S3.0	199	0.0000000	0.0000000	0.5000000	99.5000000
S3.0200	S3.0	200	0.0000000	0.0000000	0.0000000	100.0000000

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Cost of Capital / Required Return**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

# APPENDIX A-5.1 (AUS)

## Cost of Capital / Required Return

The net cashflows described in the income approach section of this report were discounted to present value using a cost of capital reflective of the investor owned water industry with particular emphasis on investor owned water and wastewater in the Commonwealth of Pennsylvania capital costs for both debt and equity summarized as follows:

### Water and Wastewater Cost of Capital First Quarter 2020 (1-1-2020)

As an Investor-Owned Utility

#### Weighted Cost of Capital (Discount Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3)*(4a)
Debt	26%	Market	3.23%	Market	28.89%	71.11%	0.60%
Equity	74%	Market	9.95%	Market	0.0%	100.0%	7.36%
<b>Total Capital r</b>	<b>100.0%</b>						<b>7.96%</b>
Growth (g)							<b>1.82%</b>
Rate without Growth: $[(1+r)/(1+g)]-1$							<b>6.03%</b>

#### Weighted Cost of Capital (Capitization Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	Market Capital Cost (2)*(3)
Debt	26%	Market	3.23%	Market	Not Applicable	Not Applicable	0.84%
Equity	74%	Market	9.95%	Market	Not Applicable	Not Applicable	7.36%
<b>Total Capital r</b>	<b>100.0%</b>						<b>8.20%</b>
Growth (g)							<b>1.82%</b>
Rate without Growth: $[(1+r)/(1+g)]-1$							<b>6.26%</b>

#### Weighted Cost of Capital (Rate of Return on Rate Base)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	Required Return on Rate Base (2)*(3)
Debt	45%	Embedded	3.23%	Embedded	Not Applicable	Not Applicable	1.45%
Equity	55%	Embedded	9.95%	Market	Not Applicable	Not Applicable	5.47%
<b>Total Capital r</b>	<b>100.0%</b>						<b>6.92%</b>
Growth (g)						Not Applicable	<b>0.00%</b>
Rate without Growth: $[(1+r)/(1+g)]-1$							<b>6.92%</b>

The cost of capital and required return was based on the weighted cost of capital (WACC) method; wherein the market capital cost of debt and equity at the January 1, 2020 appraisal date are weighted based on the market capital structure typical of the industry. The inputs to the WACC required return determination are described summarized below.

# APPENDIX A-5.1 (AUS)

**Debt Cost** – The market cost of debt at the study data was determined based on review of financial information published by Value Line Investment Surveys in its January 10, 2020 publication. These sources were helpful in determining the typical debt rating for investments in water industry to be A Standard and Poor’s corporate debt rating. The above sources were also useful in determining that the market cost of debt at A rating to be 3.20% at January 1, 2020. Issuance cost of 0.90% was determined based on analysis annual Public Utility Financing Tracker reports over the period 2008 through 2019 published by PUFT, Inc. The final market cost of debt of 3.23% was determined for the water industry using the following formula which incorporates the above described issuance costs:

Value Line Investment Surveys  
Water Industry  
As of First Quarter 2020 (1-1-2020)

	S&P Debt Rating	Long Term Debt	Long Term Interest	Long Term Interest Rate (embedde d)
		Input Value Line	Input Value Line	(4) / (3)
American States Water		475.0	24.0	5.05%
American Water	Baa1	8,640.0	370.0	4.28%
Aqua American	Baa2	2,898.3	122.0	4.21%
California Water		807.5	53.0	6.56%
Consolidated Water Company		-	-	
Middlesex Water		228.3	6.8	2.98%
SJW Corporation		511.1	20.0	3.91%
York Water		94.2	5.5	5.84%
		13,654.4	601.3	4.40%
Minimum				2.98%
wtd Mean				4.40%
Mean				4.69%
Median				4.28%
Maximum				6.56%

Debt Rating and Cost of Debt

Embedded	4.40% wtd mean col 5
Rating (S&P)	A Input
Market Cost of Debt @Bond Rating Mergent Bond Record	3.20% Input
Use	3.20% AUS Input
Issuance Cost PUFT Data 2018-2019	0.90% Input
Final Cost of Debt	3.23%

# APPENDIX A-5.1 (AUS)

$$K_d = K_u / (100\% - f)$$

where:

$K_d$  = Cost of Debt recognizing issuance costs

$K_u$  is the market cost of debt without consideration of issuance costs

f is the cost of issuance as a percentage of the debt's par value

$$K_d = 3.20\% / (100\% - 0.90\%)$$

$$K_d = 3.23\%$$

Equity Cost – The cost of equity was evaluated using the Capital Asset Pricing Model (CAPM) and the dividend growth model (DGM) which looks to market returns to quantify the cost equity capital.

Value Line Investment Surveys  
Water Industry  
As of First Quarter 2020 (1-1-2020)

Company	Exchange	Ticker	Valueline No.	Valueline Issue	Beta	Divided	Revenues			Cash Flows			Earnings			Dividends			Book Value		
							Past 10 yrs Input Value Line	Past 5 yrs Input Value Line	Est'd 16-18 to 22-24 Input Value Line	Past 10 yrs Input Value Line	Past 5 yrs Input Value Line	Est'd 16-18 to 22-24 Input Value Line	Past 10 yrs Input Value Line	Past 5 yrs Input Value Line	Est'd 16-18 to 22-24 Input Value Line	Past 10 yrs Input Value Line	Past 5 yrs Input Value Line	Est'd 16-18 to 22-24 Input Value Line			
American States Water	NYSE	AWR	1787	1/10/2020	0.65	1.4%	3.5%	3.5%	4.0%	18.5%	6.0%	7.0%	9.0%	4.5%	8.0%	7.5%	9.0%	9.5%	5.0%	4.0%	5.0%
American Water	NYSE	AWK	1788	1/10/2020	0.55	1.7%	3.0%	3.5%	4.0%	18.5%	6.0%	7.0%	6.5%	9.5%	10.5%	9.0%	10.5%	9.0%	1.5%	4.0%	5.0%
Aqua American	NYSE	WTR	1789	1/10/2020	0.65	2.1%	3.0%	1.5%	3.5%	6.5%	5.0%	6.5%	8.0%	5.5%	8.0%	7.5%	8.0%	8.0%	6.5%	6.5%	9.0%
California Water	NYSE	CWT	1790	1/10/2020	0.7	1.7%	4.5%	2.0%	1.5%	6.0%	5.0%	3.5%	5.0%	5.5%	8.0%	2.0%	3.0%	6.5%	4.5%	4.5%	2.0%
Consolidated Water Company	NDQ	CWCO	1791	1/10/2020	0.85	2.1%	5.0%	0.5%	14.5%	2.0%	0.5%	11.0%	-3.0%	-4.5%	20.5%	5.0%		15.5%	5.0%	2.0%	3.5%
Middlesex Water	NDQ	MSEX	1792	1/10/2020	0.75	1.6%	2.5%	3.5%	2.0%	5.5%	9.0%	6.5%	6.0%	11.0%	7.5%	2.0%	3.0%	5.0%	3.5%	4.5%	3.0%
SIW Corporation	NYSE	SIW	1793	1/10/2020	0.6	1.7%	5.0%	5.5%	4.0%	7.0%	11.0%	3.0%	8.0%	18.5%	7.0%	4.5%	5.0%	7.0%	5.5%	8.0%	7.5%
York Water	NDQ	YORW	1794	1/10/2020	0.7	1.6%	3.0%	3.0%	5.5%	6.0%	9.0%	5.5%	6.5%	9.5%	3.5%	4.0%	6.5%	4.5%	4.0%	4.0%	4.5%
Minimum					0.55	1.40%	2.50%	0.50%	1.50%	2.00%	0.50%	3.00%	-3.00%	-4.50%	7.00%	2.00%	3.00%	5.00%	1.50%	2.00%	2.00%
wtd Mean					0.68	1.74%	3.69%	2.79%	4.94%	7.15%	5.69%	6.56%	5.50%	6.69%	9.75%	4.57%	6.07%	8.38%	4.50%	4.69%	4.94%
Median					0.68	1.69%	3.25%	3.00%	4.00%	6.00%	5.50%	6.50%	6.00%	6.00%	8.00%	4.50%	5.00%	7.50%	4.75%	4.25%	4.75%
Maximum					0.85	2.10%	5.00%	5.50%	14.50%	18.50%	11.00%	11.00%	9.00%	18.50%	20.50%	7.50%	10.50%	15.50%	6.50%	8.00%	9.00%

Capital Assets Pricing Model (CAPM) - The CAPM method estimates the cost of equity capital by quantifying the premium, or additional return required to entice investors to purchase equities, over an investment in which the investors would receive riskless return like that from a long-term U.S. government security.

The mathematical form of this model is:

Capital Asset Pricing Model:

$$r_e = r_f + B_c(r_p) + r_s + r_i$$

## APPENDIX A-5.1 (AUS)

where:

$B_c$  is an estimation of the subject Company's risk premium relative to the risk premium of the entire market. In these equity cost estimating methods the risk premium of the entire market is defined as unity or  $B_m = 1.0$ .

The inputs to this model are developed from an analysis of the financial markets. The risk-free government securities rate ( $r_f$ ) is readily available from financial sources; we have used the risk-free rate at the study date of 4.94% as determined from the average long-term income returns of government bonds over the period 1926 through 2019 as detailed on table A-7 in Ibbotson Associates' 2020 Yearbooks of Stocks, Bonds, Bills, and Inflation (SBBI).

The risk premiums ( $r_p$ ) and size premiums ( $r_s$ ) were established based on analysis of the data presented by Ibbotson Associates and published in Ibbotson Associates' 2010 through 2019 Yearbooks of Stocks, Bonds, Bills, and Inflation (SBBI), detailing the financial market returns of stocks, bonds, U.S. Treasury Bills, and Inflation for the period 1926 through 2019.

The total market risk premium ( $r_p$ ) required to entice an investor to invest in equity securities over risk-free government securities was established at 6.95% based on the Ibbotson Associates research, while the size premiums ( $r_s$ ) were established at:

1.7% for mid-capitalization companies with market equity capitalization between \$3,636.881 and \$631.058 million.

3.1% for low-capitalization companies with market equity capitalization between \$289.658 and \$631.058 million.

5.8 for micro-capitalization companies with market equity capitalization under \$289.658 million.

There is no size premium (0.0%) for companies with market equity capitalization above \$3,636.881 million.



## APPENDIX A-5.1 (AUS)

### Dividend Yield and Growth Model (DGM)

The dividend yield and growth model was also review in estimating the cost of equity. Two models were considered, those of:

$$r_e = \text{Dividend Yield} + \text{Dividend Growth}$$

$$r_e = \text{Dividend Yield} + \text{Earnings Growth}$$

Cost of Equity Conclusion - Based on these procedures the cost of equity using previous described cost of equity estimating techniques the cost of equity was determined as follows:

# APPENDIX A-5.1 (AUS)

Value Line Investment Surveys  
Water Industry  
As of First Quarter 2020 (1-1-2020)

Cost of Equity Dividend Growth Model

Cost of Equity Capital Asset Pricing Model (CAPM)

Dividend **1.74%** mean Col 7

Growth	Past 10	Est'd 16-	Beta		
	yrs	Past 5 yrs		18 to 22-	Input
Revenues	3.69%	2.79%	4.94%		
Cash Flow	6.00%	5.69%	6.56%		
Earnings	5.50%	6.69%	9.75%		
Dividends	4.50%	6.07%	8.38%		
Book Value	4.75%	4.69%	4.94%		
Mean	4.89%	5.18%	6.91%	0.68	0.55-0.85

Growth **6.91%** AUS Input

Cost of Equity Dividend Growth Model

Cost of Equity Capital Asset Pricing Model (CAPM)

Dividend **1.74%**  
Growth **6.91%**  
Cost of Equity **8.65%**

Risk Free Rate **4.94%** Input  
Risk Premium  
Beta **0.68**

Long term  
Government Bonds  
Income Return SBB  
(Mean)

Risk Premia	Input SBB	Input SBB	Input SBB	Input SBB	Input SBB
Risk Premia	<b>6.95%</b>	Input SBB	<b>6.95%</b>	Input	$r_p = r_m - r_f$ per PA PUC
Size Premia			\$ Millions	\$ Millions	
Micro	5.80%	Input SBB	-	289.7	
Small	3.10%	Input SBB	<b>289.7</b>	1,341.7	
Mid	1.70%	Input SBB	<b>1,341.7</b>	3,636.9	
Large	0.00%	Input SBB	<b>3,636.9</b>		
Size Premia			0.00%	Input	
Cost of Equity			<b>9.67%</b>		

Cost of Equity  
Dividend Growth Model **8.65%**  
Capital Asset Pricing Model (CAPM) **9.67%**  
Mean **9.16%**  
Issuance Cost PUFT 2008-2019 **3.60%**  
Final Cost of Equity **9.50%**

Pennsylvania PUC **9.95%**  
Bureau of Technical Utility Services  
Report on the Quarterly Earnings  
of Jurisdictional Utilities

Cost of Equity **9.95%** AUS Input Jurisdictional Exception  
Growth **6.87%** Input  
Inflation **1.82%** SBB Last 5-years

Equity issuance cost (f) of 3.60% was determined based on analysis annual Public Utility Financing Tracker reports over the period 2008 through 2019 published by PUFT, Inc. The final market cost of equity of 9.95% was determined for the water industry using the following formula which incorporates the above described issuance costs:

$$K_e = K_e / (100\% - f)$$

where:

$K_e$  = Cost of equity recognizing issuance costs

## APPENDIX A-5.1 (AUS)

$K_e$  is the market cost of equity without consideration of issuance costs (9.50%)

f is the cost of issuance as a percentage of the equity par value (3.60%)

$$K_e = 9.16\% / (100\% - 3.60\%)$$

$$K_e = 9.50\%$$

An equity cost of 9.95% was used in the determination of the cost of capital based on the determination of Pennsylvania PUC's Bureau of Technical Utility Services (TUS) Report on Quarterly Earnings of Jurisdictional Utilities for year-ending September 30, 2019.

### Tax Rate

The tax rate was determined based on the Value Line Investment Survey as follows:

# APPENDIX A-5.1 (AUS)

Value Line Investment Surveys  
Water Industry  
As of First Quarter 2020 (1-1-2020)

Company	Exchange	Ticker	Valueline No.	Valueline Issue	Tax Rate			
					2018	2019	2020	22-24
Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line
American States Water	NYSE	AWR	1787	1/10/2020	22.0%	23.0%	23.0%	23.0%
American Water	NYSE	AWK	1788	1/10/2020	28.2%	21.0%	21.0%	21.0%
Aqua American	NYSE	WTR	1789	1/10/2020	6.6%		5.0%	7.0%
California Water	NYSE	CWT	1790	1/10/2020	24.5%	21.0%	21.0%	21.0%
Consolidated Water Company	NDQ	CWCO	1791	1/10/2020				
Middlesex Water	NDQ	MSEX	1792	1/10/2020	2.8%	21.0%	21.0%	21.0%
SJW Corporation	NYSE	SJW	1793	1/10/2020	20.6%	21.0%	21.0%	21.0%
York Water	NDQ	YORW	1794	1/10/2020	15.7%	21.0%	21.0%	21.0%
Minimum					2.80%	21.00%	5.00%	7.00%
wtd Mean								
Mean					17.20%	21.33%	19.00%	19.29%
Median					20.60%	21.00%	21.00%	21.00%
Maximum					28.20%	23.00%	23.00%	23.00%
Embedded Tax Rate	Historical		Current					
	17.20% Mean 2017		21.33% Mean 2018					
Federal Tax Rate (Marginal)	35.00% AUS Input		21.00% AUS Input					
US 50-state average	4.91% AUS Input		4.91% AUS Input					
Pennsylvania	9.99% AUS Input		9.99% AUS Input					
Composite Federal and State Tax Rate	41.49% Calculated		28.89% Calculated					
	=Federal Tax * (1-State Tax)+State Tax		=Federal Tax * (1-State Tax)+State Tax					

# APPENDIX A-5.1 (AUS)

## Capital Structure

The capital structure was determined based on the water industry market indicators published by Value Line Investment Survey published January 10, 2020 as detailed as follows:

Value Line Investment Surveys  
Water Industry  
As of First Quarter 2020 (1-1-2020)

Company	Exchange	Ticker	ValueLine No.	ValueLine Issue	Market Debt	Long Term Debt	Long Term Interest	Long Term Interest Rate (embedded)	Proportion of Debt	Book Debt	Book Equity	Preferred Stock	% Preferred	Shares Outstanding	Price per Share	Market Equity	Portion Market Equity	Capitalization	Total Market Capital	
Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	
					(\$/(\$))	(\$/(\$))	(\$/(\$))	(\$/(\$))	(\$/(\$))	(\$/(\$))	(\$/(\$))	(\$/(\$))	(\$/(\$))	(\$/(\$))	(\$/(\$))	(\$/(\$))	(\$/(\$))	(\$/(\$))	(\$/(\$))	
					\$/Million	%	\$/Million	\$/Million	%	%	%	%	%	Shares Million	\$/Share	\$/Million	%		\$/Million	
American States Water	NYSE	AWR	1787	1/10/2020	475.3	12.87%	475.0	24.0	5.05%	45.0%	44.0%	55.0%	-	0.00%	35,839,300	87.33	3,217.2	87.13%	Mid Cap	3,692.5
American Water	NYSE	AWK	1788	1/10/2020	9,143.0	29.12%	8,640.0	370.0	4.28%	59.0%	58.0%	42.0%	7.0	0.02%	180,776,169	123.05	22,244.5	70.85%	Large Cap	31,394.5
Aqua American	NYSE	WTR	1789	1/10/2020	3,086.4	23.30%	2,898.3	122.0	4.21%	43.0%	42.5%	43.5%	-	0.00%	215,840,774	47.08	10,161.8	76.70%	Large Cap	13,248.2
California Water	NYSE	CWT	1790	1/10/2020	967.9	28.07%	807.5	53.0	6.56%	53.0%	51.0%	49.0%	-	0.00%	48,145,000	51.52	2,480.4	71.93%	Mid Cap	3,448.3
Consolidated Water Company	NDQ	CVCO	1791	1/10/2020	-	0.00%	-	-	-	0.0%	0.0%	100.0%	-	0.00%	15,027,740	16.46	247.4	100.00%	Small Cap	247.4
Middlesex Water	NDQ	MSEX	1792	1/10/2020	294.0	21.68%	228.3	6.8	2.98%	45.0%	45.0%	54.5%	2.4	0.18%	16,669,400	83.55	1,959.5	78.14%	Small Cap	1,359.9
SiW Corporation	NYSE	SIW	1793	1/10/2020	511.1	20.01%	511.1	20.0	3.91%	37.0%	36.5%	63.5%	-	0.00%	28,456,490	71.79	2,042.9	79.99%	Mid Cap	2,554.0
York Water	NDQ	YORW	1794	1/10/2020	100.7	14.33%	94.2	5.5	5.84%	43.0%	40.0%	60.0%	-	0.00%	12,984,826	46.38	602.2	85.67%	Small Cap	702.9
<b>Total</b>					<b>14,578.4</b>	<b>25.74%</b>	<b>13,654.4</b>	<b>601.3</b>	<b>4.40%</b>				<b>9.4</b>			<b>42,055.9</b>				<b>56,643.7</b>
Minimum						0.00%			2.98%	0.00%	0.00%	42.00%		0.00%					70.85%	
wtd Mean						25.74%			4.40%										74.25%	
Mean						18.67%			4.69%	40.63%	39.63%	58.56%		0.03%					81.30%	
Median						20.85%			4.28%	44.00%	43.25%	55.25%		0.00%					79.07%	
Maximum						29.12%			6.56%	59.00%	58.00%	100.00%		0.18%					100.00%	

In arriving at the capital structure, the market capital structure was used in developing the market cost of capital while an embedded capital structure was used in developing the required return on rate base as follows:

Capital Structure	Water Industry Capital Structure		Embedded	
	Market Proportion	Reference	Proportion	Reference
Debt	25.74%	wtd mean col 7	40.63%	mean col 11
Preferred	0.02%	col 15	0.03%	mean col 15
Equity	74.25%	wtd mean col 19	58.56%	mean col 13
Total	100.01%		99.21%	
Use				
Debt		26% AUS Input		45% AUS Input Jurisdictional Exemption
Equity		74% AUS Input		55% AUS Input Jurisdictional Exemption
Total		100%		100%

# APPENDIX A-5.1 (AUS)

## Market Cost of Capital and Required Return on Rate Base

Using the above described cost of debt and equity, the rate of returned required for an investment in property similar to the Company's was determined to be 7.96% as follows:

### Water and Wastewater Cost of Capital First Quarter 2020 (1-1-2020)

As an Investor-Owned Utility

#### Weighted Cost of Capital (Discount Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3)*(4a)
Debt	26%	Market	3.23%	Market	28.89%	71.11%	0.60%
Equity	74%	Market	9.95%	Market	0.0%	100.0%	7.36%
<b>Total Capital r</b>	<b>100.0%</b>						<b>7.96%</b>
Growth (g)							<b>1.82%</b>
<b>Rate without Growth: <math>[(1+r)/(1+g)]-1</math></b>							<b>6.03%</b>

While the require return on rate base was determined to be 6.92 follows:

#### Weighted Cost of Capital (Rate of Return on Rate Base)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	Required Return on Rate Base (2)*(3)
Debt	45%	Embedded	3.23%	Embedded	Not Applicable	Not Applicable	1.45%
Equity	55%	Embedded	9.95%	Market	Not Applicable	Not Applicable	5.47%
<b>Total Capital r</b>	<b>100.0%</b>						<b>6.92%</b>
Growth (g)						Not Applicable	<b>0.00%</b>
<b>Rate without Growth: <math>[(1+r)/(1+g)]-1</math></b>							<b>6.92%</b>

The statistics supporting these findings can be found in the Cost of Capital section of this report.

# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-110-2019 Created 5-20-2020

## Water and Wastewater Cost of Capital First Quarter 2020 (1-1-2020)

### As an Investor-Owned Utility

#### Weighted Cost of Capital (Discount Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3)*(4a)
Debt	26%	Market	3.23%	Market	28.89%	71.11%	0.60%
Equity	74%	Market	9.95%	Market	0.0%	100.0%	7.36%
<b>Total Capital r</b>	<b>100.0%</b>						<b>7.96%</b>
Growth (g)							<b>1.82%</b>
<b>Rate without Growth: <math>[(1+r)/(1+g)]-1</math></b>							<b>6.03%</b>

#### Weighted Cost of Capital (Capitlization Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	Market Capital Cost (2)*(3)
Debt	26%	Market	3.23%	Market	Not Applicable	Not Applicable	0.84%
Equity	74%	Market	9.95%	Market	Not Applicable	Not Applicable	7.36%
<b>Total Capital r</b>	<b>100.0%</b>						<b>8.20%</b>
Growth (g)							<b>1.82%</b>
<b>Rate without Growth: <math>[(1+r)/(1+g)]-1</math></b>							<b>6.26%</b>

#### Weighted Cost of Capital (Rate of Return on Rate Base)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	Required Return on Rate Base (2)*(3)
Debt	45%	Embedded	3.23%	Embedded	Not Applicable	Not Applicable	1.45%
Equity	55%	Embedded	9.95%	Market	Not Applicable	Not Applicable	5.47%
<b>Total Capital r</b>	<b>100.0%</b>						<b>6.92%</b>
Growth (g)						Not Applicable	<b>0.00%</b>
<b>Rate without Growth: <math>[(1+r)/(1+g)]-1</math></b>							<b>6.92%</b>

# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-11-2019 Created 5-20-2020

## Value Line Investment Surveys Water Industry As of First Quarter 2020 (1-1-2020)

S&P Debt Rating	Long Term Debt	Long Term Interest	Long Term Rate	Long Term Interest	Long Term Rate

Input Value Line Input Value Line (4) / (3)

American States Water	475.0	24.0	5.05%		
American Water	8,640.0	370.0	4.28%		
Aqua American	2,898.3	122.0	4.21%		
California Water	807.5	53.0	6.56%		
Consolidated Water Company	-	-	-		
Middlesex Water	228.3	6.8	2.98%		
SIW Corporation	511.1	20.0	3.91%		
York Water	94.2	5.5	5.84%		
	13,654.4	601.3	4.40%		
Minimum			2.98%		
wtd Mean			4.40%		
Mean			4.69%		
Median			4.28%		
Maximum			6.56%		

### Debt Rating and Cost of Debt

Embedded 4.40% wtd mean col 5

Rating (S&P) A Input  
Market Cost of Debt @Bond Rating 3.20% Input  
Mergent Bond Record

Use 3.20% AUS Input

Issuance Cost PUFT Data 2018-2019 0.90% Input  
Final Cost of Debt 3.23%



# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersford Wastewater-System Valuation as of 12-110-2019 Created 5-20-2020

Value Line Investment Surveys  
Water Industry  
As of First Quarter 2020 (1-1-2020)

Company	Exchange	Ticker	Valueline No.	Valueline Issue	Beta	Divided	Revenues			Cash Flows			Earnings			Dividends			Book Value		
							Past 10 Yrs	Est'd 16-18 to 22-24	Input Value Line	Past 10 Yrs	Est'd 16-18 to 22-24	Input Value Line	Past 5 Yrs	Est'd 16-18 to 22-24	Input Value Line	Past 10 Yrs	Est'd 16-18 to 22-24	Input Value Line	Past 5 Yrs	Est'd 16-18 to 22-24	Input Value Line
American States Water	NYSE	AWR	1787	1/10/2020	0.65	1.4%	3.5%	4.5%	3.0%	6.0%	9.0%	4.5%	8.0%	7.5%	9.0%	9.5%	5.0%	4.0%	5.0%		
American Water	NYSE	AWK	1788	1/10/2020	0.55	1.7%	3.0%	4.0%	6.0%	7.0%	6.5%	6.5%	9.5%	10.5%	10.5%	9.0%	1.5%	4.0%	5.0%		
Aqua American	NYSE	WTR	1789	1/10/2020	0.65	2.1%	3.0%	3.5%	5.0%	6.5%	8.0%	5.5%	8.0%	7.5%	8.0%	8.0%	6.5%	6.5%	9.0%		
California Water	NYSE	CWT	1790	1/10/2020	0.7	1.7%	4.5%	1.5%	5.0%	5.0%	5.0%	8.0%	8.0%	2.0%	3.0%	6.5%	4.5%	4.5%	2.0%		
Consolidated Water Company	NDQ	CWCO	1791	1/10/2020	0.85	2.1%	5.0%	14.5%	2.0%	11.0%	-3.0%	-4.5%	20.5%	5.0%	15.5%	5.0%	5.0%	2.0%	3.5%		
Middlesex Water	NDQ	MSEX	1792	1/10/2020	0.75	1.6%	2.5%	3.5%	9.0%	6.5%	6.0%	11.0%	7.5%	2.0%	3.0%	5.0%	3.5%	4.5%	3.0%		
SIW Corporation	NYSE	SIW	1793	1/10/2020	0.6	1.7%	5.0%	4.0%	7.0%	3.0%	8.0%	18.5%	7.0%	4.5%	5.0%	7.0%	5.5%	8.0%	7.5%		
York Water	NDQ	YORW	1794	1/10/2020	0.7	1.6%	3.0%	5.5%	6.0%	9.0%	5.5%	6.5%	3.5%	4.0%	4.0%	6.5%	4.5%	4.0%	4.5%		
Minimum					0.55	1.40%	2.50%	1.50%	0.50%	3.00%	-3.00%	-4.50%	7.00%	2.00%	3.00%	5.00%	1.50%	2.00%	2.00%		
wid Mean					0.68	1.74%	3.69%	4.94%	5.69%	6.56%	5.50%	6.69%	9.75%	4.57%	6.07%	8.38%	4.50%	4.69%	4.94%		
Median					0.68	1.69%	3.25%	4.00%	5.00%	6.50%	6.00%	6.00%	8.00%	4.50%	5.00%	7.50%	4.75%	4.25%	4.75%		
Maximum					0.85	2.10%	5.00%	14.50%	11.00%	11.00%	9.00%	18.50%	20.50%	7.50%	10.50%	15.50%	6.50%	8.00%	9.00%		

# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Roversford, PA\Roversford Wastewater System Valuation as of 12-110-2019 Created 5-20-2020

## Value Line Investment Surveys Water Industry As of First Quarter 2020 (1-1-2020)

Cost of Equity Dividend Growth Model

Dividend **1.74%** mean Col 7

Growth

	Past 10 yrs	Past 5 yrs	24	Beta	Est'd 16-18 to 22-
Revenues	3.69%	2.79%	4.94%		
Cash Flow	6.00%	5.69%	6.56%		
Earnings	5.50%	6.69%	9.75%		
Dividends	4.50%	6.07%	8.38%		
Book Value	4.75%	4.69%	4.94%	Input	Min-Max
Mean	4.89%	5.18%	6.91%	0.68	0.55-0.85
Growth	6.91%	AUS Input			

Cost of Equity Capital Asset Pricing Model (CAPM)

Cost of Equity Dividend Growth Model

Dividend Growth **1.74%**  
Cost of Equity **6.91%**  
**8.65%**

Cost of Equity Capital Asset Pricing Model (CAPM)

Risk Free Rate **4.94%** Input  
Risk Premium **0.68**  
Beta **6.95%** Input  
Risk Premia **6.95%** Input SBBi  
Size Premia **6.95%** Input SBBi  
Micro **5.80%** Input SBBi  
Small **3.10%** Input SBBi  
Mid **1.70%** Input SBBi  
Large **0.00%** Input SBBi  
Size Premia **0.00%** Input  
Cost of Equity **9.67%**

Cost of Equity

Dividend Growth Model

Capital Asset Pricing Model (CAPM)

Mean

Issuance Cost PUFFT 2008-2019

Final Cost of Equity

Cost of Equity

Growth

Inflation

Pennsylvania PUC  
Bureau of Technical Utility Services  
Report on the Quarterly Earnings  
of Jurisdictional Utilities

9.95%

9.67%

9.16%

3.60%

9.50%

9.95% AUS Input Jurisdictional Exception

**6.87%** Input

**1.82%** SBBi Last 5-years

Long term  
Government Bonds  
Income Return SBBi  
(Mean)

**4.94%** Input  
**0.68**  
**6.95%** Input  
\$ Millions  
 $r_p = r_m + r_f$  per PA PUC  
\$ Millions  
289.7  
1,341.7  
1,341.7  
3,636.9





# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersf...stewater System Valuation as of 12-11-2019 Created 5-7-2020

Source: Ibbotson SBBI 2018 Stock, Bonds, Bills, and Inflation Yearbook

Year	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	A-11	A-12	A-13	A-14	A-15	A-16
	Large Company Stocks	Large Company Stocks	Large Company Stocks	Small Company Stocks	Long-Term Corporate Bonds	Long-Term Government Bonds	Long-Term Government Bonds	Long-Term Government Bonds	Long-Term Government Bonds	Intermediate-Term Government Bonds	Intermediate-Term Government Bonds	Intermediate-Term Government Bonds	Intermediate-Term Government Bonds	U.S. Treasury Bills	Inflation	Risk Premia
	Total Returns	Total Returns	Appreciation Returns	Total Returns	Total Returns	Total Returns	Income Returns	Capital Returns	Yields	Total Returns	Income Returns	Appreciation Returns	Yields	Total Returns	Inflation	Risk Premia
	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	(A-1)-(A-7)
2012	0.1600	0.0250	0.1341	0.1824	0.1068	0.0331	0.0240	0.0088	0.0241	0.0207	0.0058	0.0148	0.0046	0.0006	0.0174	0.1360
2013	0.3239	0.0248	0.2960	0.4507	-0.0707	-0.1178	0.0288	-0.1570	0.0378	-0.0368	0.0102	-0.0468	0.0149	0.0002	0.0151	0.2951
2014	0.1369	0.0216	0.1139	0.0292	0.1728	0.2471	0.0341	0.2093	0.0246	0.0300	0.0163	0.0135	0.0155	0.0002	0.0076	0.1028
2015	0.0138	0.0210	-0.0073	-0.0360	-0.0102	-0.0065	0.0247	-0.0311	0.0268	0.0179	0.0151	0.0029	0.0169	0.0002	0.0073	-0.0109
2016	0.1196	0.0226	0.0954	0.2565	0.0670	0.0175	0.0230	-0.0040	0.0272	0.0192	0.0136	0.0058	0.0185	0.0020	0.0207	0.0966
2017	0.2183	0.0221	0.1942	0.1119	0.1225	0.0624	0.0267	0.0351	0.0254	0.0164	0.0193	-0.0029	0.0211	0.0080	0.0211	0.1916
2018	-0.0438	0.0201	-0.0624	-0.1160	-0.0473	-0.0057	0.0282	-0.0350	0.0284	0.0116	0.0265	-0.0155	0.0250	0.0181	0.0191	-0.0720
2019	0.3149	0.0234	0.2888	0.2063	0.1995	0.1216	0.0255	0.0953	0.0225	0.0826	0.0208	0.0454	0.0170	0.0214	0.0229	0.2894
Average	0.1189	0.0394	0.0793	0.1655	0.0640	0.0598	0.0494	0.0082	0.0499	0.0513	0.0437	0.0069	0.0432	0.0337	0.0295	0.0695
Median	0.1307	0.0378	0.1053	0.1852	0.0480	0.0368	0.0408	0.0033	0.0416	0.0336	0.0372	0.0032	0.0363	0.0293	0.0268	0.0797
High	0.5399	0.0877	0.4659	1.4287	0.4256	0.4036	0.1350	0.2395	0.1334	0.2910	0.1297	0.1423	0.1396	0.1471	0.1816	0.5087
Low	-0.4334	0.0110	-0.4707	-0.5801	-0.0809	-0.1490	0.0194	-0.1825	0.0194	-0.0601	0.0058	-0.1114	0.0046	-0.0002	-0.1030	-0.4667
Last 5 year (60 months)																
Average	0.1246	0.0218	0.1017	0.0845	0.0663	0.0379	0.0256	0.0121	0.0261	0.0295	0.0191	0.0071	0.0197	0.0099	0.0182	0.0989
Median	0.1196	0.0221	0.0954	0.1119	0.0670	0.0175	0.0255	-0.0040	0.0268	0.0179	0.0193	0.0029	0.0185	0.0080	0.0207	0.0966
High	0.3149	0.0234	0.2888	0.2565	0.1995	0.1216	0.0282	0.0953	0.0284	0.0826	0.0265	0.0454	0.0250	0.0214	0.0229	0.2894
Low	-0.0438	0.0201	-0.0624	-0.1160	-0.0473	-0.0065	0.0230	-0.0350	0.0225	0.0116	0.0136	-0.0155	0.0169	0.0002	0.0073	-0.0720

\* Compound Annual Return

# APPENDIX A-5.1 (AUS)

S:\water industry\PA American - Royersford, PA\Royersford Wastewater System Valuation as of 12-110-2019 Created 5-20-2020

## Value Line Investment Surveys Water Industry As of First Quarter 2020 (1-1-2020)

Company	Exchange	Ticker	Valueline No.	Valueline Issue	Tax Rate			
					2018	2019	2020	22-24
	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line	Input Value Line
American States Water	NYSE	AWR	1787	1/10/2020	22.0%	23.0%	23.0%	23.0%
American Water	NYSE	AWK	1788	1/10/2020	28.2%	21.0%	21.0%	21.0%
Aqua American	NYSE	WTR	1789	1/10/2020	6.6%	5.0%	5.0%	7.0%
California Water	NYSE	CWT	1790	1/10/2020	24.5%	21.0%	21.0%	21.0%
Consolidated Water Company	NDQ	CWCO	1791	1/10/2020				
Middlesex Water	NDQ	MSEX	1792	1/10/2020	2.8%	21.0%	21.0%	21.0%
SJW Corporation	NYSE	SJW	1793	1/10/2020	20.6%	21.0%	21.0%	21.0%
York Water	NDQ	YORW	1794	1/10/2020	15.7%	21.0%	21.0%	21.0%
Minimum					2.80%	21.00%	5.00%	7.00%
wtd Mean								
Mean					17.20%	21.33%	19.00%	19.29%
Median					20.60%	21.00%	21.00%	21.00%
Maximum					28.20%	23.00%	23.00%	23.00%
Embedded Tax Rate	Historical		Current					
	17.20% Mean 2017		21.33% Mean 2018					
Federal Tax Rate (Marginal)	35.00% AUS Input		21.00% AUS Input					
US 50-state average	4.91% AUS Input		4.91% AUS Input					
Pennsylvania	9.99% AUS Input		9.99% AUS Input					
Composite Federal and State Tax Rate	41.49% Calculated =Federal Tax * (1- State Tax)+State Tax		28.89% Calculated =Federal Tax * (1- State Tax)+State Tax					

Value Line 1-1-2020



**PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Public Meeting held February 6, 2020

Docket Number: M-2019-3015178

**BUREAU OF TECHNICAL UTILITY SERVICES**

**REPORT ON THE QUARTERLY EARNINGS**

**OF JURISDICTIONAL UTILITIES**

**FOR THE YEAR ENDED**

**September 30, 2019**

Gladys Brown Dutrieuille, Chairman  
David W. Sweet, Vice Chairman  
Andrew G. Place, Commissioner, Statement,  
Dissenting  
John F. Coleman, Jr., Commissioner  
Ralph V. Yanora, Commissioner



# APPENDIX A-5.1 (AUS)

## TABLE OF CONTENTS

	<u>Page No.</u>
<b>Introduction</b> .....	4
<p>*Peoples Natural Gas Company, Peoples Nat'l – Equitable, UGI Utilities, Inc. – South, UGI Utilities, Inc. – North, and UGI Utilities, Inc. – Central, have rate filings at Docket Nos. R-2018-3006818, R-2018-3006818, R-2018-3006814, R-2018-3006814, and R-2018-3006814 respectively, and filed a letter with the Secretary in place of a report in accordance with 52 Pa. Code § 71.4.</p>	
<b>Attachment A – Summary of Equity Returns</b> .....	5
<b>Attachment B – Summary of Returns</b> .....	12
<p>This chart depicts the overall and equity returns (actual and adjusted) for the filing utilities for the current quarter. The last authorized equity return and the year authorized is also shown.</p>	
<b>Attachment C – Allowed Rates of Return on Common Equity</b> .....	14
<p>This is a historical chart that shows the most recent fully litigated rate cases for select companies in electric, gas, and water. A docket number followed by their final return on equity and year is also given.</p>	
<b>Attachment D – Distribution System Improvement Charge Return on Equity</b>	15
<p>Compares utility adjusted return on equity to Commission authorized return on equity for utilities with a Distribution System Improvement Charge.</p>	
<b>Attachment E – Explanation of Return on Equity Methods</b> .....	16
<p>Criteria for determining the industry barometer groups used in ROE calculations. Also, provides details of the Discounted Cash Flow equation and Capital Asset Pricing Model equation.</p>	
<b>Attachment F – Market Based Returns on Equity – Electric</b> .....	18
<p>The market indicated common equity cost rate range consists of data used from the electric barometer groups and is based on a series of calculations to average the DCF methods. Also, indicates Distribution System Improvement Charge Return.</p>	
<b>Attachment F – Historic DCF and CAPM – Electric</b> .....	19
<p>Historic barometer group DCF and CAPM average ROEs.</p>	
<b>Attachment F – Electric Barometer Group Calculation of a Current and 52 Week Average Dividend Yield</b> .....	20-21
<p>Electric barometer companies are used to calculate a current DCF in the first chart. The second chart demonstrates the companies 52 week average DCF. A final average of the two calculations is also shown at the bottom.</p>	
<b>Attachment F – Development of a Representative Dividend Growth Rate</b> .....	22
<p>Multiple sources of the gas barometer companies projected 5 year Earnings Per Share are used to calculate the Group Average Dividend Growth Estimate.</p>	
<b>Attachment G – Market Based Returns on Equity – Gas</b> .....	23
<p>The market indicated common equity cost rate range consists of data used from the gas barometer groups and is based on a series of calculations to average the DCF methods. Also, indicates Distribution System Improvement Charge Return.</p>	

# APPENDIX A-5.1 (AUS)

<b>Attachment G – Historic DCF and CAPM – Gas</b> .....	24
Historic barometer group DCF and CAPM average ROEs, including a linear trend line graph.	
<b>Attachment G – Gas Barometer Group Calculation of a Current and 52 Week Average Dividend Yield</b> .....	25
Gas barometer companies are used to calculate a current DCF in the first chart. The second chart demonstrates the companies 52 week average DCF. A final average of the two calculations is also shown at the bottom.	
<b>Attachment G – Development of a Representative Dividend Growth Rate</b> .....	26
Multiple sources of the gas barometer companies projected 5 year Earnings Per Share are used to calculate the Group Average Dividend Growth Estimate.	
<b>Attachment H – Market Based Returns on Equity – Water</b> .....	27
The market indicated common equity cost rate range consists of data used from the water barometer groups and is based on a series of calculations to average the DCF methods. Also, indicates Distribution System Improvement Charge Return.	
<b>Attachment H – Historic DCF and CAPM – Water</b> .....	28
Historic barometer group DCF and CAPM average ROEs, including a linear trend line graph.	
<b>Attachment H – Water Barometer Group Calculation of a Current and 52 Week Average Dividend Yield</b> .....	29
Water barometer companies are used to calculate a current DCF in the first chart. The second chart demonstrates the companies 52 week average DCF. A final average of the two calculations is also shown at the bottom.	
<b>Attachment H – Development of a Representative Dividend Growth Rate</b> .....	30
Multiple sources of the water barometer companies projected 5 year Earnings Per Share are used to calculate the Group Average Dividend Growth Estimate.	

## APPENDIX A-5.1 (AUS)

### **Introduction:**

On September 20, 1991, the Commission initiated a rulemaking at L-00910061 pertaining to earnings disclosures by the public utilities subject to its jurisdiction. At that docket, the Commission stated that the submission of accurate, reliable and complete earnings disclosure reports, at regular intervals, is essential to the fulfillment of the broad regulatory oversight responsibilities entrusted to the Commission by the Legislature in the Public Utility Code. The earnings disclosure regulations promulgated by the Commission were adopted October 1, 1992, and published January 23, 1993, at 23 Pa.B. 463. Based upon those regulations, codified at 52 Pa. Code, Chapter 71, a reporting format was developed and distributed to the jurisdictional fixed utilities of Pennsylvania.

All fixed utilities having jurisdictional revenues of \$1,000,000 or more, for a calendar year, are required to file the report by March 31 of each year. Such reports are to be based upon the results of operations for the 12-month period ending December 31 of the prior year. Utilities having more than \$10,000,000 in jurisdictional revenues are also required to file reports for the 12 months ending on March 31, June 30, and September 30 of each year. On November 30, 2004, however, the Pennsylvania General Assembly signed into law Act 183 concerning alternative telecommunications regulation and broadband deployment. As a result of Act 183, the reporting requirements for the PUC jurisdictional telecommunications companies of Pennsylvania have been streamlined at section 3015(e) of the Public Utility Code. A quarterly earnings report is not listed among those reports now required of PUC jurisdictional telecommunications utilities in Pennsylvania and, therefore, this report does not address telephone company earnings.

The reports have been filed for the period ended September 30, 2019.<sup>1</sup> The Finance Staff of the Bureau of Technical Utility Services has reviewed the reports and has prepared this summary report for public release. This report sets forth the achieved return on equity for each company, the last allowed return for that utility, a market return as determined through the analysis of the barometer group data and the most recent returns allowed, per industry, by the Pennsylvania Public Utility Commission and by other regulatory bodies. Where a utility has not filed a report, the reasons for not filing are indicated.

Questions pertaining to the preparation and contents of this Report should be directed to Ms. Erin Laudenslager, Manager - Finance, Bureau of Technical Utility Services, at (717) 705-4364.

---

<sup>1</sup> Peoples Natural Gas Company, Peoples Nat'l – Equitable, UGI Utilities, Inc. – South, UGI Utilities, Inc. – North, and UGI Utilities, Inc. – Central, have rate filings at Docket Nos. R-2018-3006818, R-2018-3006818, R-2018-3006814, R-2018-3006814, and R-2018-3006814 respectively, and filed a letter with the Secretary in place of a report in accordance with 52 Pa. Code § 71.4.

The equity return summaries that follow in Attachment A are, for each quarter;

ACTUAL

1. Based on actual results of operations

and

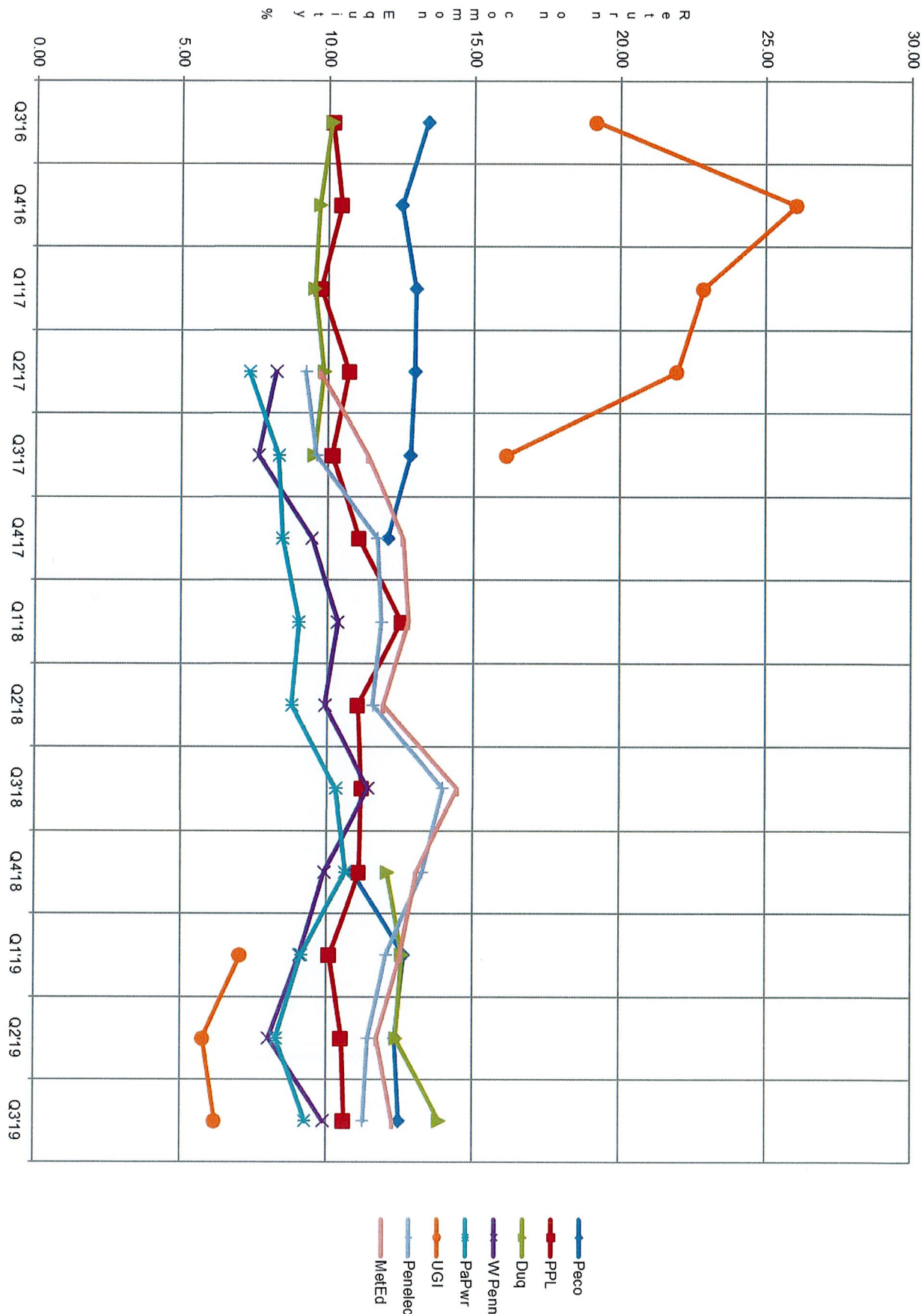
ADJUSTED

2. Based on company proposed pro forma and ratemaking adjustments

**ELECTRIC UTILITIES  
EQUITY RETURNS BY QUARTER**

QTR END	PECO		PPL		Duq		W Penn		PaPwr		UGI		Penelec		MetEd		
	ACT	ADJ	ACT	ADJ	ACT	ADJ	ACT	ADJ	ACT	ADJ	ACT	ADJ	ACT	ADJ	ACT	ADJ	
2013	3	11.09	10.96	8.67	8.38			9.13	9.13	8.49	8.34	10.74	10.65	-0.77	2.07	-12.43	-10.43
	4	11.97	10.52	10.01	9.79			13.73	13.73	14.49	14.30	14.25	11.99	4.85	2.99	-6.06	-7.87
2014	1	9.97	10.34	10.02	10.04			11.58	9.45	15.28	15.04	13.36	10.25	5.17	3.34	-6.40	-8.13
	2	10.05	10.08	9.50	10.09	9.77	9.29					12.64	9.21				
	3	8.93	9.25	10.07	9.99	9.97	9.48					8.76	9.22				
	4	8.23	9.58			9.77	9.40					9.01	10.00				
2015	1				10.08	9.65						10.88	10.39				
	2				9.80	9.42						13.57	9.49				
	3				10.11	9.73	6.45	6.45	5.77	5.77	15.93	7.57	2.94	2.94	3.69	3.69	
	4	10.74	8.84	8.89	8.48	9.73	9.36	8.09	8.09	5.13	5.13	9.74	9.21	5.45	5.45	7.04	7.04
2016	1	10.86	9.74	7.75	6.94	9.87	9.89					10.41	8.69				
	2	11.46	10.15	9.15	8.51	9.57	9.47					8.29	8.10				
	3	13.42	11.44	10.15	9.59	10.12	9.46					19.18	6.99				
	4	12.52	10.65	10.45	10.29	9.71	9.01					26.07	7.30				
2017	1	13.01	11.40	9.76	8.49	9.53	8.99					22.86	6.81				
	2	12.98	11.40	10.71	9.70	9.86	9.24	8.23	7.38	7.32	7.97	21.96	6.74	9.23	9.20	9.74	9.35
	3	12.84	10.52	10.15	9.30	9.53	9.23	7.63	7.24	8.32	9.08	16.13	5.22	9.61	9.50	11.37	10.97
	4	12.07	9.11	11.07	10.63			9.47	9.12	8.46	8.19			11.70	10.93	12.58	11.67
2018	1			12.53	11.36			10.35	9.08	9.03	8.08			11.84	9.93	12.77	11.38
	2			11.05	9.49			9.92	8.52	8.79	7.57			11.56	9.39	11.90	10.26
	3			11.19	9.83			11.41	6.74	10.30	5.80			13.97	8.44	14.46	9.62
	4	10.88	7.61	11.10	10.15	12.06	9.39	9.92	6.78	10.64	7.43			13.27	9.31	13.05	7.40
2019	1	12.65	7.93	10.10	8.96	12.58	9.73	9.08	6.62	9.14	7.61	7.05	5.22	12.03	8.07	12.54	7.66
	2	12.34	7.94	10.51	8.95	12.38	9.34	8.02	5.99	8.29	7.10	5.77	3.22	11.42	8.16	11.72	7.21
	3	12.49	7.96	10.61	8.99	13.88	9.33	9.90	7.87	9.28	7.76	6.20	2.04	11.26	8.78	12.25	7.77

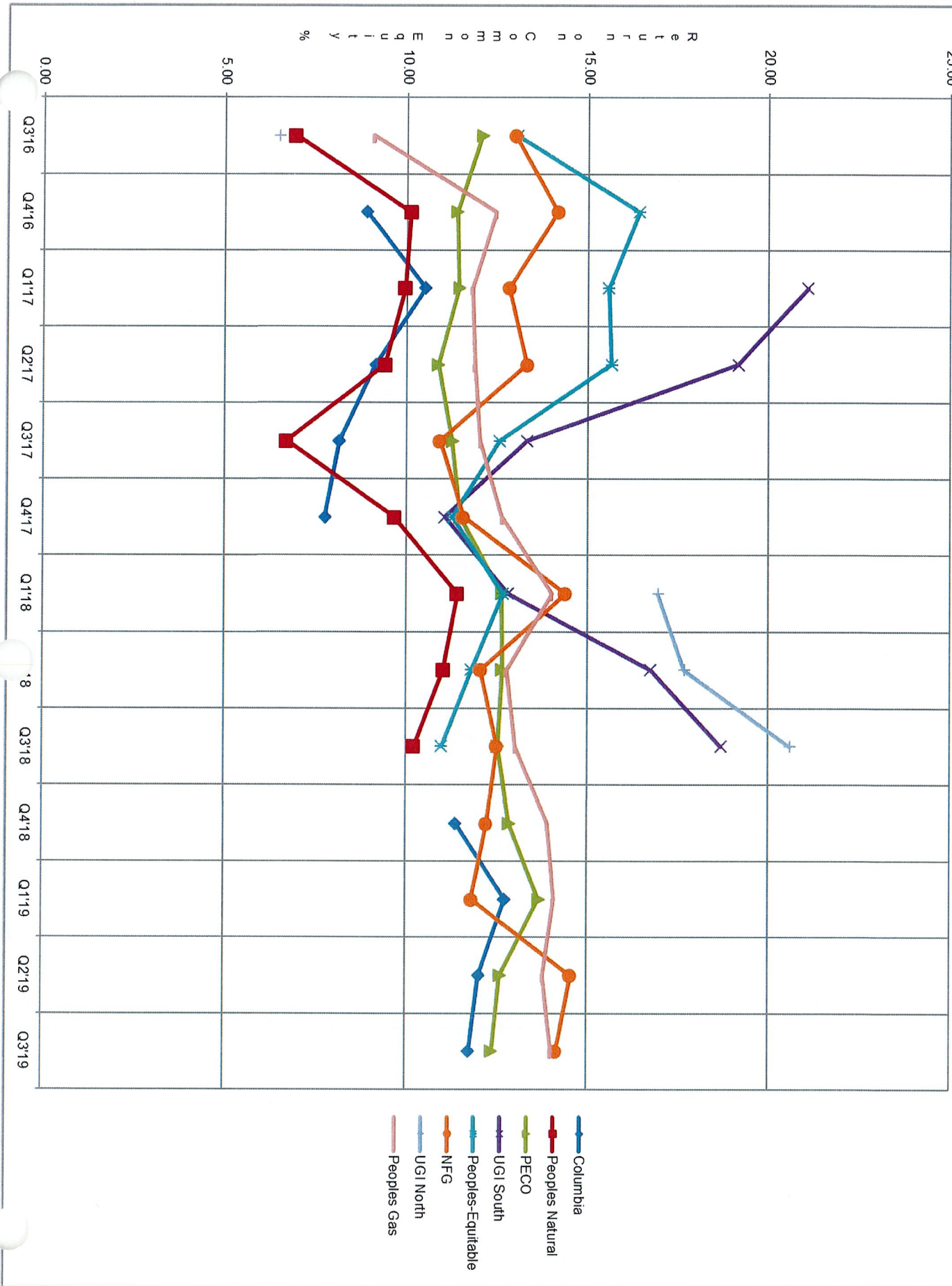
Major Pennsylvania Electric Utilities - Actual Equity Returns by Quarter



**GAS UTILITIES  
EQUITY RETURNS BY QUARTER**

QTR END	Columbia		Peoples Natural		PECO		UGI South		Peoples- Equitable		NFG		UGI North		Peoples Gas	
	ACT	ADJ	ACT	ADJ	ACT	ADJ	ACT	ADJ	ACT	ADJ	ACT	ADJ	ACT	ADJ	ACT	ADJ
2013 3	9.36	9.86	17.39	8.72	14.14	14.01	12.60	9.38	9.84	9.48	19.61	10.72	10.59	10.76		
4	10.60	10.78	16.33	10.02	14.35	13.97	16.08	9.20	10.52	9.76	20.51	10.07	13.41	10.49	7.21	12.23
2014 1			14.68	9.94	15.23	13.52	16.81	8.35	12.00	8.73	23.11	9.78	16.67	10.06	12.19	11.87
2			13.05	9.78	15.32	13.24	16.71	8.39	13.54	8.49	22.97	12.00	15.30	10.90	14.06	12.32
3			13.43	9.16	15.45	13.21	16.63	8.64	14.41	9.15	21.36	11.03	13.77	10.15	15.07	12.62
4	9.71	9.97	11.85	7.89	13.86	12.59	15.00	7.93	14.52	12.46	20.40	10.79	15.64	9.82	16.91	11.83
2015 1			14.22	7.90	14.60	13.01	15.76	7.87	15.36	12.14	20.17	10.31	15.57	9.52	16.36	11.23
2			14.37	8.88	13.89	12.32	14.07	7.62	14.08	11.26	18.82	10.39	13.76	8.90	16.15	12.90
3			13.55	8.14	13.29	11.77	15.67	6.51	11.30	10.87	16.41	10.27	13.16	8.32	15.69	12.58
4	9.75	9.73	8.80	9.83	12.50	12.70			10.60	10.00	15.01	10.59	9.17	7.25	12.71	12.14
2016 1			7.01	10.02	10.73	13.58			8.98	10.20	12.60	10.97	7.85	8.85	8.54	10.48
2			6.24	9.99	11.55	13.85			8.29	10.40	12.31	11.08	9.41	8.37	9.20	10.43
3			6.93	9.34	12.09	14.40			13.05	10.82	13.00	10.34	6.47	8.81	9.07	12.02
4	8.90	9.26	10.11	11.03	11.39	12.37			16.42	11.07	14.18	9.58			12.47	11.87
2017 1	10.52	10.17	9.96	9.27	11.45	12.55	21.08	10.09	15.85	10.58	12.84	9.26			11.82	12.34
2	9.15	9.81	9.41	9.71	10.87	12.17	19.16	9.44	15.66	10.30	13.33	10.53			11.89	13.47
3	8.15	8.77	6.69	6.40	11.26	10.92	13.34	9.03	12.59	9.85	10.92	10.00			12.04	13.36
4	7.76	8.48	9.66	7.27	11.48	9.83	11.06	8.62	11.28	9.23	11.58	10.56			12.65	11.79
2018 1			11.42	7.00	12.65	9.77	12.82	7.90	12.68	8.22	14.40	10.20	16.95	7.83	14.02	10.17
2			11.03	6.80	12.66	9.05	16.75	6.80	11.81	9.57	12.06	9.89	17.68	8.02	12.78	10.15
3			10.21	7.43	12.54	8.36	18.69	8.04	10.99	9.44	12.52	10.12	20.60	9.16	13.03	10.20
4	11.39	9.81			12.86	8.68					12.24	10.21			13.92	11.13
2019 1	12.76	10.22			13.68	9.06					11.83	10.93			14.10	10.71
2	12.04	9.92			12.62	8.41					14.56	9.99			13.80	11.66
3	11.77	9.85			12.40	8.31					14.17	9.75			14.02	11.63

Major Pennsylvania Gas Utilities - Actual Equity Returns by Quarter

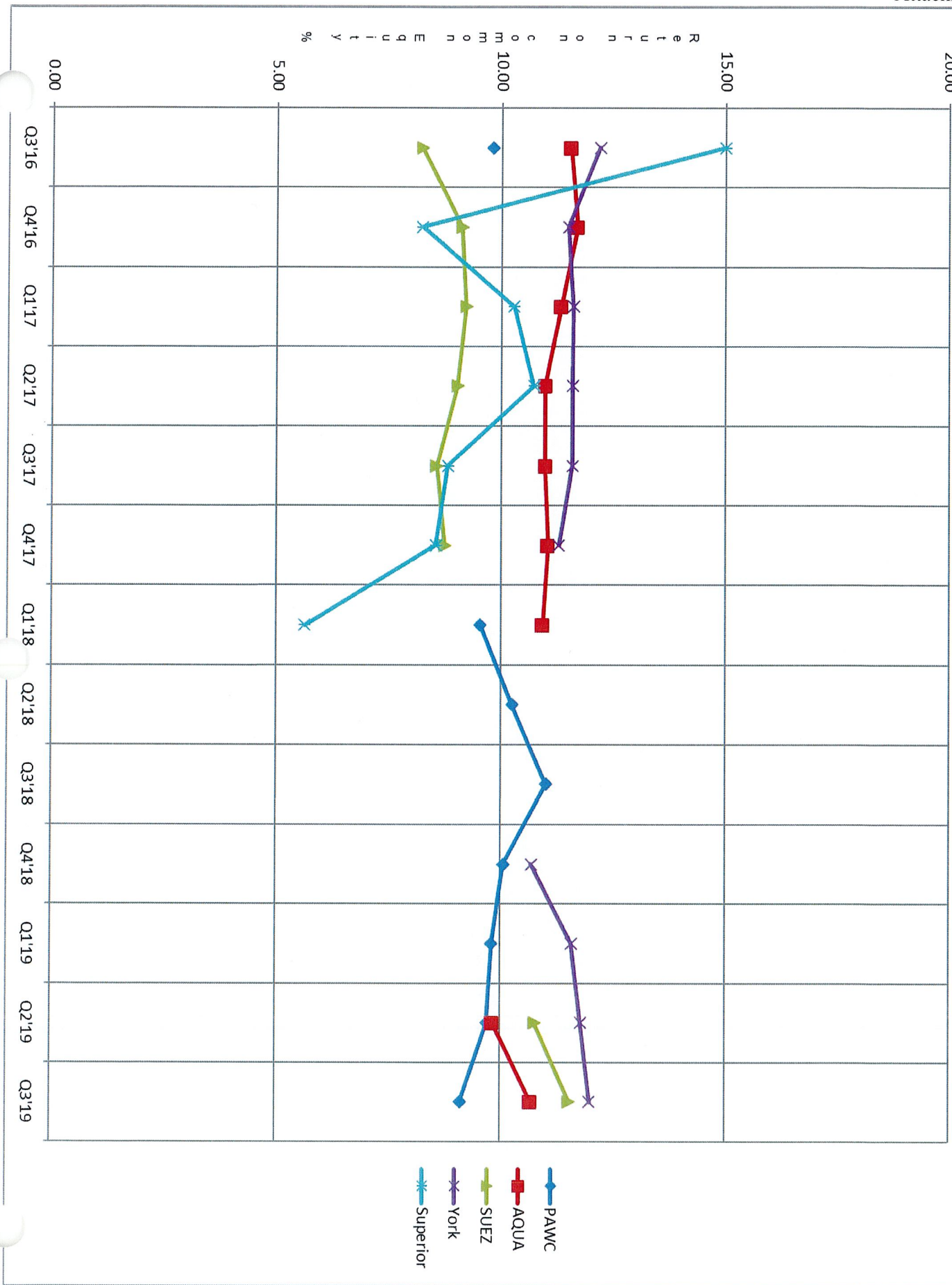




**WATER UTILITIES  
EQUITY RETURNS BY QUARTER**

<b>QTR</b>	<b>END</b>	<b>PAWC</b>		<b>AQUA</b>		<b>SUEZ</b>		<b>York</b>	
		<b>ACT</b>	<b>ADJ</b>	<b>ACT</b>	<b>ADJ</b>	<b>ACT</b>	<b>ADJ</b>	<b>ACT</b>	<b>ADJ</b>
2013	3			15.49	12.21	8.83	9.01		
	4			13.77	11.97	8.43	9.05	10.2	10.8
2014	1	10.52	9.98	13.29	11.56	8.45	9.02	10.2	10.2
	2	10.51	10.02	13.01	11.42	8.81	9.32	10.7	10.7
	3	11.11	10.57	12.82	11.29	8.57	9.06	10.9	10.9
	4	10.49	9.38	12.62	11.49	8.90	9.44	12.3	11.6
2015	1	10.33	9.14	12.46	11.11	9.11	9.83	12.7	12.7
	2	10.51	9.31	12.66	11.62	8.36	9.25	12.7	12.7
	3	10.06	8.81	12.41	11.95	8.39	9.37	13.6	13.6
	4	9.80	8.48	12.61	12.16	8.54	8.77	12.50	11.10
2016	1	10.12	8.68	12.31	11.71	9.27	10.19	12.40	10.90
	2	9.99	8.47	11.71	11.21	11.00	12.37	12.20	10.80
	3	9.82	8.47	11.55	10.32	8.23	9.99	12.20	11.00
	4	9.37	8.51	11.70	10.57	9.13	9.90	11.50	10.40
2017	1			11.34	10.04	9.22	9.60	11.61	9.50
	2			10.99	9.22	9.03	9.07	11.60	9.10
	3			10.99	9.23	8.57	8.57	11.60	8.70
	4			11.05	8.63	8.75	8.73	11.30	8.40
2018	1	9.55	8.97	10.94	8.41				
	2	10.27	9.65						
	3	11.03	9.48						
	4	10.08	9.03					10.70	10.30
2019	1	9.82	8.87					11.60	11.60
	2	9.72	8.90	9.84	9.04	10.78	10.36	11.80	11.80
	3	9.13	8.41	10.69	8.84	11.55	11.75	12.00	12.00

Major Pennsylvania Water Companies - Actual Equity Returns by Quarter



Attachment B includes:

A. Overall Returns on rate base

1. Actual
2. Company proposed pro forma and ratemaking adjustments

and

B. Equity Returns

1. Actual
2. Company proposed pro forma and ratemaking adjustments

Summary of Returns  
For the Year Ended September 30, 2019

COMPANY NAME	<u>OVERALL RETURN</u>		<u>EQUITY RETURN</u>		ROE	YEAR
	ACTUAL	ADJ	ACTUAL	ADJ	AUTH	AUTH
<b>ELECTRIC</b>						
<b><u>\$10,000,000 Revenues</u></b>						
PECO Energy - Electric Operations	8.53	6.04	12.49	7.96	Settled	2018
PPL Electric Utilities Corp.	7.78	6.90	10.61	8.99	Settled	2015
Duquesne Light Company	9.71	7.16	13.88	9.33	Settled	2018
West Penn Power Company	6.85	5.85	9.90	7.87	Settled	2017
Pennsylvania Power Company	7.53	6.62	9.28	7.76	Settled	2017
UGI Utilities, Inc. - Electric Division	5.87	2.00	6.20	2.04	9.85	2018
Pennsylvania Electric Company	8.06	6.73	11.26	8.78	Settled	2017
Metropolitan Edison Company	8.23	5.94	12.25	7.77	Settled	2017
<b>GAS</b>						
<b><u>\$10,000,000 Revenues</u></b>						
Columbia Gas of PA, Inc.	8.38	7.45	11.77	9.85	Settled	2018
Peoples Natural Gas Company LLC*					Settled	2012
PECO Energy - Gas Operations	8.40	6.11	12.40	8.31	Settled	2010
UGI Utilities, Inc. – South*					Settled	2016
Peoples Nat'l - Equitable Division*					Settled	2008
National Fuel Gas Distribution Co.	9.44	7.24	14.17	9.75	Settled	2006
UGI Utilities, Inc. – North*					Settled	2017
Peoples Gas Company, LLC	9.81	8.35	14.02	11.63	Settled	2013
UGI Utilities, Inc. – Central*					Settled	2009
<b>WATER</b>						
<b><u>\$10,000,000 Revenues</u></b>						
PA American Water Company	7.17	6.73	9.13	8.41	Settled	2018
Aqua Pennsylvania	7.52	6.52	10.69	8.84	Settled	2018
York Water Company	9.30	9.30	12.00	12.00	Settled	2019
SUEZ Water Pennsylvania, Inc.	8.67	8.78	11.55	11.75	Settled	2018

\* Peoples Natural Gas Company, Peoples Nat'l – Equitable, UGI Utilities, Inc. – South, UGI Utilities, Inc. – North, and UGI Utilities, Inc. – Central, have rate filings at Docket Nos. R-2018-3006818, R-2018-3006818, R-2018-3006814, R-2018-3006814, and R-2018-3006814 respectively, and filed a letter with the Secretary in place of a report in accordance with 52 Pa. Code § 71.4.

**ALLOWED RATES OF RETURN ON COMMON EQUITY**

This is a historical chart that shows the most recent fully litigated rate cases for select companies in electric, gas, and water. A docket number followed by their final return on equity and year is also given.

<b><u>ELECTRIC</u></b>	<b><u>Docket Number</u></b>	<b><u>ROE (%)</u></b>	<b><u>Year</u></b>
Recent PA PUC Allowed			
Duquesne Light Company	R-2018-3000124	Settled	2018
PECO Energy Company	R-2018-3000164	Settled	2018
UGI - Electric	R-2017-2640058	9.85	2018
Pennsylvania Electric Company	R-2016-2537352	Settled	2017
Metropolitan Edison Company	R-2016-2537349	Settled	2017
Pennsylvania Power Company	R-2016-2537355	Settled	2017
West Penn Power Company	R-2016-2537359	Settled	2017

Current Market Indicated ROE as calculated by the Bureau of Technical Utility Services. **7.01-9.55**

**GAS**

Recent PA PUC Allowed			
Columbia Gas of Pa.	R-2018-2647577	Settled	2018
UGI Utilities, Inc. - South	R-2015-2518438	Settled	2016
Peoples Natural Gas	R-2012-2285985	Settled	2012
UGI Utilities, Inc. - North	R-2016-2580030	Settled	2017
UGI Utilities, Inc. - Central	R-2008-2079675	Settled	2009
PECO Energy	R-2010-2161592	Settled	2010
Peoples TWP	R-2013-2355886	Settled	2013

Current Market Indicated ROE as calculated by the Bureau of Technical Utility Services. **7.80-10.75**

**WATER**

Recent PA PUC Allowed			
Aqua Pennsylvania	R-2018-3003558	Settled	2018
PA American Water	R-2017-2595853	Settled	2017
Columbia Water	R-2017-2598203	Settled	2017
York Water	R-2018-3000019	Settled	2019
SUEZ Water	R-2018-3000834	Settled	2018

Current Market Indicated ROE as calculated by the Bureau of Technical Utility Services. **7.92-10.40**

**Distribution System Improvement Charge (DSIC) Eligible Utilities**  
**Return on Equity (ROE) Summary**

	Utility Adjusted ROE <sup>2</sup> (%)	Commission Approved ROE <sup>3</sup> (%)
<b>ELECTRIC</b>		
PECO Energy – Electric Operations	7.96	9.45
PPL Electric Utilities Corp.	8.99	9.45
Duquesne Light Company	9.33	9.45
West Penn Power Company	7.87	9.45
Pennsylvania Power Company	7.76	9.45
Pennsylvania Electric Company	8.78	9.45
Metropolitan Edison Company	7.77	9.45
UGI Utilities, Inc.- Electric Division	2.04	9.85
<b>GAS</b>		
Columbia Gas of PA, Inc.	9.85	10.00
Peoples Natural Gas Company LLC*		10.00
PECO Energy – Gas Operations	8.31	10.00
UGI Utilities, Inc. – South*		10.00
Peoples-Equitable Division*		10.00
UGI Utilities, Inc. – North*		10.00
Peoples Gas Company, LLC	11.63	10.00
UGI Utilities, Inc. – Central*		10.00
<b>WATER</b>		
PA American Water Company	8.41	9.95
PA American – Wastewater	8.41	9.95
AQUA Pennsylvania	8.84	9.95
AQUA Pennsylvania – Wastewater	8.84	9.95
York Water Company	12.00	9.95
SUEZ Water Pennsylvania Inc.	11.75	9.95
Columbia Water Company		9.95
Newtown Artesian Water	6.72	9.95

\* Peoples Natural Gas Company, Peoples Nat'l – Equitable, UGI Utilities, Inc. – South, UGI Utilities, Inc. – North, and UGI Utilities, Inc. – Central have rate filings at Docket Nos. R-2018-3006818, R-2018-3006818, R-2018-3006814, R-2018-3006814, and R-2018-3006814 respectively, and filed a letter with the Secretary in place of a report in accordance with 52 Pa. Code § 71.4.

<sup>2</sup> Each utility lists adjustments on Schedule B of their quarterly financial report.

<sup>3</sup> The ROE is approved in a utility's most recent fully litigated base rate proceeding for which a final order was entered not more than two years prior to the effective date of the DSIC. If more than two years have elapsed between the entry of a final order and the DSIC effective date, the ROE is from this report. If the base rate proceeding is settled, without a stipulated ROE, the ROE is from this report.

Explanation of Discounted Cash Flow (DCF) and Capital Asset Pricing Model (CAPM)

**Barometer Group Criteria**

The criteria used for determining the industry barometer groups used to calculate ROEs in this report are as follows:

- 50% or more of the company’s assets must be related to the jurisdictional utility industry;
- The company’s stock must be publicly traded;
- Companies involved in merger & acquisition activity will be excluded;
- Investment information for the company must be available to the Commission from more than one source; and
- Geographic Regions:  
EDCs: *Value Line* East, Central, and West Group Electric Utility companies;  
NGDCs: *Value Line* Investment Survey’s Natural Gas Utility industry group companies;  
Water/Waste water: *Value Line* Investment Survey’s Water Utility industry group companies.

The barometer group companies are reviewed by staff on a quarterly basis and make any changes to these companies based upon the criteria above.

**ROE Calculations**

The Commission consistently uses the DCF model to determine the appropriate cost of equity for utilities. In this report, the DSIC ROE is calculated using two DCF models.

TUS uses the following formula to calculate the current dividend DCF:  $K = D_1/P_0 + G$

TUS uses the following formula to calculate the 52-week average dividend DCF:  $K = D_0/P_a + G$

Definitions:

- K = Cost of equity
- D<sub>1</sub> = Dividend expected during the year  
=  $D_0 + \frac{1}{2}g$
- D<sub>0</sub> = Latest indicated dividend, obtained from Yahoo! Finance
- g = Expected 5-year dividend growth rate of barometer group obtained from Value Line Investment Survey.
- P<sub>0</sub> = Current price of the stock, obtained from Yahoo! Finance
- P<sub>a</sub> = Average of high and low stock price over the latest 52-week period, obtained from Yahoo! Finance
- G = Average of 5-year expected earnings growth rate forecasts obtained from Value Line Investment Survey, Zacks Investment Survey, Yahoo! Finance, Morningstar and/or Reuters.

The CAPM uses the yield of a risk-free interest bearing obligation plus a rate of return premium that is proportional to the systematic risk of an investment.

TUS uses the following formula to calculate CAPM:  $K = \beta(R_m - R_f)$

Three components are necessary to calculate the CAPM cost of equity:

- $\beta$  = Beta, a measure of systematic risk for each stock
- $R_f$  = The risk-free rate of return, 10-year U.S. Treasury yields are used for  $R_f$ .  
Yields are taken from the previous two quarters and forecasted next four quarters.
- $R_m$  = Total return of the equity market as determined by the SBBI Yearbook

*The Commission determines the ROE used for DSIC purposes based on the range of reasonableness from the DCF barometer group data, CAPM data, recent ROEs adjudicated by the Commission, and informed judgment.*



The market indicated common equity cost rate range consists of data used from the barometer groups and is based on a series of calculations to average the DCF methods.

**Market Based Returns on Common Equity<sup>1</sup>**  
December 27, 2019

**Electric Company Barometer Group**

	Cost Rates <u>%</u>
(1) Current DCF:	8.21
(2) 52-Week Average DCF:	<u>8.35</u>
(3) Overall DCF ((1) + (2)) / 2 :	<u>8.28</u>
(4) Market Indicated Common Equity Cost Rate Range: @ 1 standard deviation around the mean. <sup>2</sup>	<u>7.01-9.55</u>
(5) CAPM Check of DCF Reasonableness:	7.65
(6) Recent Commission Approved ROEs <sup>3</sup> : *UGI Utilities, Inc. - Electric, R-2017-2640058, does not include 0.05% management effectiveness adjustment	9.80*
(7) Distribution System Improvement Charge (DSIC) Return <sup>4</sup> :	<b><u>9.45%</u></b>

<sup>1</sup> As calculated by the Bureau of Technical Utility Services

<sup>2</sup> Standard Deviation of 52 DCF observations

<sup>3</sup> Base rate case ROEs within last two years, fully litigated or stipulated for DSIC purposes

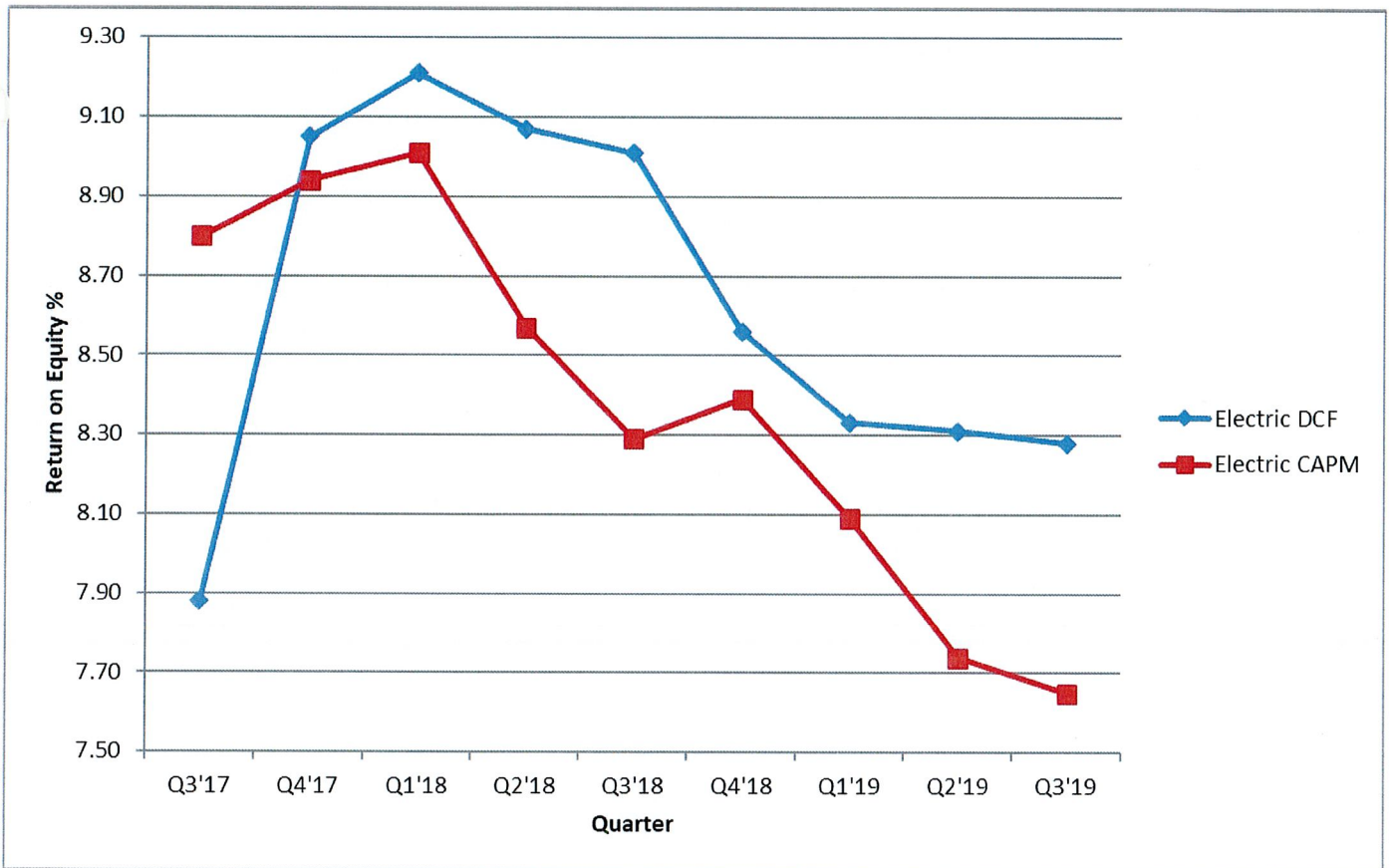
<sup>4</sup> Commission authorized Return on Equity (ROE) for DSIC purposes

Any questions concerning DSIC should be directed to Marc Hoffer of the Bureau of Technical Utility Services at (717) 787-1869.

Historic Electric Industry Barometer Group DCF and CAPM Average ROEs

Electric		
	DCF	CAPM
Q3'17	7.88	8.80
Q4'17	9.05	8.94
Q1'18	9.21	9.01
Q2'18	9.07	8.57
Q3'18	9.01	8.29
Q4'18	8.56	8.39
Q1'19	8.33	8.09
Q2'19	8.31	7.74
Q3'19	8.28	7.65

Chart of Historic Electric Industry DCF and CAPM Average ROEs



Barometer electric companies are used to calculate a current DCF in the first chart. The second chart demonstrates the companies 52 week average DCF. A final average of the two calculations is also shown at the bottom.

<b>Electric Company Barometer Group</b>					
<b>Calculation of a Current Dividend Yield</b>					
	Closing	Latest	Ind. Div.		
	Market	Indicated	Plus 1/2	Current	
	Price (Po)	Dividend	Div. Growth	Dividend	
	<u>12/26/2019</u>	<u>Do</u>	<u>Rate (D1)</u>	<u>Yield(D1/Po)</u>	<u>DCF</u>
	(\$)	(\$)	(\$)	(%)	(%)
Allete, Inc.	80.29	2.35	2.41	3.00	9.40
Alliant Energy Corp	54.22	1.42	1.46	2.69	8.54
American Electric Power	93.88	2.80	2.88	3.06	8.49
AVANGRID, Inc.	50.57	1.76	1.79	3.53	11.01
Avista Corp	47.71	1.55	1.58	3.31	6.77
CMS Energy Corp	62.28	1.53	1.58	2.54	9.95
Consolidated Edison	89.65	2.96	3.01	3.36	6.60
DTE Energy Company	128.55	4.05	4.19	3.26	8.24
Duke Energy Company	90.39	3.78	3.83	4.23	9.14
Eversource Energy	84.30	2.14	2.20	2.61	8.68
Exelon Corp	45.32	1.45	1.49	3.29	8.95
FirstEnergy Corp	48.51	1.56	1.59	3.27	8.27
IDACORP, Inc..	106.18	2.68	2.77	2.61	6.32
MGE Energy, Inc.	78.79	1.41	1.45	1.83	6.83
NextEra Energy, Inc.	241.96	5.00	5.25	2.17	10.15
NorthWestern Corp	71.56	2.30	2.35	3.29	6.28
OGE Energy Corp	44.00	1.55	1.60	3.64	8.08
Otter Tail Corp	51.01	1.40	1.43	2.80	9.80
Pinnacle West Capital Corp	88.95	3.13	3.22	3.62	8.58
PNM Resources, Inc.	50.35	1.23	1.27	2.53	8.57
Portland General Electric Co.	55.46	1.54	1.59	2.87	7.25
PPL Corporation	35.53	1.65	1.67	4.69	5.69
Public Service Enterprise Group	58.63	1.88	1.93	3.29	8.36
Southern Company	63.17	2.48	2.52	3.98	7.59
WEC Energy Group, Inc.	91.75	2.53	2.61	2.84	9.06
Xcel Energy Inc.	62.79	1.62	1.67	2.66	8.14
Group Average	75.99	2.22	2.28	3.11	8.26
Group Average G				5.10	
<b>DCF</b>				<b>8.21</b>	

Electric Company Barometer Group						
52-week Average Dividend Yield Calculation						
				Latest	Average	
				Indicated	Dividend	
	<u>High</u>	<u>Low</u>	<u>Average (Pa)</u>	<u>Dividend (Do)</u>	<u>Yield (Do/Pa)</u>	<u>DCF</u>
	(\$)	(\$)	(\$)	(\$)	(%)	(%)
Allete, Inc.	88.60	72.50	80.55	2.35	2.92	9.32
Alliant Energy Corp	55.40	40.75	48.08	1.42	2.95	8.80
American Electric Power	96.22	72.26	84.24	2.80	3.32	8.75
AVANGRID, Inc.	52.85	47.75	50.30	1.76	3.50	10.97
Avista Corp	49.47	39.75	44.61	1.55	3.47	6.93
CMS Energy Corp	65.31	47.97	56.64	1.53	2.70	10.11
Consolidated Edison	94.97	73.30	84.14	2.96	3.52	6.76
DTE Energy Company	134.37	107.33	120.85	4.05	3.35	8.33
Duke Energy Company	97.37	82.46	89.92	3.78	4.20	9.11
Eversource Energy	86.55	63.10	74.83	2.14	2.86	8.93
Exelon Corp	51.18	43.42	47.30	1.45	3.07	8.73
FirstEnergy Corp	49.07	36.29	42.68	1.56	3.66	8.66
IDACORP, Inc.	114.01	89.31	101.66	2.68	2.64	6.35
MGE Energy, Inc.	80.84	56.74	68.79	1.41	2.05	7.05
NextEra Energy, Inc.	245.01	168.66	206.84	5.00	2.42	10.40
NorthWestern Corp	76.72	57.33	67.03	2.30	3.43	6.42
OGE Energy Corp	45.77	38.04	41.91	1.55	3.70	8.14
Otter Tail Corp	57.74	45.94	51.84	1.40	2.70	9.70
Pinnacle West Capital Corp	99.81	81.63	90.72	3.13	3.45	8.41
PNM Resources, Inc.	52.98	39.71	46.35	1.23	2.65	8.69
Portland General Electric Co.	58.43	44.03	51.23	1.54	3.01	7.39
PPL Corporation	36.28	27.80	32.04	1.65	5.15	6.15
Public Service Enterprise Group	63.88	49.97	56.93	1.88	3.30	8.38
Southern Company	64.26	43.26	53.76	2.48	4.61	8.22
WEC Energy Group, Inc.	98.19	67.21	82.70	2.53	3.06	9.28
Xcel Energy Inc.	66.05	47.70	56.88	1.62	2.85	8.33
Group Average	80.05	60.93	70.49	2.22	3.25	8.40
Group Average G					5.10	
<b>DCF</b>					<b>8.35</b>	
			Average of Current and 52-Week		<b>8.28</b>	

Multiple sources of the Barometer companies projected 5 year Earnings Per Share are used to calculate the Group Average Dividend Growth Estimate.

<b>Development of a Representative Dividend Growth Rate for the Barometer Group of Electric Companies</b>							
<u>5 Year Forecast</u>							
	Value Line	Value Line	Zack's	Yahoo	Morningstar	Average	
	<u>DPS</u>	<u>EPS</u>	<u>EPS</u>	<u>EPS</u>	<u>EPS</u>	<u>Earnings</u>	<u>Growth</u>
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
							<u>Estimate</u>
Allele, Inc.	5.00	5.00	7.20	7.00		6.40	6.40
Alliant Energy Corp	5.50	6.50	5.49	5.40	6.00	5.85	5.85
American Electric Power	5.50	4.00	5.65	6.05	6.00	5.43	5.43
AVANGRID, Inc.	3.00	8.50	7.39	6.20	7.80	7.47	7.47
Avista Corp	4.00	3.50	3.36	3.50		3.45	3.45
CMS Energy Corp	7.00	7.00	6.42	7.50	8.70	7.41	7.41
Consolidated Edison	3.50	3.00	2.00	2.37	5.60	3.24	3.24
DTE Energy Company	7.00	4.50	6.00	4.83	4.60	4.98	4.98
Duke Energy Company	2.50	6.00	4.84	4.40	4.40	4.91	4.91
Eversource Energy	5.50	5.50	5.63	5.45	7.70	6.07	6.07
Exelon Corp	5.50	9.00	4.19	0.46	3.80	4.36	5.66
FirstEnergy Corp	3.50	6.50	6.00	-6.60	2.50	2.10	5.00
IDACORP, Inc.	7.00	3.50	3.85	2.50	5.00	3.71	3.71
MGE Energy, Inc.	5.00	6.00		4.00		5.00	5.00
NextEra Energy, Inc.	10.00	10.50	7.98	7.99	-2.50	5.99	7.99
NorthWestern Corp	4.50	3.00	2.75	3.23		2.99	2.99
OGE Energy Corp	6.50	6.50	4.26	3.50	3.50	4.44	4.44
Otter Tail Corp	4.00	5.00	7.00	9.00		7.00	7.00
Pinnacle West Capital Corp	6.00	5.00	4.91	4.41	5.50	4.96	4.96
PNM Resources, Inc.	7.00	7.00	5.60	6.35	5.20	6.04	6.04
Portland General Electric Co.	6.50	4.50	4.54	4.10	4.40	4.39	4.39
PPL Corporation	2.00	1.50		0.50	-4.60	-0.87	1.00
Public Service Enterprise Group	5.00	6.00	3.69	3.70	6.90	5.07	5.07
Southern Company	3.00	3.50	4.50	1.53	4.90	3.61	3.61
WEC Energy Group, Inc.	6.00	6.00	6.14	6.05	6.70	6.22	6.22
Xcel Energy Inc.	6.00	5.50	5.42	5.20	5.80	5.48	5.48
Group Average	5.23	5.48	5.20	4.18	4.66	4.83	5.14
USE							5.10

Sources: [Morningstar](http://financials.morningstar.com), December 27, 2019 (<http://financials.morningstar.com>)  
[Value Line Investment Survey](http://www.value-line.com), December 27, 2019  
[Zacks](http://www.zacks.com), December 27, 2019 ([www.zacks.com](http://www.zacks.com))  
[Yahoo!](http://finance.yahoo.com/), December 27, 2019 (<http://finance.yahoo.com/>)

The market indicated common equity cost rate range consists of data used from the barometer groups and is based on a series of calculations to average the DCF methods.

**Market Based Returns on Common Equity<sup>1</sup>**

December 27, 2019

**Gas Distribution Company Barometer Group**

	Cost Rates <u>%</u>
(1) Current DCF:	9.24
(2) 52-Week Average DCF:	<u>9.31</u>
(3) Overall DCF ((1) + (2)) / 2 :	<u>9.27</u>
(4) Market Indicated Common Equity Cost Rate Range: @ 1 standard deviation around the mean. <sup>2</sup>	<u>7.80-10.75</u>
(5) CAPM Check of DCF Reasonableness:	8.46
(6) Recent Commission Approved ROEs <sup>3</sup> : *None within last two years	*
(7) Distribution System Improvement Charge (DSIC) Return <sup>4</sup> :	<b><u>10.00%</u></b>

<sup>1</sup> As calculated by the Bureau of Technical Utility Services

<sup>2</sup> Standard Deviation of 18 DCF observations

<sup>3</sup> Base rate case ROEs within last two years, fully litigated or stipulated for DSIC

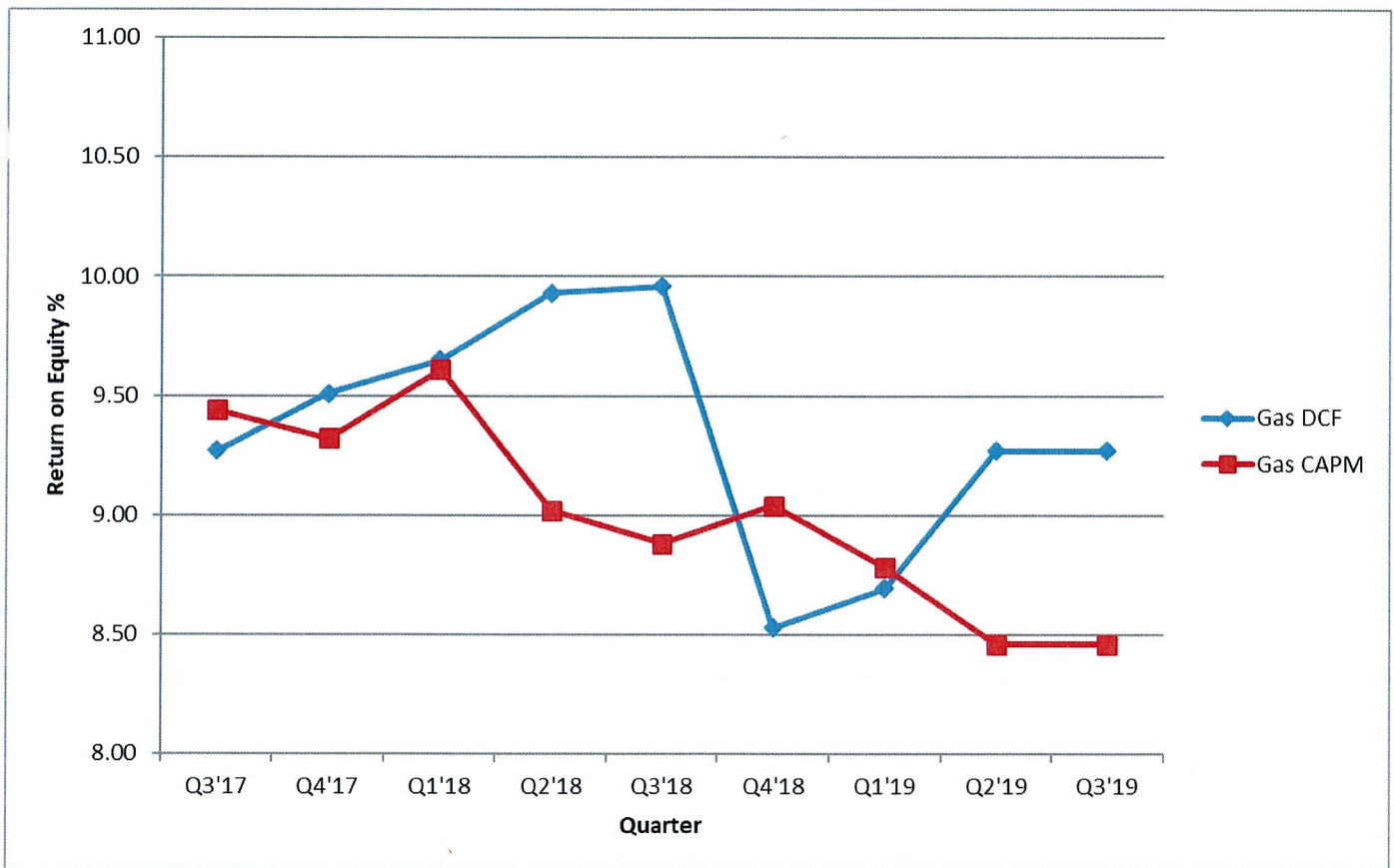
<sup>4</sup> Commission authorized Return on Equity (ROE) for DSIC purposes

Any questions concerning DSIC should be directed to Marc Hoffer of the Bureau of Technical Utility Services at (717) 787-1869.

Historic Gas Industry DCF and CAPM Average ROEs

Gas		
	DCF	CAPM
Q3'17	9.27	9.44
Q4'17	9.51	9.32
Q1'18	9.65	9.61
Q2'18	9.93	9.02
Q3'18	9.96	8.88
Q4'18	8.53	9.04
Q1'19	8.69	8.78
Q2'19	9.27	8.46
Q3'19	9.27	8.46

Graph of Historic Gas Industry DCF and CAPM Average ROEs



Barometer gas companies are used to calculate a current DCF in the first chart. The second chart demonstrates the companies 52 week average DCF. A final average of the two calculations is also shown at the bottom.

<b>Gas Company Barometer Group</b>					
<b>Calculation of a Current Dividend Yield</b>					
	Closing	Latest	Ind. Div.		
	Market	Indicated	Plus 1/2	Current	
	Price (Po)	Dividend	Div. Growth	Dividend	
	<u>12/27/2019</u>	<u>Do</u>	<u>Rate (D1)</u>	<u>Yield(D1/Po)</u>	<u>DCF</u>
	(\$)	(\$)	(\$)	(%)	(%)
Atmos Energy	110.50	2.30	2.39	2.16	9.44
Chesapeake Utilities Corporation	95.14	1.62	1.69	1.78	9.11
New Jersey Resources	43.89	1.25	1.29	2.93	8.43
NiSource Inc.	27.35	0.80	0.84	3.06	10.38
Northwest Natural Gas	72.14	1.91	1.93	2.68	7.06
ONE Gas, Inc.	92.54	2.00	2.09	2.25	8.59
South Jersey Industries	32.11	1.18	1.20	3.75	11.62
Southwest Gas Holdings, Inc.	75.03	2.18	2.23	2.98	11.13
Spire Inc.	82.54	2.49	2.54	3.08	7.53
<b>Group Average</b>	70.14	1.75	1.80	2.74	9.25
<b>Group Average G</b>				6.50	
<b>DCF</b>				<b>9.24</b>	

<b>Gas Company Barometer Group</b>						
<b>52-week Average Dividend Yield Calculation</b>						
				Latest	Average	
				Indicated	Dividend	
	<u>High</u>	<u>Low</u>	<u>Average (Pa)</u>	<u>Dividend (Do)</u>	<u>Yield (Do/Pa)</u>	<u>DCF</u>
	(\$)	(\$)	(\$)	(\$)	(%)	(%)
Atmos Energy	115.19	89.19	102.19	2.39	2.34	9.62
Chesapeake Utilities Corporation	98.55	77.59	88.07	1.69	1.92	9.26
New Jersey Resources	51.20	40.32	45.76	1.29	2.81	8.31
NiSource Inc.	30.67	24.69	27.68	0.84	3.02	10.34
Northwest Natural Gas	74.13	57.20	65.67	1.93	2.95	7.32
ONE Gas, Inc.	96.66	75.82	86.24	2.09	2.42	8.75
South Jersey Industries	34.48	26.64	30.56	1.20	3.94	11.81
Southwest Gas Holdings, Inc.	92.94	73.27	83.11	2.23	2.69	10.84
Spire Inc.	88.00	71.67	79.84	2.54	3.18	7.64
<b>Group Average</b>	75.76	59.60	67.68	1.80	2.81	9.32
<b>Group Average G</b>					6.50	
<b>DCF</b>					<b>9.31</b>	
			<b>Average of Current and 52-Week</b>			<b>9.27</b>



Multiple sources of the Barometer companies projected 5 year Earnings Per Share are used to calculate the Group Average Dividend Growth Estimate.

Development of a Representative Dividend Growth Rate for the Barometer Group of Gas Companies						
5 Yr Forecast						
	Value Line	Value Line	Zack's	Yahoo	Average	
	DPS	EPS	EPS	EPS	Earnings	Growth
	(%)	(%)	(%)	(%)	Growth	Estimate
	(%)	(%)	(%)	(%)	(%)	(%)
Atmos Energy	7.50	7.50	7.15	7.20	7.28	7.28
Chesapeake Utilities Corporation	9.00	9.00	7.00	6.00	7.33	7.33
New Jersey Resources	6.00	2.50	8.00	6.00	5.50	5.50
NiSource Inc.	9.00	12.50	5.26	4.20	7.32	7.32
Northwest Natural Gas	2.50	27.00	5.00	3.75	11.92	4.38
ONE Gas, Inc.	8.50	8.00	6.00	5.00	6.33	6.33
South Jersey Industries	4.00	10.50	8.50	4.60	7.87	7.87
Southwest Gas Holdings, Inc.	5.00	9.00	7.25	8.20	8.15	8.15
Spire Inc.	4.00	5.50	5.50	2.37	4.46	4.46
Group Average	7.08	11.08	6.40	5.36	7.35	6.51
USE						6.50

Sources: [Value Line Investment Survey](#), December 27, 2019  
[Zacks](#), December 27, 2019 (www.zacks.com)  
[Yahoo!](#), December 27, 2019 (http://finance.yahoo.com/)

The market indicated common equity cost rate range consists of data used from the barometer groups and is based on a series of calculations to average the DCF methods.

**Water Company Barometer Group**

	Cost Rates <u>%</u>
(1) Current DCF	9.10
(2) 52-Week Average DCF	9.22
(3) Average DCF	<u>9.16</u>
(4) Market Indicated Common Equity Cost Rate Range @ 1 standard deviation around the mean. <sup>2</sup>	<u>7.92-10.40</u>
(5) CAPM Check of DCF Reasonableness	8.55
(6) Recent Commission Approved ROEs <sup>3</sup> : *None within last two years	*
(7) Distribution System Improvement Charge (DSIC) Return <sup>4</sup> :	<u>9.95%</u>

<sup>1</sup> As calculated by the Bureau of Technical Utility Services

<sup>2</sup> Standard Deviation of 14 DCF observations

<sup>3</sup> ROEs from base rate cases within last two years fully litigated or stipulated for DSIC purposes

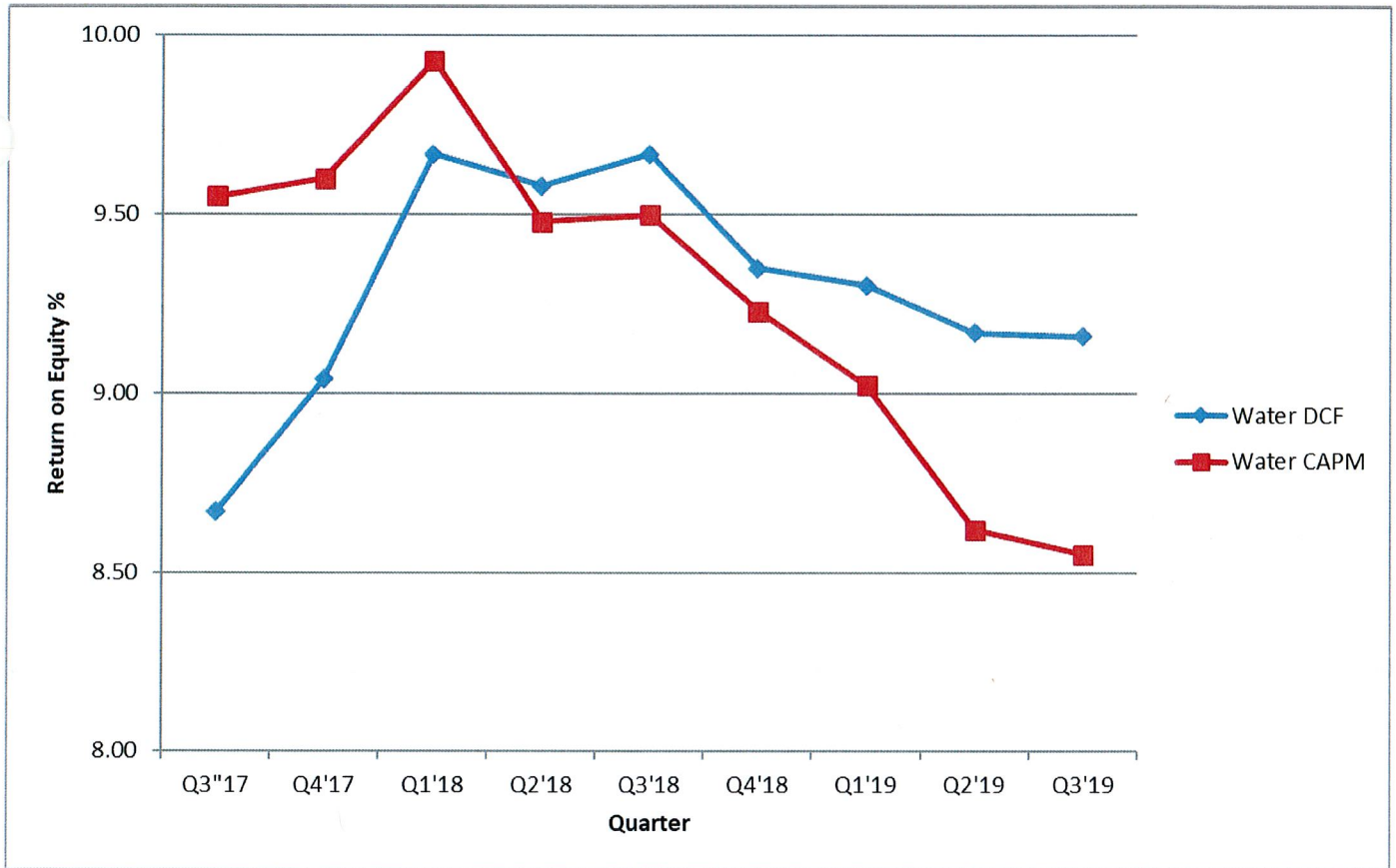
<sup>4</sup> Commission authorized Return on Equity (ROE) for DSIC purposes

Any questions concerning DSIC should be directed to Marc Hoffer of the Bureau of Technical Utility Services at (717) 787-1869.

Historic Water Industry DCF and CAPM Average ROEs

Water		
	DCF	CAPM
Q3'17	8.67	9.55
Q4'17	9.04	9.60
Q1'18	9.67	9.93
Q2'18	9.58	9.48
Q3'18	9.67	9.50
Q4'18	9.35	9.23
Q1'19	9.30	9.02
Q2'19	9.17	8.62
Q3'19	9.16	8.55

Chart of Historic Water Industry DCF and CAPM Average ROEs



Barometer water companies are used to calculate a current DCF in the first chart. The second chart demonstrates the companies 52 week average DCF. A final average of the two calculations is also shown at the bottom.

<b>Water Company Barometer Group</b>						
<b>Calculation of a Current Dividend Yield</b>						
	Closing Market	Latest Indicated	Ind. Div. Plus 1/2	Current Dividend		
	Price (Po)	Dividend	Div. Growth	Dividend		
	<u>12/26/2019</u>	<u>Do</u>	<u>Rate (D1)</u>	<u>Yield(D1/Po)</u>	<u>Growth</u>	<u>DCF</u>
	(\$)	(\$)	(\$)	(%)	(%)	(%)
American States Water Company	86.44	1.22	1.28	1.48	7.33	8.81
American Water Works Co., Inc.	121.88	2.00	2.09	1.71	8.59	10.31
Aqua America, Inc.	46.41	0.94	0.98	2.11	6.72	8.82
California Water Service Group	50.86	0.79	0.82	1.60	9.27	10.87
Middlesex Water Company	63.23	1.02	1.05	1.65	7.50	9.15
SJW Corporation	70.74	1.20	1.24	1.76	5.00	6.76
The York Water Company	46.18	0.72	0.74	1.61	7.20	8.81
Group Average	69.39	1.13	1.17	1.70	7.37	9.08
Group Average G				7.40		
<b>DCF</b>				<b>9.10</b>		

<b>52-week High-Low Dividend Yield Calculation</b>							
				Latest Indicated	Average Dividend		
	<u>High</u>	<u>Low</u>	<u>Average (Pa)</u>	<u>Dividend (Do)</u>	<u>Yield (Do/Pa)</u>	<u>Growth</u>	<u>DCF</u>
	(\$)	(\$)	(\$)	(\$)	(%)	(%)	(%)
American States Water Company	96.00	63.27	79.64	1.22	1.53	7.33	8.87
American Water Works Co., Inc.	129.89	88.00	108.95	2.00	1.84	8.59	10.43
Aqua America, Inc.	46.90	32.70	39.80	0.94	2.36	6.72	9.08
California Water Service Group	57.48	44.60	51.04	0.79	1.55	9.27	10.81
Middlesex Water Company	67.69	51.02	59.36	1.02	1.72	7.50	9.22
SJW Corporation	74.47	53.89	64.18	1.20	1.87	5.00	6.87
The York Water Company	47.27	30.30	38.79	0.72	1.86	7.20	9.06
Group Average	74.24	51.97	63.11	1.13	1.82	7.37	9.19
Group Average G					7.40		
<b>DCF</b>					<b>9.22</b>		
			Average of Current and 52-Week		<b>9.16</b>		

Multiple sources of the Barometer companies projected 5 year Earnings Per Share are used to calculate the Group Average Dividend Growth Estimate.

Development of a Representative Dividend Growth Rate for the Barometer Group of Water Companies						
5 Yr Forecast						
	Value Line	Value Line	Zacks	Yahoo	Average Earnings	Growth
	DPS	EPS	EPS	EPS	Growth	Estimate
	(%)	(%)	(%)	(%)	(%)	(%)
American States Water Company	9.50	8.00	8.00	6.00	7.33	7.33
American Water Works Co., Inc.	9.00	9.50	8.08	8.20	8.59	8.59
Aqua America, Inc.	8.00	8.00	6.05	6.10	6.72	6.72
California Water Service Group	6.50	8.00	10.00	9.80	9.27	9.27
Middlesex Water Company	5.00	7.50		2.70	5.10	7.50
SJW Corporation	7.00	6.00	4.00	14.00	8.00	5.00
The York Water Company	6.50	9.50		4.90	7.20	7.20
Group Average	7.36	8.07	7.23	7.39	7.46	7.37
USE						7.40

Sources: [Value Line Investment Survey](#), December 27, 2019  
[Zacks](#), December 27, 2019 ([www.zacks.com](http://www.zacks.com))  
[Yahoo!](#), December 27, 2019 (<http://finance.yahoo.com/>)

**Pennsylvania American Water Company**  
**Borough of Royersford Authority's Wastewater System**

**Appraisal Work Papers**  
**As of December 10, 2019**

**Value Line Investment Surveys**  
**Water Industry**  
**Market and Financial Ratios**

**AUS Consultants**  
**Suite 201**  
**8555 West Forest Home Avenue**  
**Greenfield, Wisconsin 53228**  
**Office Telephone: 414-529-5755**  
**J. Weinert's Cell: 414-698-8371**  
**J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**



# THE VALUE LINE

## Investment Survey®

www.valueline.com

Part 3  
Ratings  
&  
Reports

ISSUE 9

Pages 1700-1850

File in the binder in order of issue number, removing previous issue bearing the same number.

January 10, 2020

	PAGE
<b>MACHINERY INDUSTRY</b> .....	<b>1701</b>
AAON, Inc. ....	1702
★ Albany International 'A' .....	1703
Altra Industrial Motion Corp. ....	1704
Applied Industrial Technologies ....	1705
Briggs & Stratton .....	1706
Brooks Automation .....	1707
Columbus McKinnon Corp. ....	1708
★ Curtiss-Wright .....	1709
Donaldson .....	1710
★ Dover Corp. ....	1711
Flowserve Corp. ....	1712
Gardner Denver .....	1713
Gates Industrial Corp. ....	1714
Graco Inc. ....	1715
★ IDEX Corp. ....	1716
Lennox International Inc. ....	1717
Lincoln Electric Holdings .....	1718
Lindsay Corp. ....	1719
MSA Safety Inc. ....	1720
MSC Industrial Direct Co., Inc. ....	1721
Middleby Corp. (The) .....	1722
Mueller Water Products, Inc. ....	1723
★ Nordson Corp. ....	1724
★ RBC Bearings Inc. ....	1725
Regal Beloit Corp. ....	1726
Rexnord Corporation .....	1727
★ Roper Technologies .....	1728
SPX FLOW .....	1729
Smith (A.O.) .....	1730
Snap-on Inc. ....	1731
Stanley Black & Decker .....	1732
★ Tennant Co. ....	1733
Thermon Group .....	1734
Toro Company .....	1735
United Rentals, Inc. ....	1736
Watts Water Technologies .....	1737
Welbilt, Inc. ....	1738
★ Xylem Inc. ....	1739
<b>DIVERSIFIED COMPANY</b>	
<b>INDUSTRY</b> .....	<b>1740</b>
ABB Ltd. ....	1741
Aerojet Rocketdyne Holdings .....	1742
★ AMETEK, Inc. ....	1743
ARAMARK Holdings .....	1744
Barnes Group .....	1745
Brady Corp. ....	1746
★ Brookfield Infrastructure L.P. ....	1747
★ Carlisle Companies, Inc. ....	1748
★ Chemed Corp. ....	1749
Colfax Corporation .....	1750
Crane Co. ....	1751
Danaher Corp. ....	1752
★ ESCO Technologies, Inc. ....	1753
EnPro Industries, Inc. ....	1754
General Electric .....	1755
Graham Holdings .....	1756
Griffon Corp. ....	1757
Helios Technologies .....	1758
Honeywell International Inc. ....	1759
★ ITT Inc. ....	1760
Ingersoll-Rand .....	1761
Jefferies Financial .....	1762
John Bean Tech. ....	1763
Johnson Controls Int'l plc .....	1764
Kadant Inc. ....	1765

	PAGE
Kaman Corp. ....	1766
Myers Industries .....	1767
National Presto .....	1768
Park-Ohio Holdings .....	1769
Parker-Hannifin Corp. ....	1770
Pentair plc .....	1771
Raven Industries .....	1772
Realogy Holdings Corp. ....	1773
Rogers Communications Inc. ....	1774
★ SPX Corp. ....	1775
★ Siemens AG .....	1776
Spectrum Brands .....	1777
Standex International .....	1778
Textron, Inc. ....	1779
3M Company .....	1780
TriMas Corporation .....	1781
United Technologies .....	1782
Valmont Industries .....	1783
Viad Corp. ....	1784
Whirlpool Corp. ....	1785
<b>WATER UTILITY INDUSTRY</b> .....	<b>1786</b>
★★ American States Water Co. ....	1787
★★ American Water Works Co. ....	1788
★ Aqua America Inc. ....	1789
★ California Water Svc. ....	1790
Consolidated Water Co. ....	1791
Middlesex Water Company .....	1792
SJW Group .....	1793
★ York Water Company (The) .....	1794
<b>BROKERS &amp; EXCHANGES</b>	
<b>INDUSTRY</b> .....	<b>1795</b>
BGC Partners, Inc. ....	1796
★ Cboe Global Markets .....	1797
★ CME Group Inc. ....	1798
E*TRADE Financial Corp. ....	1799
Interactive Brokers .....	1800
★ Intercontinental Exchange, Inc. ....	1801
★ LPL Financial Holdings .....	1802
★ MarketAxess Holdings .....	1803
Nasdaq, Inc. ....	1804
Schwab (Charles) .....	1805
TD Ameritrade Holding Corp. ....	1806
<b>INVESTMENT BANKING</b>	
<b>INDUSTRY</b> .....	<b>1807</b>
Goldman Sachs .....	1808
Greenhill & Co. ....	1809
Houlihan Lokey, Inc. ....	1810
Morgan Stanley .....	1811
Piper Jaffray Companies .....	1812
Raymond James Financial .....	1813
Stifel Financial Corp. ....	1814
<b>E-COMMERCE INDUSTRY</b> .....	<b>1815</b>
★ Akamai Technologies, Inc. ....	1816
Arista Networks, Inc. ....	1817
Avalara, Inc. ....	1818
★ Black Knight, Inc. ....	1819
Check Point Software Tech. ....	1820
Cornerstone OnDemand .....	1821
Coupa Software .....	1822
GoDaddy Inc. ....	1823
HubSpot, Inc. ....	1824
LogMeIn, Inc. ....	1825
MercadoLibre, Inc. ....	1826

### ESPECIALLY NOTEWORTHY:

Please note that in The Value Line Investment Survey, we are replacing the Insider Decisions box with the 18-Month Target Price Range, which seeks to predict a stock's price range over an 18-month horizon. In addition to the high and low values of the range, the percentage difference between the recent stock price and the midpoint of the range is provided. The quantitative formula behind the 18-month range includes a number of variables, such as our analyst estimates and historical figures.

Meanwhile, we welcome one new company to the Survey this week. **Smartsheet Inc.** is a newcomer to the E-Commerce Industry on page 1835.

**TD Ameritrade** has accepted a buyout offer from **Charles Schwab**. The all-stock transaction is valued at \$26 billion. Please turn to pages 1805 and 1806 to learn more.

**LogMeIn, Inc.** has entered into a definitive agreement to be acquired in an all cash deal valued at roughly \$4.3 billion. Read more on the pending transaction on page 1825.

New Relic, Inc. ....	1827
Nutanix, Inc. ....	1828
★ Open Text Corp. ....	1829
★ Paylocity Holding Corp. ....	1830
Sabre Corporation .....	1831
salesforce.com, inc. ....	1832
Shopify Inc. ....	1833
Slack Technologies .....	1834
Smartsheet Inc. ....	1835
Splunk, Inc. ....	1836
Twilio Inc. ....	1837
Workday, Inc. ....	1838
Zendesk, Inc. ....	1839
Zscaler, Inc. ....	1840

<b>FUNERAL SERVICES</b>	
<b>INDUSTRY</b> .....	<b>1841</b>
Carriage Services, Inc. ....	1842
Hillenbrand, Inc. ....	1843
Matthews International Corp. ....	1844
Service Corp. International .....	1845

**SUPPLEMENTARY REPORTS** ..... 1850

★★ Rank 1 (Highest) for Timeliness.  
★ Rank 2 (Above Average).

In three parts: Part 1 is the Summary & Index. Part 2 is Selection & Opinion. This is Part 3, Ratings & Reports. Volume LXXV, No. 22  
Published weekly by VALUE LINE PUBLISHING LLC, 551 Fifth Avenue, New York, NY 10176.

© 2020 Value Line, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for each subscriber's own, non-commercial, internal use. No part of this publication may be reproduced, resold, stored or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product. See back cover for important disclosures.

Value Line's estimates of sales and earnings growth for individual companies are derived by correlating sales, earnings, and dividends to appropriate components or subcomponents of the Gross Domestic Product, presented below. A more detailed forecast appears periodically in *Selection & Opinion*.

**APPENDIX A-51 (AUS)**  
 based on GDP deflator will advance by 2.5% per year, on average. Long-term interest rates on AAA corporate bonds are projected to average just under 4% in the years 2022-2024. We expect the Federal Reserve to pursue stable monetary policies except in years in which the economy is slowing or there is a recession. Based on these assumptions, the Gross Domestic Product will average nearly \$25,300 billion in the years 2022-2024, a level that is roughly 23% above the estimated 2018 total of just over \$20,500 billion.

**HYPOTHESIZED ECONOMIC ENVIRONMENT 3 TO 5 YEARS HENCE**

The hypothesized 2022-2024 economic environment into which earnings are forecast is as follows: Unemployment will average about 4% of the national labor force. There will be no major wars in progress at that time. Industrial production will be expanding slowly. Inflation will continue to be relatively low. Prices as measured by the broad-

Things may turn out differently. But in the absence of knowledge of the future, we use the above assumptions, which appear to be most plausible. Thus we are able to apply a common economic environment to all stocks for the purpose of measuring relative growth potential.

**THESE ARE THE NATIONAL INCOME SERIES TO WHICH VALUE LINE SALES, EARNINGS, AND DIVIDEND ESTIMATES ARE CORRELATED**

ANNUAL STATISTICS	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019*	2020*	2022-24*
Gross Domestic Product (\$Bill.)	14713	14449	14992	15543	16197	16785	17522	18219	18707	19485	20525	21437	22335	25278
Real GDP (2012 Chained \$Bill.)	15605	15209	15599	15841	16197	16495	16900	17387	17659	18051	18571	18956	19335	20360
Total Consumption (\$Bill.)	10593	10460	10643	10844	11007	11167	11497	11922	12248	12567	12945	13283	13636	14597
Nonresidential Fixed Investment (\$Bill.)	1994	1704	1781	1935	2119	2206	2365	2408	2425	2531	2692	2753	2796	3027
Industrial Prod. (% Change, Annualized)	-3.5	-11.5	5.5	3.1	3.0	2.0	3.1	-1.0	-2.0	2.3	3.9	-1.0	0.8	1.0
Housing Starts (Mill. Units)	0.90	0.55	0.59	0.61	0.78	0.93	1.00	1.11	1.18	1.21	1.25	1.26	1.28	1.25
Total Light Vehicle Sales (Mill. Units)	13.2	10.4	11.6	12.7	14.4	15.5	16.4	17.4	17.5	17.1	17.2	16.9	16.7	16.5
Personal Savings Rate (%)	5.0	6.1	6.6	7.2	8.9	6.4	7.4	7.6	6.8	7.0	7.7	8.1	7.6	7.0
National Unemployment Rate (%)	5.8	9.3	9.6	8.9	8.1	7.4	6.2	5.3	4.9	4.4	3.9	3.7	3.4	4.0
AAA Corp Bond Rate (%)	5.6	5.3	4.9	4.6	3.7	4.2	4.2	3.9	3.7	3.8	3.9	3.4	3.2	3.8
10-Year Treasury Note Rate (%)	3.7	3.3	3.2	2.8	1.8	2.4	2.5	2.2	1.9	2.3	2.9	2.1	2.1	3.0
3-Month Treasury Bill Rate (%)	1.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.9	1.9	2.1	1.6	2.3
<b>ANNUAL RATES OF CHANGE</b>														
Real GDP	-0.1	-2.5	2.6	1.6	2.2	1.8	2.5	2.9	1.6	2.4	2.9	2.1	2.0	1.6
GDP Deflator	1.9	0.8	1.2	2.1	1.9	1.8	1.8	1.0	1.0	1.9	2.4	1.9	2.2	2.5
Consumer Price Index	3.8	-0.3	1.6	3.1	2.1	1.5	1.6	0.1	1.3	2.1	2.4	2.0	1.9	2.5
<b>QUARTERLY ANNUALIZED RATES</b>														
	2018				2019				2020					
	1st	2nd	3rd	4th	1st	2nd	3rd*	4th*	1st*	2nd*	3rd*	4th*		
Gross Domestic Product (\$Bill.)	20041	20412	20658	20865	21115	21346	21537	21751	21984	22219	22451	22685		
Real GDP (2012 Chained \$Bill.)	18324	18512	18665	18765	18821	18915	19004	19084	19188	19288	19384	19480		
Total Consumption (\$Bill.)	12783	12909	13020	13066	13102	13250	13345	13434	13517	13598	13675	13753		
Nonresidential Fixed Investment (\$Bill.)	2640	2690	2704	2736	2766	2759	2738	2751	2772	2785	2803	2824		
Industrial Production (% Change, Annualized)	2.3	4.6	5.2	3.9	-1.9	-2.2	1.2	-1.0	0.5	0.5	1.0	1.3		
Housing Starts (Mill. Units)	1.32	1.26	1.23	1.19	1.21	1.26	1.28	1.30	1.30	1.28	1.28	1.26		
Total Light Vehicle Sales (Mill. Units)	17.1	17.3	17.0	17.4	16.8	17.0	17.0	16.8	16.8	16.7	16.7	16.6		

\*Estimated

**Arnold Bernhard, Founder (1901-1987)**

**Harvey S. Katz, Managing Editor**

**Ian Gendler, Executive Director of Research**

Theresa Brophy, *Assoc. Director of Research*  
 Charles Clark, *Assoc. Director of Research*  
 William G. Ferguson, *Assoc. Director of Research*  
 Mario Ferro, *Assoc. Director of Research*

Richard Gallagher, *Assoc. Director of Research*  
 Robert Mitkowski, *Assoc. Director of Research*  
 Matthew E. Spencer, *Assoc. Director of Research*

George Gu, *Director, Quantitative Research*  
 Harold Levine, *Director, Statistical Services*

**Editorial Analysts**

Sharif Abdou  
 Jeremy J. Butler  
 Michael Collins  
 Andre J. Costanza  
 Iason Dalavagas  
 Paul E. Debbas  
 Kenneth J. DeFranco, Jr.  
 Kevin Downing  
 J. Susan Ferrara  
 James A. Flood  
 Bryan J. Fong  
 Robert M. Greene  
 Frederick L. Harris, III  
 Justin Hellman  
 Jeffrey Hirt  
 Alan G. House  
 Michelle Jensen  
 Erik M. Manning  
 Wayne C. Nef  
 Kenneth A. Nugent  
 Michael Ratty  
 Adam Rosner

Orly Seidman  
 Simon R. Shoucair  
 Nils C. Van Liew

**Senior Analysts**

Oriatal J. Haiby  
 Daniel Henigson  
 Christopher Joseph  
 Michael Lavery  
 Nira Maharaj  
 Michael F. Napoli  
 Nicholas P. Patrikis  
 Adam J. Platt  
 Robert J. Scrudato  
 John E. Seibert III  
 Dominic B. Silva

**Analysts**

Emma Jalees  
 Glenn Pierr Johnson  
 Kevin O'Sullivan  
 Craig Sirois

**Junior Analysts**  
 Gabriel A. Muenzer

**Data Administration**

Curtis R. Clarke, *Manager, Equity Data Div.*  
 Dana Jones, *Senior Database Analyst*  
 Marizol Polanco, *Database Analyst*  
 Patrick G. O'Connor, *Supervisor, Quality Ctrl.*  
 Frantz Goodridge, *Research Assistant*  
 Clive Russell, *Research Assistant*

**Production**

LeShane W. Lilly, *Production Manager*  
 Michael Manchess, *Production Coordinator*  
 Warren Tabachnick, *Production Editor*

**Information Technology**

Hassan Davis, *Executive Director, Administration*  
 Donna Webb, *Supervisor of Production Control*

**Howard Brecher, President & Publisher**

© 2020 Value Line, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, resold, stored or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.

To subscribe call 1-800-VALUELINE



The Water Utility Industry consists of eight investor-owned utilities that are mostly regulated by state authorities.

Consolidation continues to occur at a slow, but steady pace.

Regulation continues to be one of the strengths of this sector. Unlike the electric and gas utility sectors, there is less confrontation among regulators and water utilities.

Over the past five years, the performance from the eight primary stocks in the group has been excellent. Indeed, the typical water equity has outperformed the broader market averages by a wide margin. In the fourth quarter of 2019, this was not the case, however.

Due in part to three cuts by the Federal Reserve, short-term rates have declined. Still, on a comparable basis, they seem more attractive than water utility stocks, which carry an average yield of only about 2.0%.

Based on many key indicators, the valuation of this group is close to a historical high.

Finally, even though several equities in the Water Utility Industry are ranked 1 (Highest) for year-ahead relative price performance, almost all have substantially less than average prospects over the next 18-month- and three- to five-year periods. Most equities here are already trading well within their estimated long-term Target Price Range.

### Is The Rally Over?

For the most part, water utility stocks turned in another excellent performance in 2019. This has pretty much been the norm over the past decade. The group was once bought by investors for its high dividend yield, good annual payout prospects, and reliable earnings stream. Considered a conservative vehicle, investors were willing to forgo appreciation potential in return for certainty. The price performance has been so strong that the average yield is now lower than the average stock in the Value Line universe. Over the past few years, Wall Street questioned several times whether the rally here could continue. Was the last quarter the beginning of the end? Indeed, these stocks didn't fare well when compared to the broader market averages.

### Industry Fundamentals

The water industry in the United States is extremely fragmented. Most water service is provided by authorities that are controlled by municipal or state agencies. There are currently, tens of thousands of these entities in operation. Consolidation has been accelerating as smaller districts are merging with larger ones. *American Water Works* and *Aqua America* are two examples of growth through acquisitions. In addition to increasing the size of their rate base (on which they earn a return), these firms have been able to achieve substantial economies of scale as there are many cost redundancies.

A construction boom is also underway. In the past, insufficient investment was made in maintaining the nation's pipelines and waste water facilities. The average age of a pipe in the United States is well over 50 years, with some assets being much older. Water utilities have been addressing the problem by increasing their capital budgets meaningfully. A good percentage of the

### INDUSTRY TIMELINESS: 1 (of 95)

outlays are being targeted at replacing older pipes and valves.

### Regulation

Investor-owned utilities are overseen by state regulators. In return for permitting a company to have a monopoly, authorities are allowed to determine what rate of return can be made on investments. Both regulators and companies have had a constructive relationship in determining the best way to improve the country's water system. By comparison, other regulated areas, such as electric and natural gas, relations have been less than cordial. For example, natural gas utilities are trying to expand their pipelines to increase the use of the low-priced commodity. However, there has been push back here due to cost and environmental concerns.

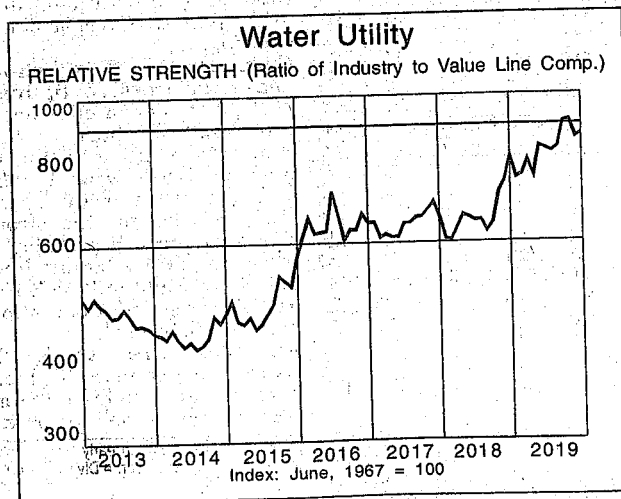
### Liquid Gold?

As the world's population continues to grow, so will the demand for potable water. Due to insufficient supply in certain regions, some experts are calling water the next hot commodity. This could very well be true, but we do not know. For certain, a severe supply/demand imbalance is getting worse. In any case, the regulated water sector would not benefit, as these companies' earnings are capped (with the partial exception of *Consolidated Water*). Hence, the allowed rate of return will be set at a reasonable level. Excessive profits generated from operations would be returned to ratepayers in the form of lower water bills.

### Conclusion

Despite the many positives of this group, the premium that investors have to pay to own a water stock is high based on most metrics. Several stand out for year-ahead performance. However, potential returns over the next 18 months and through 2022-2024 are subpar. As always, we recommend that subscribers carefully read each individual report before investing to have a better understanding of each company's specific risk profile.

James A. Flood



# APPENDIX A-5.1 (AUS)

<b>AMER. STATES WATER</b> NYSE-AWR				<b>RECENT PRICE</b> 87.33	<b>P/E RATIO</b> 41.0 (Trailing: 39.7 Median: 21.0)	<b>RELATIVE P/E RATIO</b> 2.23	<b>DIV'D YLD</b> 1.4%	<b>VALUE LINE</b> 1787																																														
<b>TIMELINESS</b> 1 Raised 8/9/19 <b>SAFETY</b> 2 Raised 7/20/12 <b>TECHNICAL</b> 2 Lowered 12/20/18 <b>BETA</b> .65 (1.00 = Market)	<b>High:</b> 21.0 <b>Low:</b> 13.5 <b>19.4</b> <b>14.9</b> <b>19.8</b> <b>18.2</b> <b>24.1</b> <b>17.0</b> <b>33.1</b> <b>38.7</b> <b>44.1</b> <b>47.2</b> <b>58.4</b> <b>69.6</b> <b>96.0</b>	<b>LEGENDS</b> 1.35 x Dividends p sh divided by Interest Rate Relative Price Strength 2 for 1 split 9/13 Options Yes Shaded area indicates recession	<b>Target Price Range</b> 2022 2023 2024 96 80 64 48 40 32 24 16 12						<b>2022-24 PROJECTIONS</b> Price High 75 (-15%) Price Low 55 (-35%) Gain (-15%) Return (-35%) Ann'l Total Return -2% -6%	<b>Institutional Decisions</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>1Q2019</td> <td>2Q2019</td> <td>3Q2019</td> </tr> <tr> <td>to Buy</td> <td>138</td> <td>139</td> <td>149</td> </tr> <tr> <td>to Sell</td> <td>105</td> <td>109</td> <td>124</td> </tr> <tr> <td>Hld's(000)</td> <td>26624</td> <td>26893</td> <td>27173</td> </tr> </table>		1Q2019	2Q2019	3Q2019	to Buy	138	139	149	to Sell	105	109	124	Hld's(000)	26624	26893	27173																												
	1Q2019	2Q2019	3Q2019																																																			
to Buy	138	139	149																																																			
to Sell	105	109	124																																																			
Hld's(000)	26624	26893	27173																																																			
<b>18-Month Target Price Range</b> Low-High Midpoint (% to Mid) \$68-\$97 \$83 (-5%)				<b>Percent shares traded</b> 24 16 8					<b>% TOT. RETURN 11/19</b> THIS STOCK VL ADJTH. INDEL 1 yr. 29.1 6.5 3 yr. 112.3 24.6 5 yr. 169.7 38.9																																													
<b>CAPITAL STRUCTURE as of 9/30/19</b> Total Debt \$475.3 mill. Due in 5 Yrs \$100.7 mill. LT Debt \$475.0 mill. LT Interest \$24.0 mill. (45% of Cap'l)				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>2003</th><th>2004</th><th>2005</th><th>2006</th><th>2007</th><th>2008</th><th>2009</th><th>2010</th><th>2011</th><th>2012</th><th>2013</th><th>2014</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>2019</th><th>2020</th><th>2021</th><th>2022</th><th>2023</th><th>2024</th> </tr> <tr> <td>361.0</td><td>398.9</td><td>419.3</td><td>466.9</td><td>472.1</td><td>465.8</td><td>458.6</td><td>436.1</td><td>440.6</td><td>436.8</td><td>475</td><td>485</td><td>485</td><td>495</td><td>495</td><td>495</td><td>495</td><td>495</td><td>495</td><td>495</td><td>495</td><td>495</td> </tr> </table>					2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	361.0	398.9	419.3	466.9	472.1	465.8	458.6	436.1	440.6	436.8	475	485	485	495	495	495	495	495	495	495	495	495	<b>REVENUES PER SH</b> 15.75 <b>"Cash Flow" per sh</b> 4.00 <b>Earnings per sh<sup>A</sup></b> 2.75 <b>Div'd Decl'd per sh<sup>B</sup></b> 1.70 <b>Cap'l Spending per sh</b> 3.25 <b>Book Value per sh<sup>D</sup></b> 19.35 <b>Common Shs Outst'g<sup>C</sup></b> 37.50 <b>Avg Ann'l P/E Ratio</b> 23.5 <b>Relative P/E Ratio</b> 1.30 <b>Avg Ann'l Div'd Yield</b> 2.6%	
2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024																																	
361.0	398.9	419.3	466.9	472.1	465.8	458.6	436.1	440.6	436.8	475	485	485	495	495	495	495	495	495	495	495	495																																	
<b>Leases, Un capitalized:</b> Annual rentals \$2.6 mill. <b>Pension Assets-12/18</b> \$162.5 mill. Oblig. \$198.1 mill.				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>2003</th><th>2004</th><th>2005</th><th>2006</th><th>2007</th><th>2008</th><th>2009</th><th>2010</th><th>2011</th><th>2012</th><th>2013</th><th>2014</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>2019</th><th>2020</th><th>2021</th><th>2022</th><th>2023</th><th>2024</th> </tr> <tr> <td>38.9%</td><td>43.2%</td><td>41.7%</td><td>39.9%</td><td>36.3%</td><td>38.4%</td><td>38.4%</td><td>36.8%</td><td>36.0%</td><td>22.0%</td><td>23.0%</td><td>23.0%</td><td>23.0%</td><td>23.0%</td><td>23.0%</td><td>23.0%</td><td>23.0%</td><td>23.0%</td><td>23.0%</td><td>23.0%</td><td>23.0%</td><td>23.0%</td> </tr> </table>					2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	38.9%	43.2%	41.7%	39.9%	36.3%	38.4%	38.4%	36.8%	36.0%	22.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	<b>Income Tax Rate</b> 23.0% <b>AFUDC % to Net Profit</b> 1.0% <b>Long-Term Debt Ratio</b> 46.0% <b>Common Equity Ratio</b> 54.0% <b>Total Capital (\$mill)</b> 1350 <b>Net Plant (\$mill)</b> 1650 <b>Return on Total Cap'l</b> 9.0% <b>Return on Shr. Equity</b> 14.0% <b>Return on Com Equity</b> 14.0% <b>Retained to Com Eq</b> 5.5% <b>All Div'ds to Net Prof</b> 62%	
2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024																																	
38.9%	43.2%	41.7%	39.9%	36.3%	38.4%	38.4%	36.8%	36.0%	22.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%																																	
<b>MARKET CAP: \$3.2 billion (Mid Cap)</b>				<b>Current Position</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>2017</th><th>2018</th><th>9/30/19</th> </tr> <tr> <td>2</td><td>7.1</td><td>10.4</td> </tr> <tr> <td>26.1</td><td>23.4</td><td>28.1</td> </tr> <tr> <td>129.2</td><td>101.0</td><td>94.0</td> </tr> <tr> <td>155.5</td><td>131.5</td><td>132.5</td> </tr> <tr> <td>51.0</td><td>59.5</td><td>59.8</td> </tr> <tr> <td>59.3</td><td>40.3</td><td>3</td> </tr> <tr> <td>46.4</td><td>46.8</td><td>59.7</td> </tr> <tr> <td>156.7</td><td>146.6</td><td>119.8</td> </tr> </table>					2017	2018	9/30/19	2	7.1	10.4	26.1	23.4	28.1	129.2	101.0	94.0	155.5	131.5	132.5	51.0	59.5	59.8	59.3	40.3	3	46.4	46.8	59.7	156.7	146.6	119.8	<b>Business:</b> American States Water Co. operates as a holding company. Through its principal subsidiary, Golden State Water Co., it supplies water to 259,919 customers in 70 cities in 10 counties. Service areas include the metropolitan areas of Los Angeles and Orange Counties. The company also provides electricity to 24,353 customers in Big Bear Lake and San Bernardino City. Provides water & wastewater services to U.S. military bases through its ASUS sub. Sold Chaparral City: Wir. of AZ. (6/11). Employs about 815. BlackRock, Inc. owns 15.1% of out. shares; Vanguard, 11.5%; off. & dir. 1.2%. (4/19 Proxy). Chairman: Lloyd Ross. Pres. & CEO: Robert Sprowls. Inc. CA. Addr.: 630 East Foothill Blvd., San Dimas, CA 91773. Tel: 909-394-3600. Internet: www.aswater.com.																		
2017	2018	9/30/19																																																				
2	7.1	10.4																																																				
26.1	23.4	28.1																																																				
129.2	101.0	94.0																																																				
155.5	131.5	132.5																																																				
51.0	59.5	59.8																																																				
59.3	40.3	3																																																				
46.4	46.8	59.7																																																				
156.7	146.6	119.8																																																				
<b>ANNUAL RATES</b> Past 10 Yrs. Past 5 Yrs. Est'd '16-'18 to '22-'24 Revenues 3.5% 4.5% "Cash Flow" 6.0% 3.0% 6.0% Earnings 9.0% 4.5% 8.0% Dividends 7.5% 9.0% 9.5% Book Value 5.0% 4.0% 5.0%				<b>Shares of American States Water have not participated in the recent market rally. In the last quarter of 2019, the S&amp;P 500 Index rallied almost 10%. Over that same time span, the value of AWR has actually declined approximately 3%, an underperformance of more than 1200 basis points. We think profit taking and sector rotation by institutional investors were at least partially responsible for the poor showing. Earnings in 2020 should top last year's impressive figure. Even though 2019 likely ended on a down note, American States' share earnings probably climbed to \$2.15, a 25% increase above the previous year's weak number. Rate relief and cost cutting were most likely the primary reasons for the strong comparison. These factors will probably have less of an impact on 2020's bottom line, but earnings per share could still well rise 2% to \$2.20, as the unregulated operations' gain in importance (more below). Finances are solid. The company remains a distance third in terms of size in the water industry (American Water Works and Aqua America are the two</b>					<b>giants). Nevertheless, thanks to a balance sheet that doesn't have a large amount of debt, American Water is one of the two utilities in this nine-member group that carries a Financial Strength rating as high as an A. Nonutility operations are generating a steady amount of income. The company's ASUS subsidiary provides water services to military bases via 50-year fixed-priced contracts. As more military installations privatize their water systems, we expect ASUS to raise its presence in this sector, by being successful in the competitive bidding process. This business should account for between 20% to 30% of total income by early next decade. These shares are only for short-term investors. AWR carries a 1 (Highest) rank for year-ahead relative performance. Over the next 18-month period, our quantitative system believes the stock will actually decrease in value, however. In addition, even with the recent price decline, the equity is trading above our projected 2022-2024 Target Price Range. Finally, the dividend yield is subpar.</b>																																													
<b>QUARTERLY REVENUES (\$ mill.)</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Cal-endar</th><th>Mar.31</th><th>Jun.30</th><th>Sep.30</th><th>Dec.31</th><th>Full Year</th> </tr> <tr> <td>2016</td><td>93.5</td><td>112.0</td><td>123.8</td><td>106.8</td><td>436.1</td> </tr> <tr> <td>2017</td><td>98.8</td><td>113.2</td><td>124.4</td><td>104.2</td><td>440.6</td> </tr> <tr> <td>2018</td><td>94.7</td><td>106.9</td><td>124.2</td><td>111.0</td><td>436.8</td> </tr> <tr> <td>2019</td><td>101.7</td><td>124.6</td><td>134.5</td><td>114.2</td><td>475</td> </tr> <tr> <td>2020</td><td>105</td><td>125</td><td>140</td><td>115</td><td>485</td> </tr> </table>				Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	2016	93.5	112.0	123.8	106.8	436.1	2017	98.8	113.2	124.4	104.2	440.6	2018	94.7	106.9	124.2	111.0	436.8	2019	101.7	124.6	134.5	114.2	475	2020	105	125	140	115	485	<b>Earnings in 2020 should top last year's impressive figure. Even though 2019 likely ended on a down note, American States' share earnings probably climbed to \$2.15, a 25% increase above the previous year's weak number. Rate relief and cost cutting were most likely the primary reasons for the strong comparison. These factors will probably have less of an impact on 2020's bottom line, but earnings per share could still well rise 2% to \$2.20, as the unregulated operations' gain in importance (more below). Finances are solid. The company remains a distance third in terms of size in the water industry (American Water Works and Aqua America are the two</b>					<b>James A. Flood</b> <b>January 10, 2020</b>									
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year																																																	
2016	93.5	112.0	123.8	106.8	436.1																																																	
2017	98.8	113.2	124.4	104.2	440.6																																																	
2018	94.7	106.9	124.2	111.0	436.8																																																	
2019	101.7	124.6	134.5	114.2	475																																																	
2020	105	125	140	115	485																																																	
<b>QUARTERLY EARNINGS PER SHARE<sup>A</sup></b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Cal-endar</th><th>Mar.31</th><th>Jun.30</th><th>Sep.30</th><th>Dec.31</th><th>Full Year</th> </tr> <tr> <td>2016</td><td>.28</td><td>.45</td><td>.59</td><td>.30</td><td>1.62</td> </tr> <tr> <td>2017</td><td>.34</td><td>.62</td><td>.57</td><td>.35</td><td>1.88</td> </tr> <tr> <td>2018</td><td>.29</td><td>.44</td><td>.62</td><td>.37</td><td>1.72</td> </tr> <tr> <td>2019</td><td>.35</td><td>.72</td><td>.76</td><td>.32</td><td>2.15</td> </tr> <tr> <td>2020</td><td>.38</td><td>.67</td><td>.70</td><td>.45</td><td>2.20</td> </tr> </table>				Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	2016	.28	.45	.59	.30	1.62	2017	.34	.62	.57	.35	1.88	2018	.29	.44	.62	.37	1.72	2019	.35	.72	.76	.32	2.15	2020	.38	.67	.70	.45	2.20	<b>Finances are solid. The company remains a distance third in terms of size in the water industry (American Water Works and Aqua America are the two</b>					<b>Company's Financial Strength</b> <b>Price Stability</b> 85 <b>Price Growth Persistence</b> 90 <b>Earnings Predictability</b> 95									
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year																																																	
2016	.28	.45	.59	.30	1.62																																																	
2017	.34	.62	.57	.35	1.88																																																	
2018	.29	.44	.62	.37	1.72																																																	
2019	.35	.72	.76	.32	2.15																																																	
2020	.38	.67	.70	.45	2.20																																																	
<b>QUARTERLY DIVIDENDS PAID<sup>B</sup></b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Cal-endar</th><th>Mar.31</th><th>Jun.30</th><th>Sep.30</th><th>Dec.31</th><th>Full Year</th> </tr> <tr> <td>2016</td><td>.224</td><td>.224</td><td>.224</td><td>.242</td><td>.91</td> </tr> <tr> <td>2017</td><td>.242</td><td>.242</td><td>.255</td><td>.255</td><td>.99</td> </tr> <tr> <td>2018</td><td>.255</td><td>.255</td><td>.275</td><td>.275</td><td>1.06</td> </tr> <tr> <td>2019</td><td>.275</td><td>.275</td><td>.305</td><td>.305</td><td>1.16</td> </tr> <tr> <td>2020</td><td></td><td></td><td></td><td></td><td></td> </tr> </table>				Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	2016	.224	.224	.224	.242	.91	2017	.242	.242	.255	.255	.99	2018	.255	.255	.275	.275	1.06	2019	.275	.275	.305	.305	1.16	2020						<b>Shares of American States Water have not participated in the recent market rally. In the last quarter of 2019, the S&amp;P 500 Index rallied almost 10%. Over that same time span, the value of AWR has actually declined approximately 3%, an underperformance of more than 1200 basis points. We think profit taking and sector rotation by institutional investors were at least partially responsible for the poor showing. Earnings in 2020 should top last year's impressive figure. Even though 2019 likely ended on a down note, American States' share earnings probably climbed to \$2.15, a 25% increase above the previous year's weak number. Rate relief and cost cutting were most likely the primary reasons for the strong comparison. These factors will probably have less of an impact on 2020's bottom line, but earnings per share could still well rise 2% to \$2.20, as the unregulated operations' gain in importance (more below). Finances are solid. The company remains a distance third in terms of size in the water industry (American Water Works and Aqua America are the two</b>					<b>Company's Financial Strength</b> <b>Price Stability</b> 85 <b>Price Growth Persistence</b> 90 <b>Earnings Predictability</b> 95									
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year																																																	
2016	.224	.224	.224	.242	.91																																																	
2017	.242	.242	.255	.255	.99																																																	
2018	.255	.255	.275	.275	1.06																																																	
2019	.275	.275	.305	.305	1.16																																																	
2020																																																						
<b>MARKET CAP: \$3.2 billion (Mid Cap)</b>				<b>Current Position</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>2017</th><th>2018</th><th>9/30/19</th> </tr> <tr> <td>2</td><td>7.1</td><td>10.4</td> </tr> <tr> <td>26.1</td><td>23.4</td><td>28.1</td> </tr> <tr> <td>129.2</td><td>101.0</td><td>94.0</td> </tr> <tr> <td>155.5</td><td>131.5</td><td>132.5</td> </tr> <tr> <td>51.0</td><td>59.5</td><td>59.8</td> </tr> <tr> <td>59.3</td><td>40.3</td><td>3</td> </tr> <tr> <td>46.4</td><td>46.8</td><td>59.7</td> </tr> <tr> <td>156.7</td><td>146.6</td><td>119.8</td> </tr> </table>					2017	2018	9/30/19	2	7.1	10.4	26.1	23.4	28.1	129.2	101.0	94.0	155.5	131.5	132.5	51.0	59.5	59.8	59.3	40.3	3	46.4	46.8	59.7	156.7	146.6	119.8	<b>Business:</b> American States Water Co. operates as a holding company. Through its principal subsidiary, Golden State Water Co., it supplies water to 259,919 customers in 70 cities in 10 counties. Service areas include the metropolitan areas of Los Angeles and Orange Counties. The company also provides electricity to 24,353 customers in Big Bear Lake and San Bernardino City. Provides water & wastewater services to U.S. military bases through its ASUS sub. Sold Chaparral City: Wir. of AZ. (6/11). Employs about 815. BlackRock, Inc. owns 15.1% of out. shares; Vanguard, 11.5%; off. & dir. 1.2%. (4/19 Proxy). Chairman: Lloyd Ross. Pres. & CEO: Robert Sprowls. Inc. CA. Addr.: 630 East Foothill Blvd., San Dimas, CA 91773. Tel: 909-394-3600. Internet: www.aswater.com.																		
2017	2018	9/30/19																																																				
2	7.1	10.4																																																				
26.1	23.4	28.1																																																				
129.2	101.0	94.0																																																				
155.5	131.5	132.5																																																				
51.0	59.5	59.8																																																				
59.3	40.3	3																																																				
46.4	46.8	59.7																																																				
156.7	146.6	119.8																																																				

(A) Primary earnings. Excludes nonrecurring gains/(losses): '04, '07, '08, '13, '06, '08, '06, '10, '14, '10, '23, '11, '10. Next earnings report due mid-February.  
 (B) Dividends historically paid in early March, June, September, and December. Div'd reinvestment plan available.  
 (C) In millions, adjusted for split.  
 (D) Includes intangibles. As of 6/30/19; \$1.1 million/\$0.03 a share.

© 2020 Value Line, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, stored, or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.

**To subscribe call 1-800-VALUELINE**

<b>AMERICAN WATER NYSE-AWK</b>				RECENT PRICE	P/E RATIO	(Trailing: 35.1)	RELATIVE P/E RATIO	DIV'D YLD	VALUE													
				123.05	33.3	(Median: 19.0)	1.81	1.7%	1788													
<b>TIMELINESS</b> 1	Raised 4/5/19	High: 23.7	23.0	25.8	32.8	39.4	45.1	56.2	61.2	85.2	92.4	98.2	129.9	Target Price Range								
<b>SAFETY</b> 3	New 7/25/08	Low: 16.5	16.2	19.4	25.2	31.3	37.0	41.1	48.4	58.9	70.0	76.0	88.0	2022	2023	2024						
<b>TECHNICAL</b> 3	Lowered 12/19/19	<b>LEGENDS</b> 1.10 x Dividends p sh divided by Interest Rate Relative Price Strength Options: Yes Shaded area indicates recession																				
<b>BETA</b> .55	(1.00 = Market)	<b>18-Month Target Price Range</b> Low-High Midpoint (% to Mid) \$105-\$146 \$126 (0%)																				
<b>2022-24 PROJECTIONS</b> High Price Gain Ann'l Total Return Low 80 (-35%) 2% -7%										% TOT. RETURN 11/19 1 yr. 29.1% VL ARITH. INDEX 6.5 3 yr. 77.2% 24.6 5 yr. 163.0% 38.9												
<b>Institutional Decisions</b> 1Q2019 2Q2019 3Q2019 to Buy 364 360 385 to Sell 325 331 322 Hlds(000) 155942 155051 153929										Percent shares traded 21 7												
<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>© VALUE LINE PUB. LLC</b>	<b>22-24</b>			
..	..	..	..	13.08	13.84	14.61	13.98	15.49	15.18	16.25	16.28	16.78	17.72	18.54	18.81	19.04	20.05	20.95	Revenues per sh	23.80		
..	..	..	..	.65	d.47	2.87	2.89	3.56	3.73	4.27	4.36	4.75	5.13	5.26	5.14	6.15	6.75	7.10	"Cash Flow" per sh	8.30		
..	..	..	..	d.97	d2.14	1.10	1.25	1.53	1.72	2.11	2.06	2.39	2.64	2.62	2.38	3.15	3.60	3.90	Earnings per sh <sup>A</sup>	4.70		
..	..	..	..	..	.40	.82	.86	.90	1.21	.84	1.21	1.33	1.47	1.62	1.78	1.96	2.12	2.30	Div'd Decl'd per sh <sup>B</sup>	2.75		
..	..	..	..	4.31	4.74	6.31	4.50	4.38	5.27	5.25	5.50	5.33	6.51	7.36	8.04	8.78	8.70	9.20	Cap'l Spending per sh	9.00		
..	..	..	..	23.86	28.39	25.64	22.91	23.59	24.11	25.11	26.52	27.39	28.25	29.24	30.13	32.42	34.40	36.35	Book Value per sh <sup>D</sup>	41.25		
..	..	..	..	160.00	160.00	160.00	174.63	175.00	175.66	176.99	178.25	179.46	178.28	178.10	178.44	180.68	181.00	182.00	Common Shs Outst'g <sup>C</sup>	189.00		
..	..	..	..	..	18.9	15.6	14.6	16.8	16.7	19.9	20.0	20.5	27.7	33.8	27.3	33.8	27.3	33.8	Bold figures are Value Line estimates	Avg Ann'l P/E Ratio	21.5	
..	..	..	..	..	1.14	1.04	.93	1.05	1.06	1.12	1.05	1.03	1.45	1.70	1.47	1.47	1.47	1.47	Relative P/E Ratio	1.20		
..	..	..	..	..	1.9%	4.2%	3.8%	3.1%	3.4%	2.0%	2.5%	2.5%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	Avg Ann'l Div'd Yield	1.8%		
<b>CAPITAL STRUCTURE as of 9/30/19</b>				2440.7	2710.7	2666.2	2876.9	2901.9	3011.3	3159.0	3302.0	3357.0	3440.0	3630	3810	3357.0	3440.0	3630	3810	Revenues (\$mill)	4500	
Total Debt \$9143.0 mill. Due in 5 Yrs \$1555.0 mill.				209.9	267.8	304.9	374.3	369.3	429.8	476.0	468.0	426.0	567.0	650	700	426.0	567.0	650	700	Net Profit (\$mill)	890	
LT Debt \$8640.0 mill. LT Interest \$370.0 mill. (59% of Cap'l)				37.9%	40.4%	39.5%	40.7%	39.1%	39.4%	39.1%	39.2%	53.3%	28.2%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	Income Tax Rate	21.0%	
Leases, Uncapitalized: Annual rentals \$17.0 mill.				..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	AFUDC % to Net Profit	5.0%	
Pension Assets 12/18 \$1499.0 mill.				56.9%	56.8%	55.7%	53.9%	52.4%	52.4%	53.7%	52.4%	54.7%	56.3%	58.0%	58.0%	58.0%	58.0%	58.0%	58.0%	Long-Term Debt Ratio	59.0%	
Pfd Stock \$7.0 mill. Pfd Div'd \$4 mill.				9289.0	9561.3	9580.3	9635.5	9940.7	10384	10911	10987	11875	13433	14900	15700	14900	15700	15700	15700	Total Capital (\$mill)	18800	
Common Stock 180,776,169 shares as of 10/24/19				10524	11059	11021	11739	12391	12900	13933	14992	16246	17409	18350	19300	16246	17409	18350	19300	Net Plant (\$mill)	22500	
MARKET CAP: \$22.2 billion (Large Cap)				3.8%	4.4%	4.8%	5.4%	5.1%	5.5%	5.7%	5.7%	5.6%	4.9%	5.4%	5.5%	5.5%	5.5%	5.5%	5.5%	Return on Total Cap'l	6.0%	
CURRENT POSITION				2017	2018	9/30/19	2017	2018	9/30/19	2017	2018	9/30/19	2017	2018	9/30/19	2017	2018	9/30/19	2017	2018	9/30/19	2017
				85%	86%	85%	85%	86%	85%	85%	86%	85%	86%	85%	86%	85%	86%	85%	86%	85%	86%	85%
Cash Assets				82	158	116	82	158	116	82	158	116	82	158	116	82	158	116	82	158	116	82
Accts Receivable				272	301	335	272	301	335	272	301	335	272	301	335	272	301	335	272	301	335	272
Other				366	322	348	366	322	348	366	322	348	366	322	348	366	322	348	366	322	348	366
Current Assets				720	781	799	720	781	799	720	781	799	720	781	799	720	781	799	720	781	799	720
Accts Payable				195	175	149	195	175	149	195	175	149	195	175	149	195	175	149	195	175	149	195
Debt Due				1227	1035	503	1227	1035	503	1227	1035	503	1227	1035	503	1227	1035	503	1227	1035	503	1227
Other				803	684	836	803	684	836	803	684	836	803	684	836	803	684	836	803	684	836	803
Current Liab.				2325	2084	1488	2325	2084	1488	2325	2084	1488	2325	2084	1488	2325	2084	1488	2325	2084	1488	2325
<b>ANNUAL RATES</b>				Past	Past	Est'd '16-'18	Past	Past	Est'd '16-'18	Past	Past	Est'd '16-'18	Past	Past	Est'd '16-'18	Past	Past	Est'd '16-'18	Past	Past	Est'd '16-'18	Past
of change (per sh)				10 Yrs.	5 Yrs.	to '22-'24	10 Yrs.	5 Yrs.	to '22-'24	10 Yrs.	5 Yrs.	to '22-'24	10 Yrs.	5 Yrs.	to '22-'24	10 Yrs.	5 Yrs.	to '22-'24	10 Yrs.	5 Yrs.	to '22-'24	10 Yrs.
Revenues				3.0%	3.5%	4.0%	3.0%	3.5%	4.0%	3.0%	3.5%	4.0%	3.0%	3.5%	4.0%	3.0%	3.5%	4.0%	3.0%	3.5%	4.0%	3.0%
"Cash Flow"				18.5%	6.0%	7.0%	18.5%	6.0%	7.0%	18.5%	6.0%	7.0%	18.5%	6.0%	7.0%	18.5%	6.0%	7.0%	18.5%	6.0%	7.0%	18.5%
Earnings				..	6.5%	9.5%	..	6.5%	9.5%	..	6.5%	9.5%	..	6.5%	9.5%	..	6.5%	9.5%	..	6.5%	9.5%	..
Dividends				..	10.5%	9.0%	..	10.5%	9.0%	..	10.5%	9.0%	..	10.5%	9.0%	..	10.5%	9.0%	..	10.5%	9.0%	..
Book Value				1.5%	4.0%	5.0%	1.5%	4.0%	5.0%	1.5%	4.0%	5.0%	1.5%	4.0%	5.0%	1.5%	4.0%	5.0%	1.5%	4.0%	5.0%	1.5%
<b>QUARTERLY REVENUES (\$mill.)</b>				Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	
2016				743.0	827.0	930.0	802.0	3302.0	2016	743.0	827.0	930.0	802.0	3302.0	2016	743.0	827.0	930.0	802.0	3302.0	2016	743.0
2017				756.0	844.0	936.0	821.0	3357.0	2017	756.0	844.0	936.0	821.0	3357.0	2017	756.0	844.0	936.0	821.0	3357.0	2017	756.0
2018				761.0	853.0	976.0	850.0	3440.0	2018	761.0	853.0	976.0	850.0	3440.0	2018	761.0	853.0	976.0	850.0	3440.0	2018	761.0
2019				813.0	882.0	1013.0	922	3630	2019	813.0	882.0	1013.0	922	3630	2019	813.0	882.0	1013.0	922	3630	2019	813.0
2020				850	930	1080	950	3810	2020	850	930	1080	950	3810	2020	850	930	1080	950	3810	2020	850
<b>EARNINGS PER SHARE<sup>A</sup></b>				Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	
2016				.46	.77	.83	.57	2.62	2016	.46	.77	.83	.57	2.62	2016	.46	.77	.83	.57	2.62	2016	.46
2017				.52	.73	1.12	.01	2.38	2017	.52	.73	1.12	.01	2.38	2017	.52	.73	1.12	.01	2.38	2017	.52
2018				.59	.91	1.03	.62	3.15	2018	.59	.91	1.03	.62	3.15	2018	.59	.91	1.03	.62	3.15	2018	.59
2019				.62	.94	1.33	.71	3.60	2019	.62	.94	1.33	.71	3.60	2019	.62	.94	1.33	.71	3.60	2019	.62
2020				.65	1.00	1.45	.80	3.90	2020	.65	1.00	1.45	.80	3.90	2020	.65	1.00	1.45	.80	3.90	2020	.65
<b>QUARTERLY DIVIDENDS PAID<sup>B</sup></b>				Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	
2016				.34	.375	.375	.375	1.47	2016	.34	.375	.375	.375	1.47	2016	.34	.375	.375	.375	1.47	2016	.34
2017				.375	.415	.415	.415	1.62	2017	.375	.415	.415	.415	1.62	2017	.375	.415	.415	.415	1.62	2017	.375
2018				.415	.455	.455	.455	1.78	2018	.415	.455	.455	.455	1.78	2018	.415	.455	.455	.455	1.78	2018	.415
2019				.455	.50	.50	.50	1.96	2019	.455	.50	.50	.50	1.96	2019	.455	.50	.50	.50	1.96	2019	.455
2020				.455	.50	.50	.50	1.96	2020	.455	.50	.50	.50	1.96	2020	.455	.50	.50	.50	1.96	2020	.455

**BUSINESS:** American Water Works Company, Inc. is the largest investor-owned water and wastewater utility in the U.S., providing services to more than 14 million people in 48 states and Ontario, Canada. Nonregulated business assists municipalities and military bases with the maintenance and upkeep as well. Regulated operations made up 87% of 2018 revenues. New Jersey is its largest market accounting for 24% of regulated revenues; Pennsylvania, 23%. Has 7,100 employees. The Vanguard Grp. owns 11.0% of outstanding shares; BlackRock, Inc., 7.9%; officers & directors, less than 1.0%. (3/19 Proxy), President & CEO: Susan N. Story. Chairman: George MacKenzie. Address: 1 Water

# APPENDIX A-5.1 (AUS)

AQUA AMERICA NYSE-WTR										RECENT PRICE	P/E RATIO	RELATIVE P/E RATIO	D/V D YLD	VALUE LINE															
										<b>47.08</b>	<b>35.9</b> (Trailing: 67.3 Median: 22.0)	<b>1.95</b>	<b>2.1%</b>	<b>1789</b>															
<b>TIMELINESS</b> 1 Raised 12/20/19 <b>SAFETY</b> 2 Raised 4/20/12 <b>TECHNICAL</b> 3 Lowered 12/20/19 <b>BETA</b> .65 (1.00 = Market) <b>18-Month Target Price Range</b> Low-High    Midpoint (% to Mid) \$34-\$52     \$43 (-10%) <b>2022-24 PROJECTIONS</b> Price    Gain    Ann'l Total High    Low     (-15%)    Return 55     40     -15%     -7%		<b>LEGENDS</b> — 1.63 x Dividends p sh divided by Interest Rate ... Relative Price Strength 5-for-4 split 9/13 Options: Yes Shaded area indicates recession										<b>Target Price Range</b> 2022   2023   2024 80 60 40 25 20 15 10 7.5																	
<b>Institutional Decisions</b> 1Q2019   2Q2019   3Q2019 to Buy    238    280    248 to Sell    184    167    210 Hlds(000) 103658 140356 143792 Percent shares traded    15 5					<b>% TOT. RETURN 11/19</b> THIS STOCK    VL ARITH. INDEX 1 yr.    32.0    6.5 3 yr.    59.9    24.6 5 yr.    67.8    38.9																								
2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	@ VALUE LINE PUB. LLC	22-24										
2.38	2.78	3.08	3.23	3.61	3.71	3.93	4.21	4.10	4.32	4.32	4.37	4.61	4.62	4.56	4.71	4.10	4.30	Revenues per sh	5.70										
.77	.87	.97	1.01	1.10	1.14	1.29	1.42	1.45	1.51	1.82	1.89	1.87	2.07	2.12	1.90	1.80	2.15	"Cash Flow" per sh	2.85										
.46	.51	.57	.56	.57	.58	.62	.72	.83	.87	1.16	1.20	1.14	1.32	1.35	1.08	1.05	1.40	Earnings per sh <sup>A</sup>	2.00										
.28	.29	.32	.35	.38	.41	.44	.47	.50	.54	.58	.63	.69	.74	.79	.85	.91	.96	Div'd Decl'd per sh <sup>B</sup>	1.25										
1.06	1.23	1.47	1.64	1.43	1.58	1.66	1.89	1.90	1.98	1.73	1.84	2.07	2.16	2.69	2.78	2.40	2.50	Cap'l Spending per sh	2.75										
4.27	4.71	5.04	5.57	5.85	6.26	6.50	6.81	7.21	7.90	8.63	9.27	9.78	10.43	11.02	11.28	18.00	18.50	Book Value per sh	18.40										
154.31	158.97	161.21	165.41	166.75	169.21	170.61	172.46	173.60	175.43	177.93	178.59	176.54	177.39	177.71	178.09	216.00	217.00	Common Shs Outst'g <sup>C</sup>	220.00										
24.5	25.1	31.8	34.7	32.0	24.9	23.1	21.1	21.3	21.9	21.2	20.8	23.5	23.9	24.7	32.6	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	24.0										
1.40	1.33	1.69	1.87	1.70	1.50	1.54	1.34	1.39	1.19	1.19	1.09	1.18	1.25	1.24	1.76			Relative P/E Ratio	1.35										
2.5%	2.3%	1.8%	1.8%	2.1%	2.8%	3.1%	3.1%	2.8%	2.8%	2.4%	2.5%	2.6%	2.3%	2.4%	2.4%			Avg Ann'l Div'd Yield	2.6%										
<b>CAPITAL STRUCTURE as of 9/30/19</b>					670.5    726.1    712.0    757.8    768.6    779.9    814.2    819.9    809.5    838.1    890    930    Revenues (\$mill)    1250 Total Debt \$3086.4 mill.    Due in 5 Yrs \$698.8 mill.    104.4    124.0    144.8    153.1    205.0    213.9    201.8    234.2    239.7    192.0    230    305    Net Profit (\$mill)    440 LT Debt \$2698.3 mill.    LT Interest \$122.0 mill.    39.4%    39.2%    32.9%    39.0%    10.0%    10.5%    6.9%    8.2%    6.6%    6.6%    5.0%    Income Tax Rate    7.0% (43% of Cap'l)    44.4%    43.4%    47.3%    47.3%    51.1%    51.5%    49.7%    51.6%    49.4%    45.6%    57.5%    56.5%    AFUDC % to Net Profit    10.0% Pension Assets-12/18 \$239.0 mill.    Oblig. \$282.0 mill.    55.6%    56.6%    52.7%    52.7%    48.9%    48.5%    50.3%    48.4%    50.6%    54.4%    42.5%    43.5%    Long-Term Debt Ratio    53.0% Prfd Stock None    44.4%    43.4%    47.3%    47.3%    51.1%    51.5%    49.7%    51.6%    49.4%    45.6%    57.5%    56.5%    Total Capital Equity Ratio    47.0% Common Stock 215,840,774 shares as of 10/23/19    2495.5    2706.2    2646.8    2929.7    3003.6    3216.0    3469.5    3587.7    3965.4    4407.8    6800    7100    Total Cap'l (\$mill)    7600 MARKET CAP: \$10.2 billion (Large Cap)    3227.3    3469.3    3612.9    3936.2    4167.3    4402.0    4688.9    5001.6    5399.9    5930.3    6250    6525    Net Plant (\$mill)    7600 CURRENT POSITION 2017    2018    9/30/19    5.6%    5.9%    6.9%    6.6%    8.0%    7.8%    6.9%    7.6%    7.1%    5.5%    5.0%    5.0%    Return on Total Cap'l    7.0% (SMILL.)    2.7%    3.7%    4.6%    4.3%    6.7%    6.1%    4.7%    5.6%    5.1%    2.1%    4.0%    3.0%    3.0%    Return on Shr. Equity    11.0% Cash Assets    4.2    3.6    2030.6    9.4%    10.6%    11.6%    11.0%    13.4%    12.9%    11.7%    12.7%    12.2%    9.6%    6.0%    8.5%    Return on Com Equity    11.0% Receivables    98.6    101.2    117.0    9.4%    10.6%    11.6%    11.0%    13.4%    12.9%    11.7%    12.7%    12.2%    9.6%    6.0%    8.5%    Retained to Com Eq    4.0% Inventory (AvgCst)    14.4    15.8    17.0    72%    65%    60%    61%    50%    52%    60%    56%    59%    79%    87%    63%    All Div'ds to Net Prof    63% Other    14.0    26.6    14.3 Current Assets    131.2    147.2    2178.9 Accts Payable    59.2    77.3    57.6 Debt Due    117.4    160.0    188.1 Other    107.9    161.7    106.4 Current Liab.    284.5    399.0    352.1																								
<b>ANNUAL RATES</b> Past 10 Yrs.    Past 5 Yrs.    Est'd '16-'18 to '22-'24 Revenues    3.0%    1.5%    3.5% "Cash Flow"    6.5%    5.0%    6.5% Earnings    8.0%    5.5%    8.0% Dividends    7.5%    8.0%    8.0% Book Value    6.5%    6.5%    9.0%					<b>QUARTERLY REVENUES (\$mill.)</b> Cal-endar    Mar.31    Jun.30    Sep.30    Dec.31    Full Year 2016    192.6    203.9    226.6    196.8    819.9 2017    187.8    203.4    215.0    203.3    809.5 2018    194.3    211.9    226.2    205.7    838.1 2019    201.1    218.9    243.6    226.4    890 2020    215    235    250    230    930					<b>EARNINGS PER SHARE <sup>A</sup></b> Cal-endar    Mar.31    Jun.30    Sep.30    Dec.31    Full Year 2016    .29    .34    .41    .28    1.32 2017    .28    .34    .43    .30    1.35 2018    .29    .37    .44    d.02    1.08 2019    .09    .25    .38    .33    1.05 2020    .25    .35    .47    .33    1.40					<b>QUARTERLY DIVIDENDS PAID <sup>B</sup></b> Cal-endar    Mar.31    Jun.30    Sep.30    Dec.31    Full Year 2016    .178    .178    .1913    .1913    .74 2017    .1913    .1913    .2047    .2047    .79 2018    .2047    .2047    .219    .219    .85 2019    .219    .219    .2343    .2343    .91 2020														
<b>BUSINESS:</b> Aqua America, Inc. is the holding company for water and wastewater utilities that serve approximately three million residents in Pennsylvania (responsible for 53% of 2018 revenues), Ohio, Texas, Illinois, North Carolina, New Jersey, Indiana, and Virginia. Has 1,570 employees. Acquired AquaSource, 7/13; North Maine Utilities, 7/15; and others. Water supply revenues 2018: residential, 58%; commercial, 16%; industrial, wastewater & other, 26%. Off. & dir. own less than 1% of the common stock; Vanguard Group, 10.7%; Blackrock, Inc. 9.5%; State Street Capital, 4.9% (3/19 Proxy). President & Chief Executive Officer: Christopher Franklin, Inc. PA Addr: 762 West Lancaster Avenue, Bryn Mawr, PA 19010. Tel: 610-525-1400. Internet: www.aquaamerica.com.																													
<b>Aqua America is still awaiting final approval of its acquisition of Peoples Gas.</b> The water utility reached an agreement to buy the regulated Pittsburgh-based natural gas company in 2018 for \$4.3 billion in cash, and the assumption of \$1.4 billion of debt. Because both entities operate in many different states, a host of regulators must provide permission for the transaction to be completed. Currently, our best estimate is that the purchase will close in the early part of this year. <b>The company will have a new profile.</b> The natural gas distributor has almost 750,000 customers. Though this is in a sector also overseen by state authorities, the gas sector has historically had a much more adversarial relationship with regulators. In the water segment, both utilities and regulators realize that large amounts of investment are needed to modernize the country's antiquated infrastructure. Cooperation between companies and their overseers has been very constructive. By comparison, in the gas arena, there is much resistance to construction programs such as expanding existing pipelines to meet the needs of a service area.										<b>The balance sheet partially reflects the acquisition.</b> To finance the transaction, a large equity offering was completed last year. More than \$1.3 billion was raised in the transaction, which increased shares outstanding by about 20% (37.3 million). Proceed from the sale of tangible equity units also raised approximately \$700 million. About \$900 million of debt due in 2029 and 2049 was also sold last April. The remaining funds should come from existing credit facilities. <b>Meanwhile, another rate hike was granted.</b> On October 29th, about \$60 million in higher rates went into effect in Pennsylvania. During 2019, New Jersey, North Carolina, and Ohio also increased tariffs. <b>Only short-term investors should take a look here.</b> By most financial metrics, including the P/E ratio and its yield relative to the average equity, WTR is highly overvalued. It is ranked 1 (Highest) for year-ahead performance, but our 18-month model predicts the stock will post a negative performance. In addition, total return prospects to 2022-2024 are poor.																			
<b>(A)</b> Diluted eqs. Excl. nonrec. gains: '03, 3¢; '12, 18¢. Excl. gain from disc. operations: '12, 7¢; '13, 9¢; '14, 11¢. May not sum due to rounding. Next earnings report due mid-February.										<b>(B)</b> Dividends historically paid in early March, June, Sept. & Dec. Div'd reinvestment plan available (5% discount).										<b>(C)</b> In millions, adjusted for stock splits.					<b>(D)</b> Includes intangibles: 9/30/19, \$52.7 mill./\$0.24 a share.				
<b>Company's Financial Strength</b> A <b>Stock's Price Stability</b> 95 <b>Price Growth Persistence</b> 75 <b>Earnings Predictability</b> 65															<b>To subscribe call 1-800-VALUELINE</b>														

# APPENDIX A-5.1 (AUS)

<b>CALIFORNIA WATER NYSE-CWT</b>		RECENT PRICE	51.52	P/E RATIO	31.0	(Trailing: 37.1 Median: 22.0)	RELATIVE P/E RATIO	1.68	DIV'D YLD	1.5%	VALUE LINE	1790							
<b>TIMELINESS</b> 2	Raised 10/25/19	High: 23.3	24.1	19.8	19.4	19.3	23.4	26.4	26.0	36.8	46.2	49.1	57.5	Target Price Range	2022	2023	2024		
<b>SAFETY</b> 3	Lowered 7/27/07	Low: 13.8	16.7	16.9	16.7	16.8	18.4	20.3	19.5	22.5	32.4	35.3	44.6						
<b>TECHNICAL</b> 3	Lowered 12/27/19	<b>LEGENDS</b> - - - 1.33 x Dividends p sh divided by Interest Rate ..... Relative Price Strength 2-for-1 split - 6/11 Options: Yes Shaded area indicates recession																	
<b>BETA</b> .70	(1.00 = Market)																		
<b>18-Month Target Price Range</b>		Low-High    Midpoint (% to Mid) \$44-\$69      \$57 (10%)																	
<b>2022-24 PROJECTIONS</b>		Price	Gain	Ann'l Total															
High	Low	55	(+5%)	3%															
		35	(-30%)	-7%															
<b>Institutional Decisions</b>		102019    202019    302019 to Buy    132    120    118 to Sell    81    102    94 Hlds(000) 35698    36947    36133 Percent shares traded: 18, 12, 6											% TOT. RETURN 11/19 THIS STOCK VS. ARITH. INDEX 1 yr. 14.1    6.5 3 yr. 56.9    24.6 5 yr. 128.0    38.9						
© VALUE LINE PUB. LLC 22-24																			
<b>CAPITAL STRUCTURE as of 9/30/19</b>		Total Debt \$967.9 mill.    Due in 5 Yrs \$430.1 mill. LT Debt \$807.5 mill.    LT Interest \$40.0 mill. (Total interest coverage: 4.1x)    (53% of Cap'l)																	
<b>Pension Assets-12/18</b>		\$469.7 mill.    Oblig. \$639.9 mill.																	
<b>Pfd Stock</b>		None																	
<b>Common Stock</b>		48,145,000 shs.																	
<b>MARKET CAP: \$2.5 billion (Mid Cap)</b>																			
<b>CURRENT POSITION</b>		2017	2018	9/30/19															
		(\$mill.)																	
Cash Assets		94.8	47.2	51.3															
Other		133.1	141.5	160.8															
Current Assets		227.9	188.7	212.1															
Accts Payable		94.0	95.6	108.6															
Debt Due		291.0	170.0	160.4															
Other		106.0	55.6	64.9															
Current Liab.		491.0	321.2	333.9															
<b>ANNUAL RATES</b>		Past 10 Yrs.	Past 5 Yrs.	Est'd '16-'18															
of change (per sh)				to '22-'24															
Revenues		4.5%	2.0%	1.5%															
"Cash Flow"		6.0%	5.0%	3.5%															
Earnings		5.0%	5.5%	8.0%															
Dividends		2.0%	3.0%	6.5%															
Book Value		4.5%	4.5%	2.0%															
<b>QUARTERLY REVENUES (\$ mill.)<sup>E</sup></b>		Full Year																	
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31															
2016	121.7	152.4	184.3	151.0															
2017	122.1	171.1	211.7	162.0															
2018	134.6	174.9	221.3	167.4															
2019	126.1	179.0	232.5	172.4															
2020	140	185	237	178															
<b>EARNINGS PER SHARE<sup>A</sup></b>		Full Year																	
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31															
2016	d.02	.24	.48	.31															
2017	.02	.39	.70	.29															
2018	d.02	.31	.75	.32															
2019	d.16	.35	.88	.33															
2020	.03	.42	.85	.40															
<b>QUARTERLY DIVIDENDS PAID<sup>B</sup></b>		Full Year																	
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31															
2016	.1725	.1725	.1725	.1725															
2017	.18	.18	.18	.18															
2018	.1875	.1875	.1875	.1875															
2019	.1975	.1975	.1975	.1975															
2020																			

**BUSINESS:** California Water Service Group provides regulated and nonregulated water service to 486,900 customers in 100 communities in the state of California. Accounts for over 94% of total customers. Also operates in Washington, New Mexico, and Hawaii. Main service areas: San Francisco Bay area, Sacramento Valley, Salinas Valley, San Joaquin Valley & parts of Los Angeles, Ac-

quired Rio Grande Corp; West Hawaii Utilities (9/08). Revenue breakdown: '18: residential, 67%; business, 19%; industrial, 5%; public authorities, 5%; other 4%. Off. and dir. own 1% of common stock (4/19 proxy). Has 1,184 employees. Pres. and CEO: Martin A. Kropelnicki, Inc. DE. Addr.: 1720 North First St., San Jose, CA 95112-4598. Tel.: 408-367-8200. Internet: www.calwatergroup.com.

**California Water Service Group's net income rose sharply in the third quarter.** Share net of \$0.88 increased 17%, year over year, handily topping our \$0.79 call. The solid performance was driven largely by higher rates and lower business development expenses, as these positives more than offset increased water production and operating costs. On balance, we think the water provider closed out the year with earnings of \$1.40 a share. For 2020, we expect noteworthy share-net expansion, which should be supported by a healthy top-line advance.

**rate increases are probably on tap.** Indeed, management is in the early innings of its extensive capital allocation program. As previously noted, upward of \$750 million has been earmarked for infrastructure upgrades, namely improvements to its water transportation systems and treatment plants. To support these initiatives, another settlement agreement was filed in October to address additional matters in its general rate case. To that end, should the Public Utilities Commission approve the agreement, California Water may be able to pass along to customers approximately \$600 million-\$625 million in project spending in the form of rate hikes.

**The company's outstanding share count is poised to rise.** This is due primarily to the recent initiation of a three-year equity program in which California Water will periodically sell shares of common stock at market value. The rate of issuance will depend on respective market conditions, with total gross sales not to exceed \$300 million. California Water will likely use net proceeds for general corporate purposes, such as construction and acquisitions, investments, and the redemption of securities.

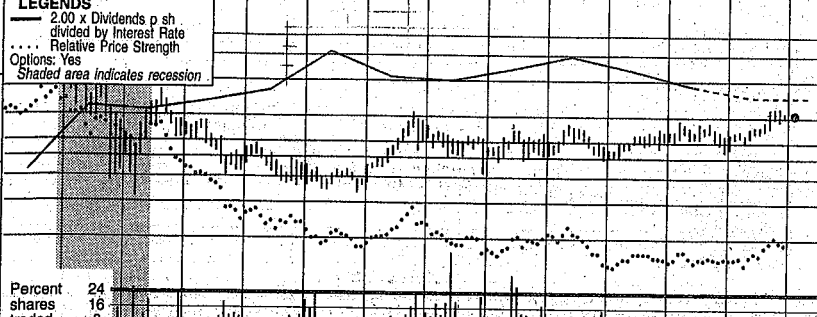
**The issue has been upgraded one notch for Timeliness, to 2 (Above Average), and thus it ought to appeal to near-term subscribers.** Further, price upside over the 18 month stretch is worthwhile. But despite the equity's attractive business prospects, those with a 3- to 5-year holding period are better off waiting on the sidelines, as CWT is presently trading near the upper end of our Target Price Range.

**Long term, investment spending and** *Nicholas P. Patrikis*      January 10, 2020

(A) Basic EPS. Excl. nonrecurring gain (loss): '11, 4¢. Next earnings report due early Feb.  
 (B) Dividends historically paid in late Feb., May, Aug., and Nov. = Div'd reinvestment plan available.  
 (C) Incl. intangible assets: in '18: \$24.7 mill., \$0.51/sh.  
 (D) In millions, adjusted for splits.  
 (E) Excludes non-reg. rev.  
 Company's Financial Strength    B++  
 Stock's Price Stability            80  
 Price Growth Persistence        60  
 Earnings Predictability          65  
 To subscribe call 1-800-VALUELINE

APPENDIX A-5.1 (AUS)

<b>CONSOL. WATER CO. NDQ-CWCO</b>				<b>RECENT PRICE</b>	<b>16.46</b>	<b>P/E RATIO</b>	<b>27.4</b> (Trailing: 30.5; Median: 23.0)	<b>RELATIVE P/E RATIO</b>	<b>1.49</b>	<b>DIV'D VLD</b>	<b>2.1%</b>	<b>VALUE LINE</b>	<b>1791</b>									
<b>TIMELINESS</b> 3	Raised 8/24/18	High: 29.8	21.3	15.1	11.7	9.2	16.9	14.5	13.8	14.7	14.0	15.4	17.9									
<b>SAFETY</b> 3	New 1/17/14	Low: 7.6	6.4	8.1	7.3	6.7	7.5	8.4	9.6	9.8	10.0	10.8	11.1									
<b>TECHNICAL</b> 2	Lowered 12/27/19	<b>LEGENDS</b>																				
<b>BETA</b> .85	(1.00 = Market)	2.00 x Dividends p sh divided by Interest Rate																				
<b>18-Month Target Price Range</b>		Relative Price Strength																				
Low-High	Midpoint (% to Mid)	Options: Yes																				
\$10-\$19	\$15 (-10%)	Shaded area indicates recession																				
<b>2022-24 PROJECTIONS</b>		Target Price Range																				
High	Gain	2022																				
Low	Ann'l Total Return	2023																				
35 (+115%)	23%	2024																				
25 (+50%)	14%																					
<b>Institutional Decisions</b>		<b>% TOT. RETURN 11/19</b>																				
to Buy	1Q2019	2Q2019	3Q2019	Percent	THIS STOCK									VL ARITH. INDEX								
to Sell	34	34	44	shares	1 yr.	38.0	6.5															
Hld's(000)	8032	8148	8224	traded	3 yr.	64.3	24.6															
					5 yr.	54.4	38.9															
<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022-24</b>			
1.68	2.02	1.12	2.71	3.41	4.52	3.99	3.49	3.79	4.49	4.35	4.46	3.86	3.89	4.18	4.39	4.50	4.55	4.55	Revenues per sh	9.40		
.63	.77	.37	.87	1.20	.95	1.18	.86	.83	1.17	.96	.80	.89	.95	1.12	1.15	1.00	1.10	1.10	"Cash Flow" per sh	2.00		
.42	.49	.23	.59	.79	.50	.74	.43	.42	.64	.58	.42	.51	.27	.41	.68	.58	.65	.65	Earnings per sh A	1.40		
.21	.23	.12	.24	.20	.33	.28	.30	.30	.30	.30	.30	.30	.30	.31	.34	.34	.34	.34	Div'd Decl'd per sh B	.75		
.19	.24	.77	1.83	.54	.46	.18	.09	.96	.31	.29	.32	.21	.23	.31	1.08	.25	.45	.45	Cap'l Spending per sh	.50		
3.89	4.20	2.54	7.49	8.21	8.36	8.53	8.69	8.83	9.20	9.44	9.58	9.81	9.79	9.91	10.34	10.95	11.20	11.20	Book Value per sh C	12.20		
11.37	11.51	23.46	14.13	14.40	14.53	14.54	14.55	14.57	14.59	14.69	14.72	14.78	14.87	14.92	14.98	15.10	15.20	15.20	Common Shs Outst'g C	16.00		
19.3	23.1	NMF	43.0	35.4	37.8	19.0	26.9	22.4	12.4	20.0	28.3	22.7	44.8	29.0	19.4	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	22.0			
1.10	1.22	NMF	2.92	1.88	2.27	1.27	1.71	1.41	.79	1.12	1.49	1.14	2.35	1.46	1.05			Relative P/E Ratio	1.20			
2.6%	2.0%	7%	3%	7%	1.7%	2.0%	2.6%	3.2%	3.8%	2.6%	2.5%	2.6%	2.5%	2.6%	2.6%			Avg Ann'l Div'd Yield	2.5%			
<b>CAPITAL STRUCTURE as of 9/30/19</b>						58.0	50.7	55.2	65.5	63.8	65.6	57.1	57.9	62.3	65.7	68.0	69.0	69.0	Revenues (\$mill)	150		
<b>Total Debt None</b>						10.8	6.3	6.1	9.3	8.6	6.3	7.5	4.0	6.1	10.2	9.0	10.0	10.0	10.0	Net Profit (\$mill)	23.0	
<b>Leases, Uncapitalized: Annual rentals \$5 mill.</b>																			Income Tax Rate	NMF		
<b>No Defined Benefit Pension Plan</b>																			AFUDC % to Net Profit	NMF		
<b>Pfd Stock NMF (34,796 shares out.) Div'd NMF</b>						13.8%	11.8%	5.1%	3.7%											Long-Term Debt Ratio	Nil	
<b>Common Stock 15,027,574 shs. as of 11/19/19</b>						86.2%	88.2%	94.9%	96.3%	99.8%	99.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	Common Equity Ratio	100%	
<b>MARKET CAP: \$250 million (Small Cap)</b>						143.9	143.3	135.6	139.4	138.9	141.2	145.0	145.6	147.9	155.0	165	170	170	170	Total Capital (\$mill)	195	
<b>CURRENT POSITION (\$MILL.)</b>						61.2	56.2	64.3	61.6	58.6	56.4	53.7	53.1	50.5	64.9	65.0	70.0	70.0	70.0	Net Plant (\$mill)	100	
<b>Cash Assets</b>						8.1%	4.9%	5.0%	7.0%	6.2%	4.4%	5.2%	2.7%	4.2%	6.6%	5.5%	6.0%	6.0%	6.0%	Return on Total Cap'l	12.0%	
<b>Accts Receivable</b>						8.7%	5.0%	4.7%	6.9%	6.2%	4.4%	5.2%	2.7%	4.2%	6.6%	5.5%	6.0%	6.0%	6.0%	6.0%	Return on Shr. Equity	12.0%
<b>Other</b>						4.6%	1.5%	1.0%	3.6%	3.0%	1.2%	2.1%	NMF	1.1%	3.3%	2.0%	3.0%	3.0%	3.0%	Return on Com Equity	12.0%	
<b>Current Assets</b>																				Retained to Com Eq	5.5%	
<b>Accts Payable</b>																				All Div'ds to Net Prof	54%	
<b>Debt Due</b>																						
<b>Other</b>																						
<b>Current Liab.</b>																						



**Consolidated Water's share earnings will probably recover, to some extent, in 2020.** Last year's bottom line was hurt when bulk water rates were reduced in the Cayman Islands. Year-over-year comparisons were also not favorable due to some unusual gains recorded in 2018. However, increased activity at the Aerex business, which manufactures parts for desalination facilities, should rise as more of these projects are built. All told, Consolidated share net could climb 11%.

**The desalination segment of the water sector remains attractive.** Management currently estimates that there are 18,500 desalination plants in the world that supply water to over 300 million people. Annual growth in this sector is expected to average close to 10%. Much of this will be attributable to rising populations in many parts of the world where potable water is not plentiful. Indeed, in California and the southwestern United States, the use of this process ought to pick up considerably. In the Golden State, there are 11 projects in operation, with another 10 in the planning stages. Consolidated has most of its plants domiciled in countries where operating can be difficult, at times, and would like to increase its presence here.

**All approvals for the Rosarito project have not yet been granted.** The company has completed all of the pre-construction work for developing a desalination plant to serve the city of Tijuana. The most recent delay was due to a newly elected administration coming into office. While the regulatory process may take longer than expected, the chances of it being permitted are excellent, as the water is needed. In any case, Consolidated is limiting its risk here as it will only be the operator and minority owner. Suez International will construct Rosarito. **This stock is not for the typical water utility investor.** For starters, the company's earnings stream is much less predictable than the other regulated companies in this group. Part of this is due to its extensive overseas operations. An average selection for the year ahead, these shares have negative potential in the 18-month period. Over the pull to 2022-2024, however, the equity may well generate above-average returns.

*James A. Flood*  
January 10, 2020

(A) Fully diluted earnings. Excludes gains from discontinued operations: '17, \$0.07 a share; '18, \$0.07 a share; '19, \$0.24 a share. Next earnings report due mid-February.  
(B) Dividends historically paid in late January, April, July, and October. ■ Dividend reinvestment plan available.  
(C) In millions, adjusted for stock split.  
(D) Includes Intangibles. As of 9/30/19, \$9.3 million/\$0.62 a share.

Company's Financial Strength B+  
Stock's Price Stability 50  
Price Growth Persistence 30  
Earnings Predictability 40

To subscribe call 1-800-VALUELINE

© 2020 Value Line, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, resold, stored or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.

MIDDLESEX WATER NDQ-MSEX				RECENT PRICE	P/E RATIO	Trailing: 32.3 Median: 21.0	RELATIVE P/E RATIO	DIV'D YLD	VALUE LINE	1792						
<b>TIMELINESS</b> 3 Lowered 5/24/19	High: 19.8	17.9	19.3	19.4	19.6	22.5	23.7	28.0	44.5	46.7	60.3	67.7	Target Price Range	2022	2023	2024
<b>SAFETY</b> 2 New 10/21/11	Low: 12.0	11.6	14.7	16.5	17.5	18.6	19.1	21.2	25.0	32.2	34.0	51.0	2022	2023	2024	120
<b>TECHNICAL</b> 2 Raised 1/3/20	<b>LEGENDS</b> --- 1.20 x Dividends p sh divided by Interest Rate ..... Relative Price Strength Options: Yes Shaded area indicates recession												100			
<b>BETA</b> .75 (1.00 = Market)	<b>18-Month Target Price Range</b> Low-High Midpoint (% to Mid) \$52-\$89 \$71 (10%)												80			
<b>2022-24 PROJECTIONS</b> Ann'l Total High Price 60 Gain (-5%) Return Nil Low 45 (-30%) -6%													64			
<b>Institutional Decisions</b> 10/2019 2Q2019 3Q2019 to Buy 72 79 56 to Sell 67 58 67 Held \$ (000) 9424 9432 9915 Percent shares traded 12 8 4													48			
<b>2003-2020</b> 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020													32			
<b>Revenues per sh</b> 9.15 <b>"Cash Flow" per sh</b> 3.45 <b>Earnings per sh<sup>A</sup></b> 2.45 <b>Div'd Decl'd per sh<sup>B</sup></b> 1.15 <b>Cap'l Spending per sh</b> 3.50 <b>Book Value per sh</b> 17.05 <b>Common Shs Outst'g<sup>C</sup></b> 18.00 <b>Avg Ann'l P/E Ratio</b> 21.0 <b>Relative P/E Ratio</b> 1.15 <b>Avg Ann'l Div'd Yield</b> 2.2%													24			
<b>CAPITAL STRUCTURE as of 9/30/19</b> Total Debt \$294.0 mill. Due in 5 Yrs \$65.7 mill. LT Debt \$228.3 mill. LT Interest \$6.8 mill. (Total interest coverage: 8.5x) (45% of Cap'l) <b>Pension Assets-12/18</b> \$66.8 mill. Oblig. \$83.9 mill. <b>Pfd Stock</b> \$2.4 mill. Pfd Div'd: \$ 1 mill. <b>Common Stock</b> 16,669,540 shs. as of 10/31/19													20			
<b>MARKET CAP: \$1.1 billion (Mid-Cap)</b>													16			
<b>CURRENT POSITION (\$ MILL.)</b> 2017 2018 9/30/19 Cash Assets 4.9 3.7 3.2 Other 24.3 27.1 31.5 Current Assets 29.2 30.8 34.7 Accts Payable 13.9 19.3 20.2 Debt Due 34.9 55.8 65.7 Other 15.7 19.3 17.6 Current Liab. 64.5 94.4 103.5													12			
<b>ANNUAL RATES</b> Past 10 Yrs. Past 5 Yrs. Est'd '16-'18 to '22-'24 Revenues 2.5% 3.5% 2.0% "Cash Flow" 5.5% 9.0% 6.5% Earnings 6.0% 11.0% 7.5% Dividends 2.0% 3.0% 5.0% Book Value 3.5% 4.5% 3.0%													8			
<b>QUARTERLY REVENUES (\$ mill.)</b> Cal-ender Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2016 30.6 32.7 37.8 31.8 132.9 2017 30.1 33.0 36.2 31.5 130.8 2018 31.2 34.9 38.7 33.3 138.1 2019 30.7 33.4 37.8 33.1 135 2020 32.0 36.0 42.0 35.0 145													4			
<b>QUARTERLY EARNINGS PER SHARE<sup>A</sup></b> Cal-ender Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2016 .29 .36 .54 .19 1.38 2017 .27 .33 .46 .32 1.38 2018 .27 .52 .74 .43 1.96 2019 .39 .49 .66 .41 1.95 2020 .40 .55 .70 .45 2.10													4			
<b>QUARTERLY DIVIDENDS PAID<sup>B</sup></b> Cal-ender Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2016 .19875 .19875 .19875 .21125 .81 2017 .21125 .21125 .21125 .22375 .86 2018 .22375 .22375 .22375 .24 .91 2019 .24 .24 .24 .2562 .98 2020													4			
<b>BUSINESS:</b> Middlesex Water Company engages in the ownership and operation of regulated water utility systems in New Jersey, Delaware, and Pennsylvania. It also operates water and wastewater systems under contract on behalf of municipal and private clients in NJ and DE. Its Middlesex System provides water services to 61,000 retail customers, primarily in Middlesex County, New Jersey. In 2018, the Middlesex System accounted for 59% of operating revenues. At 12/31/18, the company had 330 employees. Incorporated: NJ. President, CEO, and Chairman: Dennis W. Doll. Officers & directors own 3.5% of the com. stock; BlackRock Inst. Trust Co., 6.8% (4/19 proxy). Add.: 485 C Route 1 South, Suite 400, Iselin, NJ 08830. Tel.: 732-634-1500. Int.: www.middlesexwater.com.													4			
<b>Middlesex Water Company has tapped the equity markets.</b> The company recently finalized a public offering of approximately 760,000 shares of common stock at a price of \$60.50 per share (includes additional shares purchased by underwriters). Middlesex received total net proceeds of \$43.8 million, which have been earmarked for a number of efforts, including general corporate purposes, paying off short-term obligations, completing acquisitions, and funding the continuation of infrastructure investment initiatives.													4			
<b>We are moderately tempering our 2019 and 2020 earnings forecasts.</b> The Northeast water and wastewater operator saw net income contract year-over-year in the third quarter, to \$0.66 per share, partly due to weaker revenues stemming from softer water consumption related to unfavorable weather. Operating expenses were essentially unchanged, on an annual basis. All told, we are slicing a nickel and a dime off our 2019 and 2020 share-net estimates, to \$1.95 and \$2.10, respectively.													4			
<b>Middlesex shares may be cooling off a bit.</b> The stock price pulled back modestly since our last report, despite stamping a													4			
<b>fresh all-time high in late October.</b> For much of 2019, the stock has traded in a relatively tight range. Indeed, investors may be starting to take some profits off the table following several years of strong price appreciation and the recent dilution. The board of directors increased the quarterly payout 7%, to \$0.2562 per share. While consistent dividend hikes are reassuring, at current levels, this equates to an annual yield of about 1.6%, which does not necessarily jump out to the income-seeking crowd.													4			
<b>What about Middlesex stock?</b> The company is in decent shape from a fundamental perspective, and long-term business prospects should be enhanced by multiple catalysts, such as an expanding customer base (particularly in Delaware), periodic rate increases, and strong infrastructure spending. However, the issue is presently void of investment appeal. Middlesex shares are just an average selection for relative year-ahead price performance, and most of the gains we envision three to five years out appear to already be baked into the recent quotation.													4			
Nicholas P. Patrikis January 10, 2020													4			
<b>Company's Financial Strength</b> B++ <b>Stock's Price Stability</b> 65 <b>Price Growth Persistence</b> 55 <b>Earnings Predictability</b> 75													4			

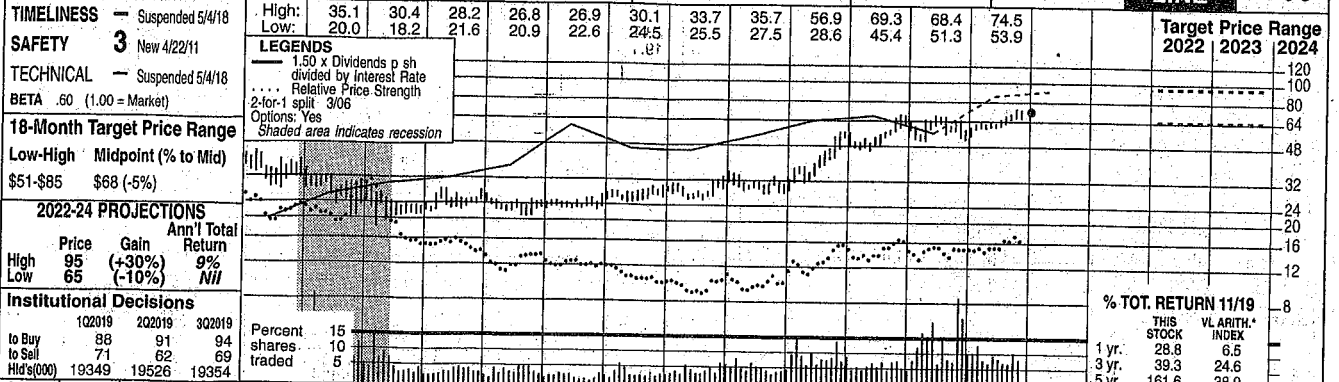
(A) Diluted earnings. Next earnings report due late January.

(B) Dividends historically paid in mid-Feb., May, Aug., and November. Div'd reinvestment plan available.

(C) In millions.

**APPENDIX A-5.1 (AUS)**

**SJW GROUP NYSE-SJW** RECENT PRICE **71.79** P/E RATIO **44.3** (Trailing: 51.6 Median: 21.0) RELATIVE P/E RATIO **2.41** DIV'D YLD **1.7%** VALUE LINE **1793**



Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	© VALUE LINE PUB. LLC	22-24	
Price	8.20	9.14	9.86	10.35	11.25	12.12	11.68	11.62	12.85	14.01	13.73	15.76	14.97	16.61	18.97	14.00	14.15	18.15	Revenues per sh	20.85	
Gain (-10%)	1.75	1.89	2.21	2.38	2.30	2.44	2.21	2.38	2.80	2.97	2.90	4.42	3.86	4.76	5.24	3.29	3.15	4.15	"Cash Flow" per sh	5.30	
Ann'l Total Return	.91	.87	1.12	1.19	1.04	1.08	.81	.84	1.11	1.18	1.12	2.54	1.85	2.57	2.86	1.82	1.45	2.45	Earnings per sh A	3.65	
High	.49	.51	.53	.57	.61	.65	.66	.68	.69	.71	.73	.75	.78	.81	1.04	1.12	1.20	1.28	Div'd Decl'd per sh B	1.50	
Low	3.41	2.31	2.83	3.87	6.62	3.79	3.17	5.65	3.75	5.67	4.68	5.02	5.24	6.95	7.26	5.08	5.00	5.25	Cap'l Spending per sh	5.25	
Price	9.11	10.11	10.72	12.48	12.90	13.99	13.66	13.75	14.20	14.71	15.92	17.75	18.83	20.61	22.57	31.31	31.20	32.70	Book Value per sh	38.35	
Gain (+30%)	18.27	18.27	18.27	18.28	18.36	18.18	18.50	18.55	18.59	18.67	20.17	20.29	20.38	20.46	20.52	28.40	29.00	29.50	Common Shs Outst'g C	30.00	
Return	15.4	19.6	19.7	23.5	33.4	26.2	26.7	29.1	21.2	20.4	24.3	11.2	16.6	15.7	18.8	32.7	32.7	36.5	Avg Ann'l P/E Ratio	22.0	
Ann'l Total Return	.88	1.04	1.05	1.27	1.77	1.58	1.91	1.85	1.33	1.30	1.37	.59	.84	.82	.95	1.76	1.76	1.99	Relative P/E Ratio	1.20	
High	3.5%	3.0%	2.4%	2.0%	1.7%	2.3%	2.8%	2.8%	2.9%	3.0%	2.7%	2.6%	2.5%	2.0%	1.9%	1.9%	1.9%	1.9%	Avg Ann'l Div'd Yield	1.9%	
Low																					

**18-Month Target Price Range**  
Low-High Midpoint (% to Mid)  
\$51-\$85 \$68 (-5%)

**2022-24 PROJECTIONS**  
High Price Gain Ann'l Total  
Low 95 (+30%) 65 (-10%) 9% Nil

**Institutional Decisions**

	1Q2019	2Q2019	3Q2019
To Buy	88	91	94
To Sell	71	62	69
Hld's(000)	19349	19526	19354

**CAPITAL STRUCTURE as of 9/30/19**  
Total Debt \$511.1 mill. Due in 5 Yrs \$14.3 mill.  
LT Debt \$511.1 mill. LT Interest \$20.0 mill.  
(LT Interest Coverage: 7.1x)

**Leases, Uncapitalized:** Annual rentals \$4.4 mill.

**Pension Assets-12/18** \$127.6 mill.  
Oblig. \$187.9 mill.

**Pfd Stock None.**  
**Common Stock** 28,456,490 shs.  
**as of 10/28/19**  
**MARKET CAP: \$2.0 billion (Mid Cap)**

**CURRENT POSITION** 2017 2018 9/30/19 (\$MILL.)

Cash Assets	7.8	420.7	424.7
Accts Receivable	17.3	19.2	28.0
Other	41.8	62.8	55.1
<b>Current Assets</b>	<b>66.9</b>	<b>502.7</b>	<b>507.8</b>
Accts Payable	23.0	24.9	28.2
Debt Due	62.1	139.1	116.1
Other			
<b>Current Liab.</b>	<b>85.1</b>	<b>164.0</b>	<b>144.3</b>

**ANNUAL RATES** Past 10 Yrs Past 5 Yrs Est'd '16-'18 of change (per sh) to '22-'24

Revenues	5.0%	5.5%	4.0%
"Cash Flow"	7.0%	11.0%	3.0%
Earnings	8.0%	18.5%	7.0%
Dividends	4.5%	5.0%	7.0%
Book Value	5.5%	8.0%	7.5%

**QUARTERLY REVENUES (\$ mill.)**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	61.1	86.9	112.3	79.4	339.7
2017	69.0	102.1	124.6	93.5	389.2
2018	75.0	99.1	124.9	98.7	397.7
2019	77.7	103.0	114.0	115	410
2020	105	135	170	125	535

**EARNINGS PER SHARE A**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	.16	.82	.92	.67	2.57
2017	.18	.90	.94	.84	2.86
2018	.06	.62	.76	.38	1.82
2019	.21	.47	.33	.44	1.45
2020	.20	.65	.95	.65	2.45

**QUARTERLY DIVIDENDS PAID B<sup>DM</sup>**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	.2025	.2025	.2025	.2025	.81
2017	.2175	.2175	.2175	.3875	1.04
2018	.28	.28	.28	.28	1.12
2019	.30	.30	.30	.30	1.20
2020					

**BUSINESS:** SJW Group engages in the production, purchase, storage, purification, distribution, and retail sale of water. It provides water service to approximately 231,000 connections with a total population of roughly one million people in the San Jose area and 16,000 connections that reach about 49,000 residents in the region between San Antonio and Austin, Texas. The company merged with Connecticut Water (10/19) which provides service to approx. 138,000 connections with total population of 450,000 people. Has about 416 employees. Officers and directors own 8.2% of outstanding shares (9/19 proxy). Chairman & CEO: Richard Roth, Incorported: California. Address: 110 West Taylor Street, San Jose, CA 95110. Telephone: (408) 278-7800. Internet: www.sjwater.com.

**SJW Group completed the purchase of Connecticut Water Service in October of 2019.** The \$70-per-share all-cash transaction took nearly a year to close after both entities finally received the nod from their respective regulatory agencies. The third-largest investor-owned regulated water and wastewater provider now caters to roughly 1.5 million people across the U.S. Moreover, Connecticut Water is well represented on the board of directors, as three former directors have been given seats on SJW Group's board.

**Accordingly, we are lifting our 2020 financial projections to reflect the deal.** The company probably ended 2019 on a mixed note. Added revenues from Connecticut operations may be partially offset by a recent ruling on SJW's conservation memorandum account balance. Nevertheless, the stage is set for a promising 2020, in our view. We now look for revenues of \$535 million and earnings of \$2.45 a share this year.

**SJW Group hopes to deploy advanced metering services to its customers over the next several years.** Specifically, the company recently filed an applica-

tion with the California Public Utilities Commission to deploy Advanced Metering Infrastructure, a technology that can provide essential water usage information to customers on an hourly basis rather than once every two months. Near real-time water consumption data, early leak detection, and usage spike notifications ought to help customers meet California's revised state conservation standards (takes effect in 2022), which are vital given that the area is prone to extreme drought conditions. Further, the AMI program will likely be accompanied by additional infrastructure investment (upgrades to water filtration systems, treatment plants, and pipelines) over the pull to 2022-2024. **The issue remains suspended for Timeliness given the recent merger.** SJW Group's expanded operational footprint augurs well for long-term business prospects. Also, given that the market continues to print record highs, we think a rotation into noncyclical, defensive assets could develop. Even so, we are not recommending capital commitments at the recently elevated valuation.

*Nicholas P. Patrikis* January 10, 2020

(A) Diluted earnings. Excludes nonrecurring losses: '03, \$1.97; '04, \$3.78; '05, \$1.09; '06, \$16.36; '08, \$1.22; '10, \$0.46. GAAP accounting as of 2013. Next earnings report due early February. Quarterly earnings may not add due to rounding. (B) Dividends historically paid in early March, June, September, and December. Div'd reinvestment plan available. (C) In millions, adjusted for stock splits. (D) Paid special dividend of \$0.17 per share on 11/17.

Company's Financial Strength	B+
Stock's Price Stability	75
Price Growth Persistence	60
Earnings Per Share	45

© 2020 Value Line, Inc. All rights reserved. Factset material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, stored, transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.

To subscribe call 1-800-VALUELINE





File in the binder in order of issue number, removing previous issue bearing the same number.

April 10, 2020



# THE VALUE LINE

Investment Survey®

www.valueline.com



	PAGE
<b>MACHINERY INDUSTRY</b> .....	<b>1701</b>
AAON, Inc. ....	1702
Alamo Group .....	1703
Albany International 'A' .....	1704
Altra Industrial Motion Corp. ....	1705
Applied Industrial Technologies .....	1706
Brooks Automation .....	1707
Columbus McKinnon Corp. ....	1708
★ Curtiss-Wright .....	1709
Donaldson .....	1710
Dover Corp. ....	1711
Flowserve Corp. ....	1712
Gates Industrial Corp. ....	1713
★ Graco Inc. ....	1714
IDEX Corp. ....	1715
Lennox International Inc. ....	1716
Lincoln Electric Holdings .....	1717
Lindsay Corp. ....	1718
★★ MSA Safety Inc. ....	1719
MSC Industrial Direct Co., Inc. ....	1720
Middleby Corp. (The) .....	1721
Mueller Water Products, Inc. ....	1722
Nordson Corp. ....	1723
RBC Bearings Inc. ....	1724
Regal Beloit Corp. ....	1725
Rexnord Corporation .....	1726
★ Roper Technologies .....	1727
SPX FLOW .....	1728
Smith (A.O.) .....	1729
Snap-on Inc. ....	1730
Stanley Black & Decker .....	1731
★ Tennant Co. ....	1732
Thermon Group .....	1733
★ Toro Company .....	1734
United Rentals, Inc. ....	1735
★ Watts Water Technologies .....	1736
Welbilt, Inc. ....	1737
Xylem Inc. ....	1738
<b>DIVERSIFIED COMPANY INDUSTRY</b> .....	<b>1739</b>
ABB Ltd. ....	1740
Aerofjet Rocketdyne Holdings .....	1741
★ AMETEK, Inc. ....	1742
ARAMARK Holdings .....	1743
Barnes Group .....	1744
Brady Corp. ....	1745
Brookfield Infrastructure L.P. ....	1746
★ Carlisle Companies, Inc. ....	1747
★★ Chemed Corp. ....	1748
Colfax Corporation .....	1749
Crane Co. ....	1750
Danaher Corp. ....	1751
ESCO Technologies, Inc. ....	1752
EnPro Industries, Inc. ....	1753
General Electric .....	1754
Graham Holdings .....	1755
Griffon Corp. ....	1756
Helios Technologies .....	1757
Honeywell International Inc. ....	1758
ITT Inc. ....	1759
Jefferies Financial .....	1760
John Bean Tech. ....	1761
Johnson Controls Int'l plc .....	1762
Kadant Inc. ....	1763
Kaman Corp. ....	1764

Myers Industries .....	1765
National Presto .....	1766
Park-Ohio Holdings .....	1767
Parker-Hannifin Corp. ....	1768
Pentair plc .....	1769
Raven Industries .....	1770
Realogy Holdings Corp. ....	1771
Rogers Communications Inc. ....	1772
SPX Corp. ....	1773
Siemens AG .....	1774
Spectrum Brands .....	1775
Standex International .....	1776
Textron, Inc. ....	1777
3M Company .....	1778
TriMas Corporation .....	1779
United Technologies .....	1780
Valmont Industries .....	1781
Viad Corp. ....	1782
Whirlpool Corp. ....	1783

<b>WATER UTILITY INDUSTRY</b> .....	<b>1784</b>
★ American States Water Co. ....	1785
American Water Works Co. ....	1786
California Water Svc. ....	1787
★ Consolidated Water Co. ....	1788
★★ Essential Utilities .....	1789
Middlesex Water Company .....	1790
SJW Group .....	1791
★ York Water Company (The) .....	1792

<b>BROKERS &amp; EXCHANGES INDUSTRY</b> .....	<b>1793</b>
BGC Partners, Inc. ....	1794
Cboe Global Markets .....	1795
CME Group Inc. ....	1796
E*TRADE Financial Corp. ....	1797
Interactive Brokers .....	1798
Intercontinental Exchange, Inc. ....	1799
★ LPL Financial Holdings .....	1800
★ MarketAxess Holdings .....	1801
Nasdaq, Inc. ....	1802
Schwab (Charles) .....	1803
TD Ameritrade Holding Corp. ....	1804

<b>INVESTMENT BANKING INDUSTRY</b> .....	<b>1805</b>
Goldman Sachs .....	1806
Greenhill & Co. ....	1807
★★ Houlihan Lokey, Inc. ....	1808
★ Morgan Stanley .....	1809
★ Piper Sandler Cos. ....	1810
★ Raymond James Financial .....	1811
★ Stifel Financial Corp. ....	1812

<b>E-COMMERCE INDUSTRY</b> .....	<b>1813</b>
★ Akamai Technologies, Inc. ....	1814
Arista Networks, Inc. ....	1815
Avalara, Inc. ....	1816
★★ Black Knight, Inc. ....	1817
★ Check Point Software Tech. ....	1818
Cornerstone OnDemand .....	1819
Coupa Software .....	1820
GoDaddy Inc. ....	1821
HubSpot, Inc. ....	1822
LogMeIn, Inc. ....	1823
Medallia, Inc. ....	1824

**ESPECIALLY NOTEWORTHY:**

*This week, we welcome Alamo Gro. up, a leading maker of specialized equipment for infrastructure maintenance and farming & landscaping, to The Value Line Investment Survey. Turn to page 1703 to learn more.*

*On February 20<sup>th</sup>, Morgan Stanley entered into a definitive agreement to acquire E\*TRADE, a leader in the online brokerage industry, in an all-stock transaction valued at about \$13 billion. Read more on the pending transaction on page 1809.*

*Meanwhile, TD Ameritrade accepted a buyout offer from Charles Schwab in November of last year. The all-stock transaction is valued at \$26 billion, but is not yet a fait accompli. Please turn to pages 1803 and 1804 for updates.*

*The separation of United Technologies into three separate stand-alone entities was set to be completed as this Issue went to press. Shortly thereafter, the buyout of Raytheon should commence. Turn to page 1780 to learn more.*

MercadoLibre, Inc. ....	1825
New Relic, Inc. ....	1826
Nutanix, Inc. ....	1827
★ Open Text Corp. ....	1828
Paylocity Holding Corp. ....	1829
Sabre Corporation .....	1830
salesforce.com, inc. ....	1831
★ Shopify Inc. ....	1832
Slack Technologies .....	1833
Smartsheet Inc. ....	1834
Splunk, Inc. ....	1835
Twilio Inc. ....	1836
Workday, Inc. ....	1837
Zendesk, Inc. ....	1838
Zscaler, Inc. ....	1839

<b>FUNERAL SERVICES INDUSTRY</b> ..	<b>1840</b>
★ Carriage Services, Inc. ....	1841
Hillenbrand, Inc. ....	1842
Matthews International Corp. ....	1843
★ Service Corp. International .....	1844

**SUPPLEMENTARY REPORTS** ..... 1850

★★ Rank 1 (Highest) for Timeliness.  
★ Rank 2 (Above Average).

In three parts: Part 1 is the Summary & Index. Part 2 is Selection & Opinion. This is Part 3, Ratings & Reports. Volume LXXV, No. 35

Published weekly by VALUE LINE PUBLISHING LLC, 551 Fifth Avenue, New York, NY 10176.

April 10, 2020

## WATER UTILITY INDUSTRY

1784

INDUSTRY TIMELINESS: 5 (of 95)

The Water Utility Industry consists of eight investor-owned utilities. These companies are very much like electric or gas utilities, but operate in a much smaller universe because the overwhelming amount of water services in the United States are provided by municipally run entities.

These companies have much less exposure to the economic turmoil related to the coronavirus than other industries we follow. Water is essential and its usage doesn't change substantially during an economic expansion or a contraction.

Following years of underinvestment, almost every member of this group is involved in a major construction program aimed at replacing large quantities of old pipelines.

Finances in this group are just average as modernizing the nation's aging water infrastructure is not cheap. Utilities often have taken on decent amounts of debt to fund the construction programs.

One of the biggest influences on how any utility performs is the treatment it receives from regulators. For the most part, the relationship between water companies and state authorities has been constructive.

#### Coronavirus And Water Utilities

Certain industries are cyclical and very dependent on the state of the general economy. The demand for water is relatively inelastic and people's usage of it is fairly constant. During difficult periods households will cut back on all expenses, including water. However, due to it being such a necessity, demand does not change significantly. So, even though COVID-19 has caused economic uncertainty on a global basis, this sector ought to remain fine. Only should the pandemic become much worse would it have an impact. Ratepayers are citizens that vote, and should a sharp recession or depression take place, regulators would be reluctant to pass along increased operating costs incurred by a utility in the form of higher water bills, no matter how justified the expenses.

#### Large Construction Programs

Until the past decade, or so, both municipal and investor-owned utilities didn't sufficiently invest in keeping pipelines and other assets in proper condition. As a result, the average age of pipelines in the U.S. is estimated to be between 50 and 75 years. Utilities and regulators have realized that more funds would have to be allocated to replacing and modernizing large portions of the nation's water infrastructure. That's why this group's construction budget is large, though manageable. Authorities also realize that water bills were kept artificially low for years, especially in relation to other vital utility services, and have to be gradually raised.

#### Average Finances

Although domestic water utilities are very stable, their balance sheets reflect the industry's hefty capital budget. Still, these companies are not overleveraged, with the average Financial Strength rating for the group being a B+. As an increased amount of money is used to replace pipes, we think the overall financial health of the industry ought to remain unchanged.

#### Regulation

Probably the prime reason for water utilities stocks performing so well over the past five years has been due to constructive regulation. Unlike, electric utilities, for example, both sides are basically in agreement that upgrades are required and ratepayers' bills will have to be raised. Investors should be aware of what can happen when authorities and utilities do not work as partners (i.e. the Electric Utility Industry). As of now, we see no signs of rifts between the water group and regulators.

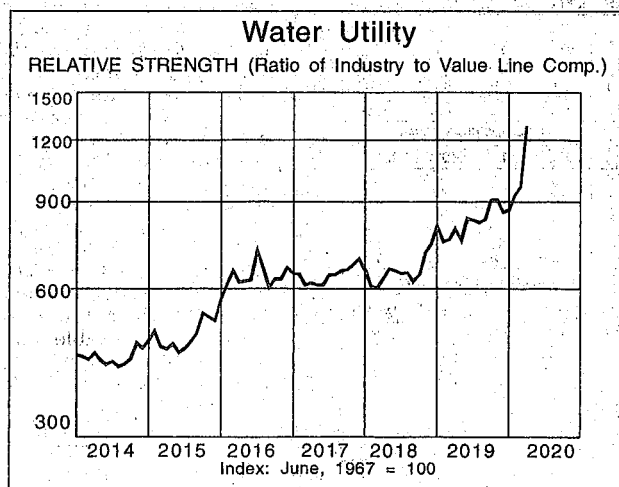
#### Untraditional Behavior

As we mentioned earlier, these equities were historically purchased by conservative investors looking for income. Over the past several years, the profile of the stocks has changed. Indeed, no longer are the yields on these shares high. In fact, the average water equity has a much lower dividend yield than the typical stock in the Value Line universe. Moreover, utility stocks typically underperformed during bull markets and outperformed in bear markets. Over the past five years, however, many in this group posted higher total returns than the S&P 500 Index. We attribute this to two factors: the scarcity of stocks in this sector, and the low interest rate environment. For example, only two of these equities have a market capitalization of over \$5 billion. Professional money managers looking to diversify their holdings in the utility segment (electric, gas, and water) have very few options here. Therefore, a premium has to be paid to own these stocks. Furthermore, since these equities are often seen as alternative to bonds by income-investors, near-zero interest rates make them look more attractive to fixed-income accounts.

#### Conclusion

Despite the industry's high rank, we advise subscribers to exercise caution when investing here. While there is very little operational risk, these equities often have well below average long-term total return potential.

*James A. Flood*



**AMER. STATES WATER** NYSE-AWR **RECENT PRICE 84.60** P/E RATIO **37.6** (Trailing: 37.1 Median: 22.0) **RELATIVE P/E RATIO 2.85** DIV'D YLD **1.5%** **VALUE LINE 1785**

**TIMELINESS** 2 Lowered 3/20/20  
**SAFETY** 2 Raised 7/20/12  
**TECHNICAL** 3 Raised 3/6/20  
**BETA** .60 (1.00 = Market)  
**18-Month Target Price Range**  
 Low-High Midpoint (% to Mid)  
 \$68-\$116 \$92 (10%)

**2023-25 PROJECTIONS**

High	80	Gain (-5%)	1%
Low	60	(-30%)	-6%

**Institutional Decisions**

to Buy	139	149	137
to Sell	109	124	145
Hld's(000)	26893	27173	26734

**LEGENDS**  
 1.35 x Dividends p sh divided by Interest Rate  
 Relative Price Strength  
 2-for-1 split 9/13  
 Options: Yes  
 Shaded area indicates recession

**Percent shares traded** 24 16 8

**% TOT. RETURN 2/20**

1 yr.	8.9	-6.8
3 yr.	79.8	6.6
5 yr.	109.4	20.3

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	23-25	
6.81	7.03	7.88	8.75	9.21	9.74	10.71	11.12	12.12	12.19	12.17	12.56	11.92	12.01	11.88	12.86	12.95	13.30	Revenues per sh	16.40
1.11	1.32	1.45	1.65	1.69	1.70	2.11	2.13	2.48	2.65	2.67	2.81	2.70	2.96	2.84	3.26	3.25	3.55	"Cash Flow" per sh	4.50
.53	.66	.67	.81	.78	.81	1.11	1.12	1.41	1.61	1.57	1.61	1.62	1.88	1.72	2.28	2.25	2.40	Earnings per sh A	2.90
.44	.45	.46	.48	.50	.51	.52	.55	.64	.76	.83	.87	.91	.99	1.06	1.16	1.25	1.35	Div'd Decl'd per sh B	1.85
2.51	2.12	1.95	1.45	2.23	2.09	2.12	2.13	1.77	2.52	1.89	2.39	3.55	3.08	3.44	4.12	3.50	3.50	Cap'l Spending per sh	3.75
7.51	7.86	8.32	8.77	8.97	9.70	10.13	10.84	11.80	12.72	13.24	12.77	13.52	14.45	15.19	16.33	17.15	18.10	Book Value per sh D	21.35
33.50	33.60	34.10	34.46	34.60	37.06	37.26	37.70	38.53	38.72	38.29	36.50	36.57	36.68	36.76	36.85	37.00	37.25	Common Shs Outst'g C	37.50
23.2	21.9	27.7	24.0	22.6	21.2	15.7	15.4	14.3	17.2	20.1	24.6	25.6	25.7	34.0	34.4	34.0	34.4	Avg Ann'l P/E Ratio	23.5
1.23	1.17	1.50	1.27	1.36	1.41	1.00	.97	.91	.97	1.06	1.24	1.34	1.29	1.84	1.87	1.87	1.87	Relative P/E Ratio	1.30
3.6%	3.1%	2.5%	2.5%	2.9%	2.9%	3.0%	3.2%	3.1%	2.7%	2.6%	2.2%	2.2%	2.0%	1.8%	1.5%	1.5%	1.5%	Avg Ann'l Div'd Yield	2.6%

**CAPITAL STRUCTURE as of 12/31/19**  
 Total Debt \$286.3 mill. Due in 5 Yrs \$6.9 mill.  
 LT Debt \$281.0 mill. LT Interest \$24.5 mill. (32% of Cap'l)

**Leases, Uncapitalized:** Annual rentals \$2.7 mill.  
**Pension Assets-12/19** \$192.5 mill. Oblig. \$231.9 mill.

**Pfd Stock** None

**Common Stock** 36,859,505 shs. as of 2/20/20

**MARKET CAP: \$3.1 billion** (Mid Cap)

**CURRENT POSITION (\$MILL)**

	2017	2018	12/31/19
Cash Assets	2	7.1	1.3
Accts Receivable	26.1	23.4	20.9
Other	129.2	101.0	100.3
Current Assets	155.5	131.5	122.5
Accts Payable	51.0	59.5	55.6
Debt Due	59.3	40.3	5.3
Other	46.4	46.8	55.1
Current Liab.	156.7	146.6	116.0

**BUSINESS:** American States Water Co. operates as a holding company. Through its principal subsidiary, Golden State Water Co., it supplies water to 260,708 customers in 10 California counties. Service areas include the metropolitan areas of Los Angeles and Orange Counties. The company also provides electricity to 24,420 customers in Big Bear Lake and San Bernardino Cnty. Provides water & wastewater services to U.S. military bases through its ASUS subsidiary. Sold Chaparral City Wtr. of AZ. (6/11). Employs 841. BlackRock, Inc. owns 15.1% of out. shares; Vanguard, 11.5%; off. & dir. 1.2%. (4/19 Proxy). Chairman: Lloyd Ross. Pres. & CEO: Robert Sprowls, Inc. CA. Address: 630 East Foothill Blvd., San Dimas, CA 91773. Tel: 909-394-3600. Internet: www.aswater.com.

**The stock of American States Water has performed better than most equities during the latest disruption in the financial markets.** The utility provides a service that is essential. So, whether the economy is booming or experiencing problems, people's usage of water will not change significantly. Hence, American States' income stream is much better defined than the typical corporation. This has been reflected in AWR's year-to-date price performance, as the equity has declined less than 7%, versus the approximately 19% decrease posted by the broader market averages.

**Earnings in 2020 will most likely not be able to match last year's impressive showing.** The company's stronger-than-expected fourth quarter of 2019 will make year-over-year comparisons difficult. Still, a combination of rate relief, cost control improvements, and a greater contribution from ASUS (more below), could enable share net to reach \$2.25. These same factors, along with growth in the rate base, ought to result in an increase in earnings per share to \$2.40, a 6% rise, in 2021.

**The nonregulated business should remain a key growth driver.** Through its ASUS subsidiary, American States provides water services to U.S. Army bases. As more water services at military installations are privatized, we expect ASUS to continue to increase, or at least maintain, its market share. The typical contract is for 50 years, and unlike its other operations, income is not regulated by state authorities. In 2019, profits increased here by 12%, and represented \$0.47 of the company's total share net.

**Dividend growth prospects are bright.** The board usually announces a new annual increase in the payout in mid-August. While we do not think that 2019's 11% hike will be equaled, the new dividend per share should be somewhere between \$0.325 and \$0.33. This would still represent a percentage increase that is higher than the group norm. Moreover, the trend should continue to mid-decade.

**These shares are timely.** Investors may want to note that like most members of this group, the stock's total return potential to 2023-2025 is well below average.

James A. Flood  
 April 10, 2020

(A) Primary earnings. Excludes nonrecurring gains/(losses): '04, 7c; '05, 13c; '06, 3c; '08, 14c; '10, (23c); '11, 10c. Next earnings report due mid-May.

(B) Dividends historically paid in early March, June, September, and December. \* Div'd reinvestment plan available.

(C) In millions, adjusted for split.

(D) Includes intangibles. As of 12/31/19; \$26.6 million/\$0.78 a share.

Company's Financial Strength	A
Stock's Price Stability	85
Price Growth Persistence	95
Earnings Predictability	85

© 2020 Value Line, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, resold, stored or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.

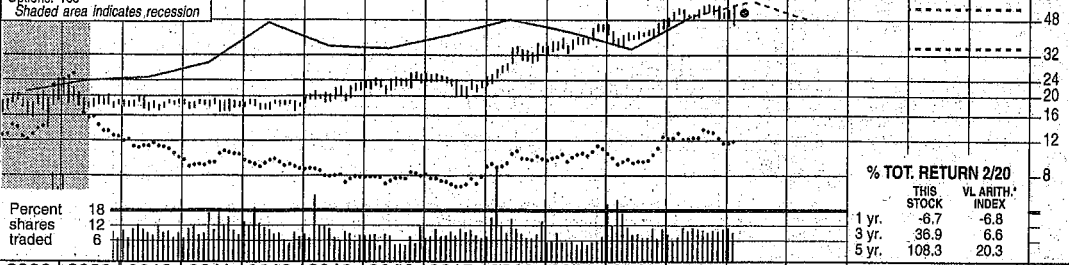
To subscribe call 1-800-VALUELINE

<b>AMERICAN WATER</b> NYSE-AWK		<b>RECENT PRICE</b> 126.72	<b>P/E RATIO</b> 36.0 (Trailing: 36.9 Median: 22.0)	<b>RELATIVE P/E RATIO</b> 2.73	<b>DIV'D YLD</b> 1.7%	<b>VALUE LINE</b> 1786	
<b>TIMELINESS</b> 3 Lowered 4/3/20	<b>SAFETY</b> 3 New 7/25/08	<b>TECHNICAL</b> 3 Raised 4/10/20	<b>BETA</b> .50 (1.00 = Market)	High: 23.0 25.8 32.8 39.4 45.1 56.2 61.2 85.2 92.4 98.2 129.9 141.7 Low: 16.2 19.4 25.2 31.3 37.0 41.1 48.4 58.9 70.0 76.0 88.0 92.0		<b>Target Price Range</b> 2023 2024 2025	
<b>18-Month Target Price Range</b> Low-High Midpoint (% to Mid) \$119-\$173 \$146 (15%)						<b>LEGENDS</b> ..... 1.10 x Dividends p sh divided by Interest Rate - - - - - Relative Price Strength Options: Yes Shaded area indicates recession	
<b>2023-25 PROJECTIONS</b>		High Price Gain Ann'l Total Low 90 (+10%) 5% 140 (-30%) -6%		<b>% TOT. RETURN 2/20</b> THIS STOCK VL ARITH. 1 yr. 23.3 -6.8 3 yr. 67.3 6.6 5 yr. 152.2 20.3		<b>Institutional Decisions</b> 202019 302019 402019 to Buy 360 385 393 to Sell 331 322 361 Hld's(000) 155051 153329 156436	
<b>CAPITAL STRUCTURE as of 12/31/19</b>		Total Debt \$9453.0 mil. Due in 5 Yrs \$1773.0 mil. LT Debt \$8639.0 mil. LT Interest \$354.0 mil. (59% of Cap'l)		Leases, Uncapitalized: Annual rentals \$14.0 mil. Pension Assets 12/19 \$1747.0 mil. Oblig. \$2161.0 mil. Pfd Stock \$5.0 mil. Pfd Div'd \$4 mil.		Common Stock 180,974,719 shares as of 2/13/20 MARKET CAP: \$22.9 billion (Large Cap)	
<b>CURRENT POSITION (\$MILL.)</b>		2017 2018 12/31/19 Cash Assets 82 158 91 Accts Receivable 272 301 294 Other 366 322 900 Current Assets 720 781 1285 Accts Payable 195 175 203 Debt Due 1227 1035 814 Other 903 884 1028 Current Liab. 2325 2094 2045		<b>BUSINESS:</b> American Water Works Company, Inc. is the largest investor-owned water and wastewater utility in the U.S., providing services to approximately 15 million people in 46 states. Nonregulated business assists municipalities and military bases with the maintenance and upkeep as well. Regulated operations made up 86% of 2019 revenues. New Jersey is its largest market accounting for 24.6% of regulated revenues; Pennsylvania, 22.3%; Missouri, 10.5%. Has 6,800 employees. The Vanguard Grp. owns 11.0% of outstanding shares; BlackRock, Inc., 7.9%; officers & directors, less than 1.0%. (3/19 Proxy). President & CEO: Susan N. Story. Chairman: George MacKenzie. Address: 1 Water Street, Camden, NJ 08102. Tel.: 856-348-8200. Internet: www.amwater.com.			
<b>ANNUAL RATES of change (per sh)</b>		Past 10 Yrs. Past 5 Yrs. Est'd '17-'19 to '23-'25 Revenues 3.0% 3.0% 4.5% "Cash Flow" 13.0% 6.0% 6.5% Earnings 45.5% 6.5% 8.5% Dividends 16.0% 10.5% 8.5% Book Value 2.5% 4.0% 5.0%		<b>Shares of American Water Works have been a safe haven for investors during the recent turmoil caused by the coronavirus.</b> Year to date, the price of the stock has increased nearly 3%. By comparison, the S&P 500 Index has declined about 19% over the same time period. Indeed, both long- and short-term investors have done well holding this equity, as it has outpaced bull markets, as well as outperformed most stocks during the downturns.			
<b>QUARTERLY REVENUES (\$mill.)</b>		Full Year 2017 756.0 844.0 936.0 821.0 3357.0 2018 761.0 853.0 976.0 850.0 3440.0 2019 813.0 882.0 1013.0 902.0 3610.0 2020 835 920 1080 950 3785 2021 885 970 1120 1000 3975		<b>What's the reason behind American Water's success?</b> There are a few basic principles behind the company's consistent positive performance. The first is to expand the asset base on which it earns a return. That's one of the reasons for the large construction program. (Domestic pipelines are in desperate need of repair.) The second is the ongoing acquisition program. Third, is a focus on cost controls. <b>Earnings and dividend growth prospects are bright through mid-decade.</b> American Water is perhaps the biggest beneficiary of the consolidation taking place in the domestic water market. As the largest water utility, it is able to contin-			
<b>QUARTERLY DIVIDENDS PAID \$</b>		Full Year 2016 .34 .375 .375 .375 1.47 2017 .375 .415 .415 .415 1.62 2018 .415 .455 .455 .455 1.78 2019 .455 .50 .50 .50 1.96 2020 .50		ually acquire smaller water districts and merge them into its existing operations. Unlike many other industries, synergies are easily achievable in the water business. The company is able to increase its ratebase, and simultaneously make the acquired assets more efficient. This is one of the reasons that management has a constructive relationship with regulators in states where it operates. <b>Finances are only average.</b> The combination of the aggressive construction program, together with an aversion to selling new equity has resulted in American Water having the highest debt-to-total capital ratio of all the water utilities we follow, by a wide margin. Over the past decade, shares outstanding have risen just 3.5%. Thus, now would seem to be a good time to have an equity offering. <b>Despite all of the company's positive attributes, the stock does not stand out at this time.</b> Our ranking system pegs AWK to mirror the market in the year ahead. Moreover, like most water utilities, AWK has unattractive long-term total return potential.			
<b>QUARTERLY EARNINGS PER SHARE A</b>		Full Year 2017 .52 .73 1.12 .01 2.38 2018 .59 .91 1.03 .62 3.15 2019 .62 .94 1.33 .54 3.43 2020 .66 .97 1.35 .72 3.70 2021 .73 1.05 1.45 .77 4.00		James A. Flood April 10, 2020			
<b>QUARTERLY DIVIDENDS PAID \$</b>		Full Year 2016 .34 .375 .375 .375 1.47 2017 .375 .415 .415 .415 1.62 2018 .415 .455 .455 .455 1.78 2019 .455 .50 .50 .50 1.96 2020 .50		Company's Financial Strength B+ Stock's Price Stability 100 Price Growth Persistence 85 Earnings Predictability 80			

(A) Diluted earnings. Excludes nonrecurring losses: '08, \$4.62; '09, \$2.63; '11, \$0.07. Disc. oper.: '06, (\$0.04); '11, \$0.03; '12, (\$0.10); '13, (\$0.01). GAAP used as of 2014. Next earnings report due mid-May. Quarterly earnings do not sum in '16 due to rounding.  
 (B) Dividends paid in March, June, September, and December. = Div. reinvestment available.  
 (C) In millions. (D) Includes intangibles. On 12/31/19: \$1.568 billion, \$8.67/share.  
 (E) Pro forma numbers for '06 & '07.  
 © 2020 Value Line, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, stored or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.

To subscribe call 1-800-VALUELINE

<b>CALIFORNIA WATER NYSE-CWT</b>			RECENT PRICE	52.32	P/E RATIO	35.8	(Trailing: 39.9) (Median: 23.0)	RELATIVE P/E RATIO	2.71	DIV'D YLD.	1.6%	VALUE LINE	1787
TIMELINESS	3 Lowered 3/6/20	High: 24.1	19.8	19.4	19.3	23.4	26.4	26.0	36.8	46.2	49.1	57.5	57.4
SAFETY	3 Lowered 7/27/07	Low: 16.7	16.9	16.7	16.8	18.4	20.3	19.5	22.5	32.4	35.3	44.6	39.7
TECHNICAL	3 Raised 4/10/20	<b>LEGENDS</b>											
BETA	.60 (1.00 = Market)	1.33 x Dividends p sh divided by Interest Rate											
18-Month Target Price Range	Low-High Midpoint (% to Mid)	2.00-1 split 6/11											
\$47-\$75 \$61 (15%)	Options: Yes Shaded area indicates recession												
<b>2023-25 PROJECTIONS</b>													
High	Price	Gain	Ann'l Total										
Low	55	(+5%)	Return										
	35	(-35%)	3%										
<b>Institutional Decisions</b>													
to Buy	202019	3Q2019	4Q2019										
to Sell	120	118	115										
Hld's(000)	36947	36133	36624										
		Percent	shares										
		traded											
		18	12										
		6	6										



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	<b>© VALUE LINE PUB. LLC 23-25</b>	
	8.59	8.72	8.10	8.88	9.90	10.82	11.05	12.00	13.34	12.23	12.50	12.29	12.70	13.89	14.53	14.72	14.80	15.20	Revenues per sh	15.00
	1.42	1.52	1.36	1.56	1.86	1.93	1.93	2.07	2.32	2.21	2.47	2.22	2.34	3.00	3.11	3.14	3.15	3.20	"Cash Flow" per sh	3.50
	.73	.74	.67	.75	.95	.98	.91	.86	1.02	1.02	1.19	.94	1.01	1.40	1.36	1.31	1.55	1.65	Earnings per sh <sup>A</sup>	2.00
	.57	.57	.58	.58	.59	.59	.60	.62	.69	.64	.65	.67	.69	.72	.75	.79	.82	.86	Div'd Decl'd per sh <sup>B=C</sup>	1.05
	1.87	2.01	2.14	1.84	2.41	2.66	2.97	2.83	3.04	2.58	2.76	3.69	4.77	5.40	5.65	5.64	4.50	4.45	Cap'l Spending per sh	3.75
	7.83	7.90	9.07	9.25	9.72	10.13	10.45	10.76	11.28	12.54	13.11	13.41	13.75	14.44	15.19	16.07	15.70	15.00	Book Value per sh <sup>C</sup>	16.05
	36.73	36.78	41.31	41.33	41.45	41.53	41.67	41.82	41.98	42.74	47.81	47.88	47.97	48.01	48.07	48.53	50.00	51.00	Common Shs Outst <sup>g</sup> D	53.00
	20.1	24.9	29.2	26.1	19.8	19.7	20.3	21.3	17.9	20.1	19.7	24.8	29.6	26.9	30.3	39.3	30.3	39.3	Avg Ann'l P/E Ratio	23.0
	1.06	1.33	1.58	1.39	1.19	1.31	1.29	1.34	1.14	1.13	1.04	1.25	1.55	1.35	1.64	2.13	1.64	2.13	Relative P/E Ratio	1.25
	3.9%	3.1%	2.9%	3.0%	3.1%	3.1%	3.2%	3.4%	3.5%	3.1%	2.8%	2.9%	2.3%	1.9%	1.8%	1.5%	1.5%	1.8%	Avg Ann'l Div'd Yield	2.3%

<b>CAPITAL STRUCTURE as of 12/31/19</b>			
Total Debt	\$993.8 mill.	Due in 5 Yrs	\$229.0 mill.
LT Debt	\$766.8 mill.	LT Interest	\$40.0 mill.
(Total interest coverage: 4.2x) (50% of Cap'l)			
<b>Pension Assets-12/18 \$573.6 mill.</b>			
Oblg. \$812.0 mill.			
<b>Pfd Stock None</b>			
<b>Common Stock 48,532,000 shs.</b>			
<b>MARKET CAP: \$2.5 billion (Mid Cap)</b>			
<b>CURRENT POSITION</b>			
	2017	2018	12/31/19
Cash Assets	94.8	47.2	42.7
Other	133.1	141.5	142.0
Current Assets	227.9	188.7	184.7
Accts Payable	94.0	95.6	108.5
Debt Due	281.0	170.0	197.0
Other	106.0	55.6	59.2
Current Liab.	491.0	321.2	358.7

**BUSINESS:** California Water Service Group provides regulated and nonregulated water service to 489,600 customers in 100 communities in the state of California. Accounts for over 94% of total customers. Also operates in Washington, New Mexico, and Hawaii. Main service areas: San Francisco Bay area, Sacramento Valley, Salinas Valley, San Joaquin Valley & parts of Los Angeles. Ac-

quired Rio Grande Corp. West Hawaii Utilities (9/08). Revenue breakdown, '19: residential, 67%; business, 20%; Industrial, 5%; public authorities, 5%; other 3%. Off. and dir. own 1% of common stock (4/19 proxy). Has 1,184 employees. Pres. and CEO: Martin A. Kropelnicki, Inc.: DE. Addr.: 1720 North First St., San Jose, CA 95112-4598. Tel.: 408-367-8200. Internet: www.calwatergroup.com.

**California Water Service Group hopes to invest more than \$800 million in infrastructure-related projects over the pull to 2021.** At this time, its current-year running general rate case with the California Public Utilities Commission was granted a settlement extension to July 1, 2020. The agreement covers various topics including, most importantly, CWT's long-term infrastructure investment plan and associated rate increases. The company already accumulated an approximate \$275 million tab last year, completing several notable upgrades, including water main replacements, new treatment facilities, the installation of backup generators, and pump station replacements. Through 2020 and 2021, it is likely that capital expenditures will range between \$550 million to \$600 million, and cover a similar scope of improvement projects. Finally, we are optimistic that regulators will eventually rule favorably.

**California Water should be a consistent performer even amidst a difficult economic backdrop.** Notably, California has been one of the major domestic hot spots for the fast-spreading

coronavirus, which has severely impacted business and consumer activity. That said, with many residents urged to stay at home, increased hand washing and general utility use ought to translate into greater water usage. Thus, we are keeping intact our current-year revenue call, at \$740 million. On the other hand, a number of factors, namely rising operating costs, lower income tax benefits, as well as potential equity dilution, have spurred us to trim our share-net forecast from \$1.70 to \$1.55. Lastly, we are introducing our preliminary 2021 top- and bottom-line estimates of \$775 million and \$1.65 a share, respectively. From an investment perspective, California Water stock leaves much to be desired. The shares have slipped one notch on our Timeliness Ranking scale, to 3 (Average). Moreover, total return potential over the 3- to 5-year stretch is considerably below the Value Line median. While the stock may have held up relatively well during recent broader market volatility, we think more-attractive options can be found elsewhere, at this juncture. *Nicholas P. Patrikis* April 10, 2020

(A) Basic EPS. Excl. nonrecurring gain (loss); '11, 4¢. Next earnings report due early May. (B) Dividends historically paid in late Feb., May, Aug., and Nov. Div'd reinvestment plan available.

(C) Incl. intangible assets. In '19: \$24.9 mill., \$0.51/sh. (D) In millions, adjusted for split.

(E) Excludes non-reg. rev.

Company's Financial Strength	B++
Stock's Price Stability	80
Price Growth Persistence	60
Earnings Predictability	65

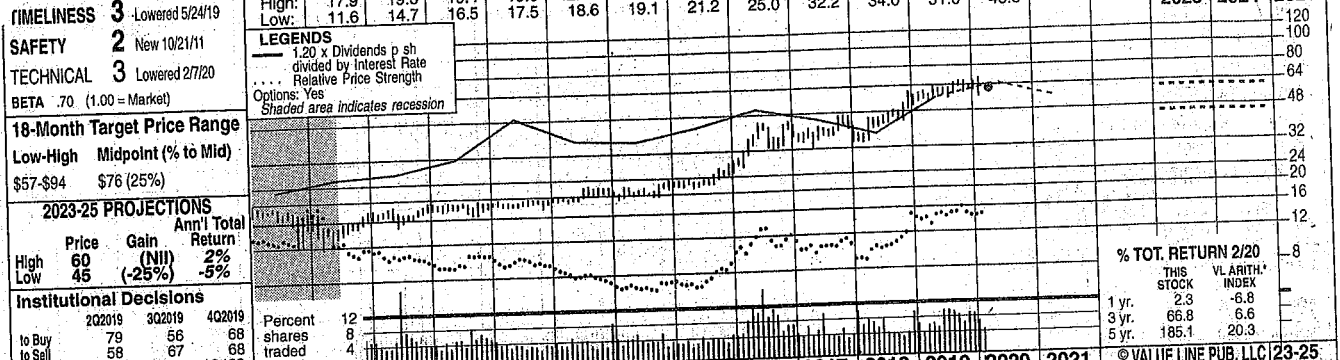
CONSOL. WATER CO. NDQ-CWCO										RECENT PRICE	P/E RATIO 27.0 (Trailing: 29.0 Median: 23.0)					RELATIVE P/E RATIO 2.05	DIV'D YLD 2.1%	VALUE LINE 1788
TIMELINESS 2	Raised 3/27/20	High: 21.3	15.1	11.7	9.2	16.9	14.5	13.8	14.7	14.0	15.4	17.9	18.8	Target Price Range 2023 2024 2025				
SAFETY 3	New 1/17/14	Low: 6.4	8.1	7.3	6.7	7.5	8.4	9.6	9.8	10.0	10.8	11.1	12.0					
TECHNICAL 3	Lowered 3/20/20																	
BETA .85	(1.00 = Market)	<b>LEGENDS</b> - - - - - 200 x Dividends p sh divided by Interest Rate ... Relative Price Strength Options: Yes Shaded area indicates recession																
18-Month Target Price Range		Low-High Midpoint (% to Mid) \$10-\$20 \$15 (-5%)																
2023-25 PROJECTIONS		Price Gain Ann'l Total Return High 35 (+120%) 23% Low 25 (+55%) 14%																
Institutional Decisions		202019 3Q2019 4Q2019 to Buy 34 44 44 to Sell 44 32 40 Hld's(000) 8148 8224 8376																
CAPITAL STRUCTURE as of 12/31/19		Total Debt \$0.1 Due in 5 Yrs \$0.1 LT Debt \$0.1 LT Interest NMF																
Leases, Uncapitalized: Annual rentals \$9 mill.		50.7 55.2 65.5 63.8 65.6 57.1 57.9 62.3 65.7 68.8 70.0 73.0 6.3 6.1 9.3 8.6 6.3 7.5 4.0 6.1 10.2 8.6 9.0 11.0																
No Defined Benefit Pension Plan		11.8% 5.1% 3.7% 3.0% 2.6% 2.5% 2.6% 2.5% 2.6% 2.4%																
Pfd Stock NMF (34,796 shares out.) Div'd NMF		88.2% 94.9% 96.3% 99.8% 99.8% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%																
Common Stock 15,078,499 shs. as of 3/6/20		143.3 135.6 139.4 138.9 141.2 145.0 145.6 147.9 155.0 163.8 170 175 56.2 64.3 61.6 58.6 56.4 53.7 53.1 50.5 64.9 61.3 60.0 60.0 4.9% 5.0% 7.0% 6.2% 4.4% 5.2% 2.7% 4.2% 6.6% 5.3% 5.5% 6.5%																
MARKET CAP: \$250 million (Small Cap)		5.0% 4.7% 6.9% 6.2% 4.4% 5.2% 2.7% 4.2% 6.6% 5.3% 5.5% 6.5% 5.0% 4.7% 6.9% 6.2% 4.4% 5.2% 2.7% 4.1% 6.6% 5.3% 5.5% 6.5% 1.5% 1.0% 3.6% 3.0% 1.2% 2.1% NMF 1.1% 3.3% 1.7% 2.0% 2.5% 69% 79% 48% 51% 73% 59% 112% 73% 50% 61% 57% 49%																
CURRENT POSITION (\$MILL.)		2017 2018 12/31/19 Cash Assets 47.2 31.3 42.9 Accts Receivable 15.0 24.2 23.2 Other 4.5 6.9 7.3 Current Assets 66.7 62.4 73.4 Accts Payable 5.7 4.6 3.7 Debt Due 1.7 1.1 1.1 Other 1.2 3.3 4.5 Current Liab. 7.8 7.9 8.2																
ANNUAL RATES of change (per sh)		Past 10 Yrs. Past 5 Yrs. Past 12-18 Months Revenues 5.0% 5.0% 11.0% "Cash Flow" 2.0% 5.0% 9.0% Earnings -3.0% -4.5% 17.5% Dividends 5.0% 5.0% 13.0% Book Value 5.0% 2.0% 3.0%																
QUARTERLY REVENUES (\$mill.)		Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2017 15.6 15.3 16.6 14.8 62.3 2018 14.3 15.9 18.8 16.7 65.7 2019 17.0 18.3 15.9 17.6 68.8 2020 17.0 18.0 16.5 18.5 70.0 2021 18.0 19.0 17.0 19.0 73.0																
EARNINGS PER SHARE A		Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2017 .18 .11 .08 .04 .41 2018 .14 .14 .30 .10 .68 2019 .17 .16 .11 .12 .56 2020 .16 .16 .15 .13 .60 2021 .18 .18 .18 .16 .70																
QUARTERLY DIVIDENDS PAID B		Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2016 .075 .075 .075 .075 .30 2017 .075 .075 .075 .075 .30 2018 .085 .085 .085 .085 .34 2019 .085 .085 .085 .085 .34 2020 .085																
BUSINESS:		Consolidated Water Co. Ltd. develops and operates desalination plants and water distribution systems in areas where naturally occurring supplies of water are scarce. It provides water in the Cayman Islands, the Bahamas, and the British Virgin Islands. At 12/31/19, it operated 12 plants with a capacity of 25.6 million gallons per day. Sold Ball operations and divested Belize assets in '19.																
Also manufactures products for the industry through Aerex sub. Inc.:		Also manufactures products for the industry through Aerex sub. Inc. Cayman Islands. Employs 105. Pres. & CEO: F. McTaggart. Ofs./Dirs. own 4.8% of stock; Amundi Asset Mgt.; 7.7%; BlackRock, 5.6% (4/19 proxy). Addr.: Regatta Off. Pk. Windward Three, 4th Floor, West Bay Road, P.O. Box 1114 Grand Cayman, KYI-1102, Cayman Islands. Tel.: (345) 945-4277. Int.: www.owco.com.																
Consolidated Water's stock has done better than most of late. Indeed, since our last report three months ago, the value of the equity has fallen about 8%, versus the broader market decline of about 19%. The company's low exposure to the coronavirus is most likely the primary reason for the better-than-average showing. Consolidated builds, operates, and manufactures products used in desalination plants that provide water to regions where the commodity is scarce. Its main facilities are located in the Cayman Islands, the Bahamas, and the British Virgin Islands. So far, these countries have not been impacted by the pandemic. Should COVID-19 spread, however, Consolidated is more at risk than others in the water industry. Of the seven other companies in this group, all are based in the United States. And while the virus is causing havoc in financial markets, water utilities located here are less vulnerable to economic downturns than most other corporations. Water is essential, and though some people may reduce consumption, the decrease would probably be marginal. Being located in		countries that do not have the wealth of America, could be a problem. Specifically, Consolidated has had past difficulties with account receivables in the Bahamas. The major Mexico project remains on track. Since 2016, the company has been heavily involved in planning the construction of the Rosarito desalination facility that would be built in Mexico and service a region that includes Tijuana. The plant would purify 50 million gallons of water a day to this desert area. Consolidated will not construct the facility, but will operate it in a joint venture. Management has indicated in the latest 10-K report that it would look to sell parts of its interest at some point. In any case, many hurdles have been overcome, but some small ones remain. Completion of Rosarito is still years away, however. These shares are ranked to outperform the market averages in the year ahead. The stock is probably not suitable for the typical water utility investors, as its earnings streams are not nearly as well-defined as utilities operating in America.																
James A. Flood		April 10, 2020																
(A) Fully diluted earnings. Excludes gains from discontinued operations: '17, \$0.07 a share; '18, \$0.07 a share; '19, \$0.24 a share. Next earnings report due early June.		(B) Dividends historically paid in late January, April, July, and October. B Dividend reinvestment plan available.		(C) In millions, adjusted for stock split.		(D) Includes intangibles. As of 12/31/19, \$13.3 million/\$0.88 a share.		Company's Financial Strength			B+							
© 2020 Value Line, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, resold, stored or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.		Price Growth Persistence		Earnings Predictability		To subscribe call 1-800-VALUELINE			50			30			40.			

# APPENDIX A-5.1 (AUS)

ESSENTIAL UTIL. NYSE-WTRG			RECENT PRICE	P/E RATIO	Trailing: 43.1 Median: 23.0	RELATIVE P/E RATIO	DIV'D YLD	VALUE LINE												
TIMELINESS <b>1</b> Raised 12/20/19 SAFETY <b>2</b> Raised 4/20/12 TECHNICAL <b>3</b> Raised 3/6/20 BETA .60 (1.00 = Market)			43.05	32.4		2.45	2.3%	1789												
High: 17.2 18.4 19.0 21.5 28.1 28.2 31.1 35.8 39.8 Low: 12.3 13.2 15.4 16.8 20.6 22.4 24.4 28.0 29.4 39.4 47.3 54.5 32.1 32.7 30.4			<b>LEGENDS</b> 1.60 x Dividends p sh divided by Interest Rate Relative Price Strength 5-for-4 split 9/13 Options: Yes Shaded area indicates recession			Target Price Range 2023 2024 2025 80 60 50 40 30 25 20 15 10 7.5														
<b>18-Month Target Price Range</b> Low-High \$35-\$68 Midpoint (% to Mid) \$52 (20%)			<b>2023-25 PROJECTIONS</b> Price Gain Ann'l Total High 55 (+30%) 9% Low 40 (-5%) 1%			<b>Institutional Decisions</b> 202019 202019 202019 to Buy 280 248 274 to Sell 167 210 242 Hld's(000) 140358 143792 149836			Percent shares traded 15 10 5											
<b>CAPITAL STRUCTURE as of 12/31/19</b> Total Debt \$3074.1 mill. Due in 5 Yrs \$252.0 mill. LT Debt \$2943.3 mill. LT Interest \$123.5 mill. (43% of Cap'l)			<b>Pension Assets-12/19</b> \$266.4 mill. Oblig. \$310.5 mill.			<b>Pfd Stock None</b> Common Stock 222,781,536 shares as of 2/19/20			<b>MARKET CAP: \$9.6 billion (Large Cap)</b>											
<b>CURRENT POSITION (3MILL.)</b> Cash Assets 4.2 3.6 1868.9 Receivables 98.6 101.2 67.1 Inventory (AvgCst) 14.4 15.8 18.4 Other 14.0 26.6 58.3 Current Assets 131.2 147.2 2012.7 Accts Payable 59.2 77.3 74.9 Debt Due 117.4 160.0 130.8 Other 107.9 161.7 113.1 Current Liab. 284.5 399.0 318.6			<b>ANNUAL RATES</b> Past 10 Yrs. Past 5 Yrs. Est'd '17-'19 to '23-'25 Revenues 1.5% 5% 12.0% "Cash Flow" 5.0% 2.0% 10.5% Earnings 7.0% 1.5% 10.0% Dividends 7.5% 8.0% 7.5% Book Value 8.0% 9.0% 6.5%			<b>QUARTERLY REVENUES (\$ mill.)</b> Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2017 187.8 203.4 215.0 203.3 809.5 2018 194.3 211.9 226.2 205.7 838.1 2019 201.1 218.9 243.6 226.1 889.7 2020 215 385 410 450 1460 2021 390 410 450 500 1750			<b>EARNINGS PER SHARE A</b> Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2017 .28 .34 .43 .30 1.35 2018 .29 .37 .44 d.02 1.08 2019 .09 .25 .38 .28 1.04 2020 .25 .35 .45 .40 1.45 2021 .28 .40 .45 .42 1.55			<b>QUARTERLY DIVIDENDS PAID B</b> Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2016 .178 .178 .1913 .1913 .74 2017 .1913 .1913 .2047 .2047 .79 2018 .2047 .2047 .219 .219 .85 2019 .219 .219 .2343 .2343 .91 2020 .2343			<b>BUSINESS:</b> Essential Utilities, Inc. became the new name for Aqua America on Feb. 3, 2020, to reflect the acquisition of Peoples, a natural gas utility, which occurred in 3/20. In 2019, Aqua Amer. provided water and wastewater services to about three million people in PA, OH, TX, IL, NC, NJ, IN, and VA. Employed 1,583. Acquired AquaSource, 7/13; North Maine Utilities, 7/15; and others.			<b>Water supply revenues 2019:</b> residential, 58%; commercial, 16%; industrial, wastewater & other, 26%. Off. & dir. own less than 1% of the common stock; BlackRock, Inc. 10.5%; Vanguard Grp., 10.4%; State St. Capital, 5.0% (3/20 Pre 14A). Pres. & CEO: Christopher H. Franklin, Inc. PA Address: 762 West Lancaster Ave., Bryn Mawr, PA 19010. Tel. 610-525-1400. Internet: www.essential.co		
<b>Essential Utilities is the new name for Aqua America.</b> The water company officially made the change in February, six weeks before the completion of the acquisition of Peoples, a Pittsburgh-based natural gas utility. The cost of the transaction was \$4.275 billion in cash, including the assumption of the \$1.1 billion of debt. In connection with the deal, Essential closed on the previously announced \$750 million investment from the Canadian Pension Plan, which received 21.7 million shares of newly issued stock. The equity is also trading with a new ticker: WTRG.			<b>The coronavirus will most likely have only a minor impact on the company.</b> People are going to be using water and gas no matter what the economic conditions. Should unemployment rise or a recession occurs, customers will obviously try to cut back on all of their expenditures, but the usage of these vital resources is required. Hence, demand for Essential's services will not take as large a hit as the typical corporation should this pandemic worsen.			<b>The regulatory climate in Pennsylvania will have a major impact on earnings.</b> Nearly two-thirds of the new company's customer base is now in the Keystone state. Since Aqua had done business there for a long time, we assume that management was very aware of what the expectations are from the state's regulators. (It has promised to replace 3,000 miles of old gas lines over the next 15-year period.)			<b>Our initial estimates for the new entity are tentative.</b> Not much guidance on Essential's operating and financial outlook has been made public. The utility's rate base will be \$2.3 billion larger, but as far as the amount of the capital budget and what revenues may total, have not been discussed. As for the bottom line, much will depend on acquisition costs. Peoples is in a different business, so we don't look for much overlap, except in dealing with regulators. Moreover, since the purchase was only just approved, we won't have a good idea about quarterly earnings until after the June period, though the March interim balance sheet should provide some insight.											
<b>This stock is timely.</b> However, like most members of this industry, long-term total return potential is unappealing.			<b>James A Flood</b>			<b>April 10, 2020</b>														
(A) Diluted egs. Excl. nonrec. gains: '12, 18¢. Excl. gain from disc. operations: '12, 7¢; '13, 9¢; '14, 11¢. Quarterly EPS do not add '19 due to a large change in the number of shares			outstanding in the Dec. period. Next earnings report due mid-May. (B) Dividends historically paid in early March, June, Sept. & Dec. = Div'd. reinvestment plan available (5% discount).			(C) In millions, adjusted for stock splits. (D) Includes intangibles: 12/31/19, \$63.8 mill./\$0.29 a share.														
<b>Company's Financial Strength</b> A <b>Stock's Price Stability</b> 95 <b>Price Growth Persistence</b> 75 <b>Earnings Predictability</b> 55			<b>© 2020 Value Line, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, resold, stored or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.</b>			<b>To subscribe call 1-800-VALUELINE</b>														



<b>MIDDLESEX WATER</b> NDQ-MSEX		RECENT PRICE <b>61.47</b>	P/E RATIO <b>29.4</b> (Trailing: 30.6 Median: 21.0)	RELATIVE P/E RATIO <b>2.23</b>	DIV'D YLD <b>1.7%</b>	VALUE LINE <b>1790</b>
---------------------------------	--	---------------------------	---	--------------------------------	-----------------------	------------------------



2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Revenues per sh	9.15
6.25	6.44	6.16	6.50	6.79	6.75	6.80	6.50	6.98	7.19	7.26	7.77	8.16	8.00	8.42	7.72	8.20	8.45	3.10	3.50
1.28	1.33	1.33	1.49	1.53	1.40	1.55	1.46	1.56	1.72	1.84	1.97	2.17	2.24	2.89	2.90	2.95	3.10	2.20	2.50
.73	.71	.82	.87	.89	.72	.96	.84	.90	1.03	1.13	1.22	1.38	1.38	1.96	2.01	2.10	2.20	1.04	1.25
.66	.67	.68	.69	.70	.71	.72	.73	.74	.75	.76	.78	.81	.86	.91	.98	1.04	1.10	3.50	3.50
2.54	2.18	2.31	1.66	2.12	1.49	1.90	1.50	1.36	1.26	1.40	1.59	2.91	3.08	4.40	5.11	3.50	3.50	3.50	3.50
8.02	8.26	9.52	10.05	10.03	10.33	11.13	11.27	11.48	11.82	12.24	12.74	13.40	14.02	15.17	18.57	16.15	16.50	16.50	16.50
11.36	11.58	13.17	13.25	13.40	13.52	15.57	15.70	15.82	15.96	16.12	16.23	16.30	16.35	16.40	17.43	17.65	17.50	18.00	18.00
26.4	27.4	22.7	21.6	19.8	21.0	17.8	21.7	20.8	19.7	18.5	19.1	25.6	28.4	22.2	29.7	29.7	29.7	21.0	21.0
1.39	1.46	1.23	1.15	1.19	1.40	1.13	1.36	1.32	1.11	.97	.96	1.34	1.43	1.20	1.61	1.61	1.61	1.15	1.15
3.4%	3.5%	3.7%	3.7%	4.0%	4.7%	4.2%	4.0%	4.0%	3.7%	3.7%	3.3%	2.3%	2.2%	2.1%	1.6%	1.6%	1.6%	2.4%	2.4%

**CAPITAL STRUCTURE** as of 12/31/19

Total Debt \$258.0 mill. Due in 5 Yrs \$33.3 mill.  
 LT Debt \$230.8 mill. LT Interest \$7.2 mill.  
 (Total interest coverage: 7.3x)  
 (42% of Cap'l)

Pension Assets-12/18 \$80.4 mill.  
 Oblig. \$100.9 mill.

Pfd Stock \$2.4 mill. Pfd Div'd: \$1 mill.

Common Stock 17,434,000 shs.

**MARKET CAP:** \$1.1 billion (Mid-Cap)

**CURRENT POSITION**

(\$MILL.)	2017	2018	12/31/19
Cash Assets	4.9	3.7	2.2
Other	24.3	27.1	26.9
Current Assets	29.2	30.8	29.1
Accts Payable	13.9	19.3	23.3
Debt Due	34.9	55.8	27.2
Other	15.7	19.3	14.5
Current Liab.	64.5	94.4	65.0

**ANNUAL RATES**

of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '17-'19
Revenues	2.0%	2.5%	2.0%
"Cash Flow"	6.0%	9.5%	4.5%
Earnings	8.0%	12.0%	6.0%
Dividends	2.5%	4.0%	5.5%
Book Value	4.5%	6.0%	1.5%

**QUARTERLY REVENUES (\$ mill.)**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2017	30.1	33.0	36.2	31.5	130.8
2018	31.2	34.9	38.7	33.3	138.1
2019	30.7	33.4	37.8	32.7	134.6
2020	32.0	36.0	42.0	35.0	145
2021	33.0	37.0	44.0	36.0	150

**EARNINGS PER SHARE**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2017	.27	.33	.46	.32	1.38
2018	.27	.52	.74	.43	1.96
2019	.39	.49	.66	.46	2.01
2020	.40	.53	.70	.47	2.10
2021	.42	.55	.73	.50	2.20

**QUARTERLY DIVIDENDS PAID**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	.19875	.19875	.19875	.21125	.81
2017	.21125	.21125	.21125	.22375	.86
2018	.22375	.22375	.22375	.24	.91
2019	.24	.24	.24	.2562	.98
2020	.2562				

**BUSINESS:** Middlesex Water Company engages in the ownership and operation of regulated water utility systems in New Jersey, Delaware, and Pennsylvania. It also operates water and wastewater systems under contract on behalf of municipal and private clients in NJ and DE. Its Middlesex System provides water services to 61,000 retail customers, primarily in Middlesex County, New Jersey. In 2019, the Middlesex System accounted for 60% of operating revenues. At 12/31/19, the company had 352 employees. Incorporated: NJ. President, CEO, and Chairman: Dennis W. Doll. Officers & directors own 3.5% of the com. stock; BlackRock Inst. Trust Co., 6.8% (4/19 proxy). Add.: 485 C Route 1 South, Suite 400, Iselin, NJ 08830. Tel.: 732-634-1500. Int.: www.middlesexwater.com.

**Middlesex Water Company is well positioned to handle the currently ambiguous economic climate.** Indeed, impacts from the sweeping coronavirus are still largely unknown, but will likely take a major toll on consumer spending and domestic business activity in the near term. However, taking into consideration that water is one of our most basic necessities, it is highly unlikely that service will undergo even the slightest pause or consumer disruption. Additionally, health-conscious actions, such as more frequent hand washing, as well as a greater number of residents presently staying in their homes, may well drive increased water usage. Meanwhile, the company recently raised some capital via an equity issuance, which should provide financial flexibility. **The stock has held up decently since our last report.** Middlesex shares etched fresh highs in mid-February before crumbling market indices resulted in the capitulation of some gains. On balance, the stock is down only about 10% in value over the past three months. **We are introducing our preliminary 2021 top- and bottom-line forecasts at**

**\$150 million and \$2.20 a share, respectively.** This represents modest single-digit growth over our current-year projections. **Infrastructure spending is likely to ramp up considerably over the pull to mid-decade.** To start, an \$11.2 million drinking water project is already under way in New Jersey. The company plans to replace more than 20,000 linear feet of water mains, as well as upgrade service lines. Moreover, through 2021, MSEX's Water for Tomorrow program sports a budget of nearly \$300 million, which ought to strengthen the company's distribution infrastructure. Beyond that, we think additional investment spending is probably in the cards. **We are not presently recommending Middlesex stock.** The water utility might be a conservative option amidst volatile market conditions, but the issue is just an Average selection for the year ahead. On top of that, the yield is rather unenticing, and capital appreciation potential three to five years hence is well below the Value Line median. Thus, we suggest investors take a pass, for now.

Nicholas P. Patrikis  
 April 10, 2020

(A) Diluted earnings. Next earnings report due late April. (B) Dividends historically paid in mid-Feb., May, Aug., and November. Div'd reinvestment plan available. (C) In millions.

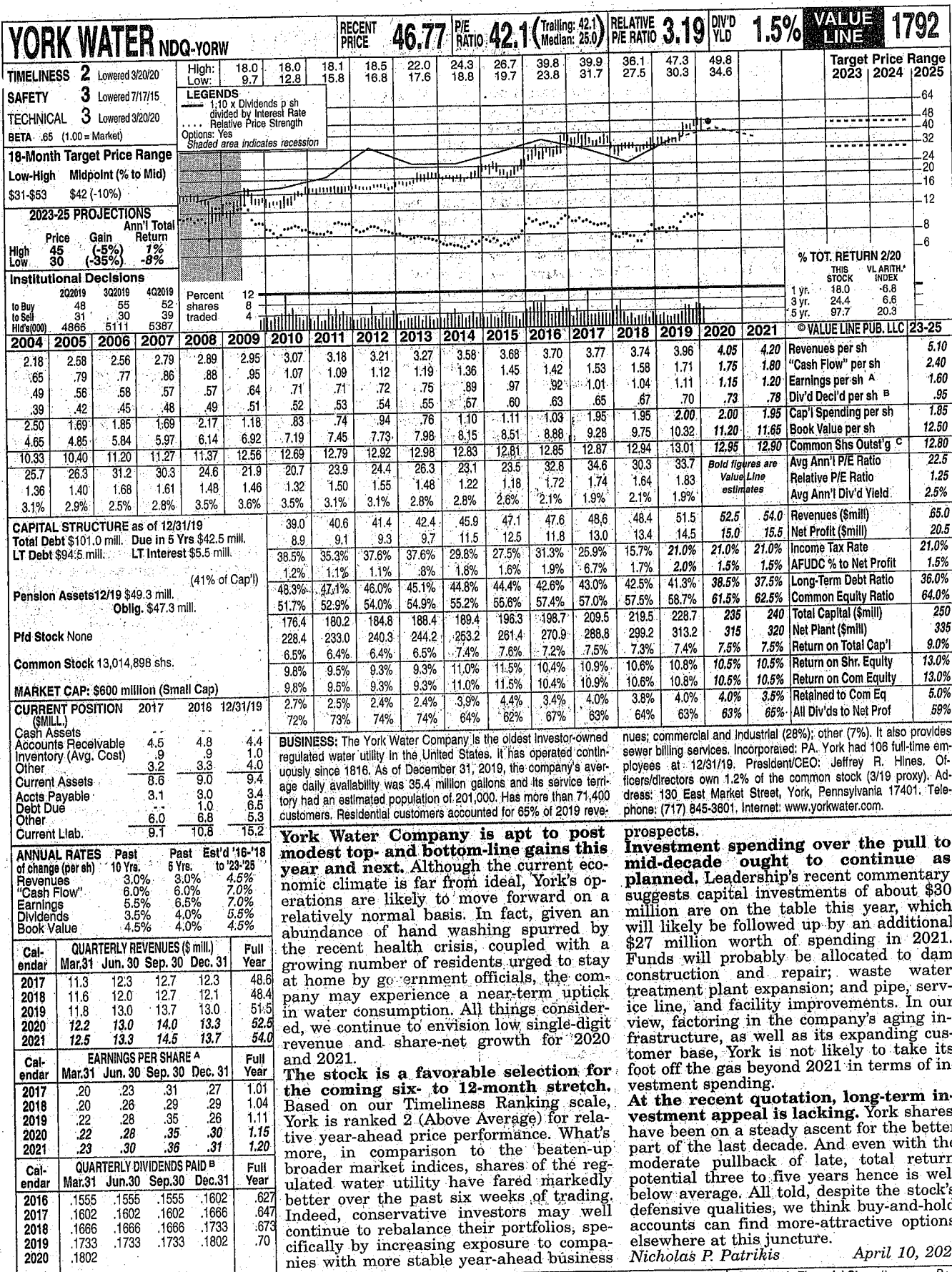
Company's Financial Strength	B++
Stock's Price Stability	65
Price Growth Persistence	55
Earnings Predictability	75

To subscribe call 1-800-VALUELINE

© 2020 Value Line, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, resold, stored or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.

APPENDIX A-5.1 (AUS)

SJW GROUP NYSE-SJW		RECENT PRICE	59.78	P/E RATIO	28.6	(Trailing: 44.3 Median: 21.0)	RELATIVE P/E RATIO	2.17	DIV'D YLD	2.1%	VALUE LINE	1791
TIMELINESS - E	High: 30.4 Low: 18.2	28.2	26.8	26.9	30.1	33.7	35.7	56.9	69.3	68.4	74.5	75.0
SAFETY 3 New 4/22/11	LEGENDS 1.50 x Dividends p sh divided by Interest Rate Relative Price Strength Options: Yes Shaded area indicates recession											
TECHNICAL - E	Target Price Range 2023 2024 2025											
BETA .60 (1.00 = Market)	120 100 80 64 48 32 24 20 16 12 8											
18-Month Target Price Range	% TOT. RETURN 2/20											
Low-High Midpoint (% to Mid)	THIS STOCK INDEX											
\$52-\$85 \$69 (15%)	1 yr. 1.4 -6.8 3 yr. 32.5 6.6 5 yr. 102.4 20.3											
2023-25 PROJECTIONS	© VALUE LINE PUBL. LLC 23-25											
High Price Gain Ann'l Total Low 95 65 (+60%) 14% (+10%) 4%	Revenues per sh 21.65 "Cash Flow" per sh 5.30 Earnings per sh <sup>A</sup> 3.65 Div'd Decl'd per sh <sup>B</sup> 1.58 Cap'l Spending per sh 5.50 Book Value per sh 39.15 Common Shs Outstg <sup>C</sup> 30.00											
Institutional Decisions	Avg Ann'l P/E Ratio 22.0 Relative P/E Ratio 1.20 Avg Ann'l Div'd Yield 2.0%											
202019 3Q2019 4Q2019	2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021											
to Buy 91 94 93	215.6 239.0 261.5 276.9 319.7 305.1 339.7 389.2 397.7 420.5 545 585											
to Sell 62 69 76	15.8 20.9 22.3 23.5 51.8 37.9 52.8 59.2 38.8 38.5 68.0 80.0											
Mid's(000) 19526 19354 19650	38.8% 41.1% 41.1% 38.7% 32.5% 38.1% 38.8% 36.7% 20.6% 21.0% 21.0% 21.0%											
Percent shares traded 15	53.7% 56.6% 55.0% 51.1% 51.6% 49.8% 50.7% 48.2% 32.7% 59.0% 51.0% 41.5%											
202019 3Q2019 4Q2019	46.3% 43.4% 45.0% 48.9% 48.4% 50.2% 49.3% 51.8% 67.3% 41.0% 49.0% 58.5%											
2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021	550.7 607.9 610.2 656.2 744.5 764.6 855.0 894.3 1320.7 2173.0 1465 1800											
2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021	785.5 756.2 831.6 898.7 963.0 1036.8 1146.4 1239.3 1328.8 2206.5 2300 2450											
2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021	4.3% 4.9% 5.0% 5.0% 8.3% 6.3% 7.4% 7.9% 3.9% 2.3% 4.5% 5.0%											
2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021	6.2% 7.9% 8.1% 7.3% 14.4% 9.9% 12.5% 12.8% 4.4% 4.3% 7.5% 7.5%											
2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021	6.2% 7.9% 8.1% 7.3% 14.4% 9.9% 12.5% 12.8% 4.4% 4.3% 7.5% 7.5%											
2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021	1.2% 3.1% 3.3% 2.8% 10.2% 5.7% 8.6% 8.2% 1.8% 5% 3.5% 4.0%											
2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021	80% 61% 59% 62% 29% 42% 31% 36% 60% 89% 52% 50%											
CAPITAL STRUCTURE as of 12/31/19	Revenues (\$mill) 650 Net Profit (\$mill) 110 Income Tax Rate 21.0% AFUDC % to Net Profit 1.5% Long-Term Debt Ratio 35.5% Common Equity Ratio 64.5% Total Capital (\$mill) 1825 Net Plant (\$mill) 2775 Return on Total Cap'l 6.5% Return on Shr. Equity 9.5% Return on Com Equity 9.5% All Div'ds to Net Prof 43%											
Total Debt \$1305.9 mill. Due in 5 Yrs \$0.0 mill.	BUSINESS: SJW Group engages in the production, purchase, storage, purification, distribution, and retail sale of water. It provides water service to approximately 231,000 connections with a total population of roughly one million people in the San Jose area and 18,000 connections that reach about 40,000 residents in the region between San Antonio and Austin, Texas. The company merged with Connecticut Water (10/19) which provides service to approx. 138,000 connections with a total population of 450,000 people. Has 361 employees. Officers and directors own 8.3% of outstanding shares (3/20 proxy). Chairman & CEO: Richard Roth. Incorporated: California. Address: 110 West Taylor Street, San Jose, CA 95110. Telephone: (408) 279-7800. Internet: www.sjwater.com.											
LT Debt \$1283.6 mill. LT Interest \$35.0 mill.	We are lowering our current-year share-net estimate for SJW Group by a dime, to \$2.35. This is largely to reflect management's recent guidance, as well as to factor in lingering integration costs from the CTWS merger (completed in October, 2019). Indeed, we look for a substantial bottom-line recovery this year, as SJW incurred an additional profit hit in 2019 in the form of a nonrecurring charge related to the denial of its subsidiary's Water Conservation Memorandum Account. Although the near-term economic outlook, especially in hard-hit California, is a bit dire, given recent health concerns, we think SJW is well positioned to operate on a fairly normal basis. In fact, a rise in household water consumption, due to increased hand washing and more people staying at home of late, may be a net positive for the company.											
(LT Interest Coverage: 3.8x)	Long-term, we like SJW Group's business prospects. First, the recently combined company now serves more than 1.5 million people on both coasts, and the scale and scope of its operations, once the integration is in the rearview mirror, ought to support further growth. In addition, an expanding customer base and periodic rate hikes should help drive top-line results. Second, we think aggressive infrastructure investment spending is likely over the next several years. Alongside traditional upgrades, such as water main repairs and improvements to its filtration systems and treatment plants, SJW aims to roll out advanced metering technology (in an effort to achieve upcoming water standards) that can provide nearly real-time water consumption information. The stock price has declined notably since our previous review. Over the past three months, SJW stock has lost about 20% in value, largely a consequence of broader market turbulence stemming from weakening economic concerns. Over the past five years, shares of SJW have appreciated handsomely and, even with the recent selloff, total return potential three to five years out is still subpar when compared to the Value Line median. Adding it all up, given the equity's limited investment appeal, subscribers would be wise to look elsewhere at this juncture.											
Pension Assets-12/19 \$243.5 mill.	Nicholas P. Patrikis April 10, 2020											
Oblig. \$338.2 mill.												
Pfd Stock None.												
Common Stock 28,456,508 shs.												
MARKET CAP: \$1.7 billion (Mid Cap)												
CURRENT POSITION (\$MILL.)												
Cash Assets 7.8												
Accts Receivable 17.3												
Other 41.8												
Current Assets 66.9												
Accts Payable 23.0												
Debt Due 22.3												
Other 62.1												
Current Liab. 85.1												
ANNUAL RATES of change (per sh)												
Revenues 9.0%												
"Cash Flow" 7.0%												
Earnings 8.0%												
Dividends 4.5%												
Book Value 5.5%												
QUARTERLY REVENUES (\$mill.)												
Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year												
2017 69.0 102.1 124.6 93.5 389.2												
2018 75.0 99.1 124.9 98.7 397.7												
2019 77.7 103.0 114.0 126.0 420.5												
2020 105 135 170 135 545												
2021 115 145 180 145 585												
EARNINGS PER SHARE <sup>A</sup>												
Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year												
2017 .18 .90 .94 .84 2.86												
2018 .06 .62 .76 .38 1.82												
2019 .21 .47 .33 .34 1.35												
2020 .20 .65 .90 .60 2.35												
2021 .30 .70 1.00 .70 2.70												
QUARTERLY DIVIDENDS PAID <sup>B,D</sup>												
Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year												
2016 .2025 .2025 .2025 .2025 .81												
2017 .2175 .2175 .2175 .3875 1.04												
2018 .28 .28 .28 .28 1.12												
2019 .30 .30 .30 .30 1.20												
2020 .32												
(A) Diluted earnings. Excludes nonrecurring losses: '04, \$3.78; '05, \$1.09; '06, \$16.36; '08, \$1.22; '10, \$0.46. GAAP accounting as of 2013. Next earnings report due early May.	Quarterly egs. may not add due to rounding.											
(B) Dividends historically paid in early March, June, September, and December. Div'd reinvestment plan available.	(C) In millions; adjusted for stock splits.											
(D) Paid special dividend of \$0.17 per share on 11/17.	(E) Suspended due to recent CTWS merger.											
(E) Suspended due to recent CTWS merger.	Company's Financial Strength B+											
	Stock's Price Stability 70											
	Price Growth Persistence 55											
	Earnings Predictability 45											
© 2020 Value Line, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, resold, stored or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.												
To subscribe call 1-800-VALUELINE												



(A) Diluted earnings. Next earnings report due late April.  
 (B) Dividends historically paid in late February, June, September, and December.

(C) In millions, adjusted for split.

Company's Financial Strength	B+
Stock's Price Stability	65
Price Growth Persistence	65
Earnings Predictability	95

© 2020 Value Line, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS HEREIN. This publication is strictly for subscriber's own, non-commercial, internal use. No part of it may be reproduced, resold, stored or transmitted in any printed, electronic or other form, or used for generating or marketing any printed or electronic publication, service or product.

To subscribe call 1-800-VALUELINE

**BOROUGH OF ROYERSFORD**  
**ANNUAL FINANCIAL REPORT**  
*Year Ended December 31, 2015*



*Certified Public Accountants and Business Consultants*

**INTRODUCTORY SECTION**

**BOROUGH OF ROYERSFORD**  
**TABLE OF CONTENTS**  
**YEAR ENDED DECEMBER 31, 2015**

---

	<b>Page</b>
<b>Introductory Section</b>	
Table of Contents	1
<b>Financial Section</b>	
Independent Auditors' Report	3
Management's Discussion and Analysis (Unaudited)	5
Basic Financial Statements	
<b><i>Government-Wide Financial Statements</i></b>	
Statement of Net Position	11
Statement of Activities	12
<b><i>Fund Financial Statements</i></b>	
<b><i>Governmental Funds</i></b>	
Balance Sheet	13
Reconciliation of Total Governmental Funds Balances to Net Position of Governmental Activities	14
Statement of Revenues, Expenditures and Changes in Fund Balances	15
Reconciliation of the Governmental Funds Statement of Revenues, Expenditures and Changes in Fund Balances to the Statement of Activities	16
<b><i>Proprietary Funds</i></b>	
Statement of Net Position	17
Statement of Revenues, Expenses and Changes in Net Position	18
Statement of Cash Flows	19
<b><i>Fiduciary Funds</i></b>	
Statement of Fiduciary Net Position	21
Statement of Changes in Fiduciary Net Position	22
<b><i>Notes to the Basic Financial Statements</i></b>	23

**BOROUGH OF ROYERSFORD**  
TABLE OF CONTENTS  
YEAR ENDED DECEMBER 31, 2015

---

	Page
Required Supplementary Information	
Budgetary Comparison Schedule	51
Notes to the Budgetary Comparison Schedule	52
Police Pension Plan	
Schedule of Changes in the Net Police Pension Plan Liability and Related Ratios	53
Schedule of Police Pension Plan Contributions	54
Schedule of Police Pension Plan Investment Returns	55
Non-Uniformed Pension Plan	
Schedule of Changes in the Net Non-Uniformed Pension Plan Liability and Related Ratios	56
Schedule of Non-Uniformed Pension Plan Contributions	57
Schedule of Non-Uniformed Pension Plan Investment Returns	58

**FINANCIAL SECTION**





## ***Independent Auditors' Report***

To the Borough Council  
Borough of Royersford  
Royersford, Pennsylvania

We have audited the accompanying financial statements of the governmental activities, the business-type activities, each major fund and the aggregate remaining fund information of the Borough of Royersford as of and for the year ended December 31, 2015, and the related notes to the financial statements, which collectively comprise the Borough of Royersford's basic financial statements as listed in the table of contents.

### ***Management's Responsibility for the Financial Statements***

The Borough of Royersford's management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

### ***Auditors' Responsibility***

Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

# APPENDIX A-5.1 (AUS)

To the Borough Council  
Borough of Royersford  
Royersford, Pennsylvania

## ***Opinion***

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities, the business-type activities, each major fund and the aggregate remaining fund information of the Borough of Royersford as of December 31, 2015, and the respective changes in financial position and, where applicable, cash flows thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America (GAAP).

## ***Emphasis of Matter***

As discussed in Notes J and K to the financial statements, for the year ended December 31, 2015, the Borough of Royersford adopted new accounting guidance, implementing Governmental Accounting Standards Board Statement No. 68, *Accounting and Financial Reporting for Pensions - An Amendment of GASB Statement No. 27*. Our opinion is not modified with respect to this matter.

## ***Other Matters***

### ***Required Supplementary Information***

Accounting principles generally accepted in the United States of America require that management's discussion and analysis on pages 5 through 10, budgetary comparison information on pages 51 and 52 and schedule of changes in the net police pension plan liability and related ratios on page 53, schedule of police pension plan contributions on page 54, schedule of police pension plan investment returns on page 55, schedule of changes in the net non-uniformed pension plan liability and related ratios on page 56, schedule of non-uniformed pension plan contributions on page 57 and schedule of non-uniformed pension plan investment returns on page 58 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

*Maille LLP*

Oaks, Pennsylvania  
July 6, 2016

## **BOROUGH OF ROYERSFORD MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited) YEAR ENDED DECEMBER 31, 2015**

---

Our discussion and analysis of the Borough of Royersford's financial performance provides an overview of the Borough's financial activities for the fiscal year ended December 31, 2015. Please read it in conjunction with the Borough's financial statements, which begin with the statement of net position.

### **FINANCIAL HIGHLIGHTS**

The assets of the Borough exceeded its liabilities by \$5 million.

### **OVERVIEW OF FINANCIAL STATEMENTS**

The Borough's annual financial report consists of several sections. Taken together, they provide a comprehensive financial look at the Borough. The components of the report include the independent auditors' report, management's discussion and analysis, government-wide financial statements, fund financial statements and notes to the basic financial statements. This report also contains other required supplementary information in addition to the basic financial statements.

The independent auditors' report briefly describes the audit engagement and also renders an opinion as to the material components of the Borough's financial position.

### **STATEMENT OF NET POSITION AND STATEMENT OF ACTIVITIES**

Our analysis of the Borough as a whole begins with the statement of net position. One of the most important questions asked about the Borough's finances is, "What is the Borough's overall financial condition?" The statement of net position and the statement of activities report information about the Borough as a whole and about its activities in a way that helps answer this question.

#### **Governmental Activities**

Most of the Borough's basic services are reported here, including police, public works, planning and zoning, parks and recreation and administration. The Borough also contributes to the fire departments, library and historical society.

#### **Business-Type Activities**

The Borough charges a fee to customers to cover the cost of the operation of the Waste Water Treatment Plant and the collection of solid waste, including recyclables.

**BOROUGH OF ROYERSFORD**

**MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)**

**YEAR ENDED DECEMBER 31, 2015**

---

**ANALYSIS OF THE OVERALL FINANCIAL POSITION AND RESULTS OF OPERATIONS**

**General Fund**

The Borough realizes two major sources of income for the operation of the general government (excluding the trash collection service and the operations of the waste water treatment facility). The two major income sources are real estate taxes and earned income taxes (EIT). The tax millage rate did change in 2015; the rate is 6.95 mills with an additional 1.25 mills per \$1 of assessed valuation. A property assessed at \$100,000 would have paid \$820 including fire tax for Borough taxes in 2015.

The EIT has decreased slightly. Continued monitoring of collections reflects the proper amount being received by the Borough.

General Real Estate Taxes decreased in 2016 due to the implementation of a Fire Tax of 1.25 mills. Real estate transfer tax increased slightly.

Increasing costs will be experienced with the ongoing Storm Water Management related to compliance with the Department of Environmental Protection requirements of permitting and inspecting storm water systems.

A number of minor projects were completed and are reflected in the Capital Project Fund.

**Sewer Fund**

The Sewer Fund operates as a business-type activity. All income and expenses are accounted for in this fund. The income sources are connection fees for new construction and user fees based on water consumption.

The Borough has started its Infiltration Inflow Project required by the Department of Environmental Protection. The Borough's engineer has recommended completing the project within five years. In 2012, the Borough implemented the Root Control Program and Sewer Lining Project. The project should be completed by 2017.

**Trash Collection Fund**

The Trash Collection Fund operates as a business-type activity. All income and expenses are accounted for in this fund. The income source is the user fees.

A contract with the landfill which accepts the Borough's solid waste showed a slight increase in the volume of trash collected. The recycling collector's contract is a fixed cost for five years (through 2018). The Borough went through the bidding process for a new trash collection contract in 2015. The recycling contract runs from 2014 to 2018. The trash contract for dumping portion of trash collection runs from 2015 to 2019. Long term contracts of trash and recycling will enable the Borough to budget for future years with some certainty.

**BOROUGH OF ROYERSFORD**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)**  
**YEAR ENDED DECEMBER 31, 2015**

The analysis which follows focuses on the net position (Table 1) and changes in net position (Table 2) of the Borough's governmental and business-type activities. Comparative data from fiscal year 2014 is included.

**Table 1**  
**Condensed Statements of Net Position**  
**December 31, 2015 and 2014**

	Governmental Activities		Business-Type Activities		Totals	
	2015	2014	2015	2014	2015	2014
<b>ASSETS</b>						
Cash and cash equivalents	\$ 774,824	\$ 1,174,901	\$ 510,216	\$ 611,657	\$ 1,285,040	\$ 1,786,558
Other assets	18,515	20,738	163,563	173,360	182,078	194,098
Capital assets	5,325,568	4,523,809	4,806,901	4,859,934	10,132,469	9,383,743
<b>TOTAL ASSETS</b>	<b>6,118,907</b>	<b>5,719,448</b>	<b>5,480,680</b>	<b>5,644,951</b>	<b>11,599,587</b>	<b>11,364,399</b>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>						
Deferred outflows related to pensions	165,277	-	55,890	-	221,167	-
<b>LIABILITIES</b>						
Other liabilities	99,357	124,645	35,414	26,325	134,771	150,970
Long-term	976,054	631,141	3,210,619	3,297,558	4,186,673	3,928,699
<b>TOTAL LIABILITIES</b>	<b>1,075,411</b>	<b>755,786</b>	<b>3,246,033</b>	<b>3,323,883</b>	<b>4,321,444</b>	<b>4,079,669</b>
<b>DEFERRED INFLOWS OF RESOURCES</b>						
Deferred inflows related to pensions	213,417	-	19,520	-	232,937	-
<b>NET POSITION</b>						
Net investment in capital assets	4,908,037	3,474,013	1,626,297	1,562,376	6,534,334	5,036,389
Restricted	242,575	253,850	-	-	242,575	253,850
Unrestricted	(155,256)	1,235,799	644,720	758,692	489,464	1,994,491
<b>TOTAL NET POSITION</b>	<b>\$ 4,995,356</b>	<b>\$ 4,963,662</b>	<b>\$ 2,271,017</b>	<b>\$ 2,321,068</b>	<b>\$ 7,266,373</b>	<b>\$ 7,284,730</b>

Cash and cash equivalents represent 11% and 16% of the Borough's total assets for the years ended December 31, 2015 and 2014, respectively.

By far, the largest portion of the Borough's assets, 87% (2015) and 83% (2014), reflects its investment in capital assets (e.g., land, buildings, waste water treatment plant, vehicles and recreation equipment). Because the Borough uses these capital assets to provide services to residents, these assets are not available for future spending.

**BOROUGH OF ROYERSFORD**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)**  
**YEAR ENDED DECEMBER 31, 2015**

**Table 2**  
**Changes in Net Position**  
**Years Ended December 31, 2015 and 2014**

	Governmental Activities		Business-Type Activities		Totals	
	2015	2014	2015	2014	2015	2014
<b>REVENUES</b>						
Program revenues						
Charges for services	\$ 79,247	\$ 85,471	\$ 1,203,759	\$ 1,192,107	\$ 1,283,006	\$ 1,277,578
Operating grants and contributions	219,346	208,659	-	3,481	219,346	212,140
Capital grants and contributions	573,621	307,029	-	-	573,621	307,029
General revenues						
Property taxes	1,506,437	1,503,355	-	-	1,506,437	1,503,355
Earned income taxes	641,623	709,619	-	-	641,623	709,619
Real estate transfer taxes	80,961	70,102	-	-	80,961	70,102
Per capita taxes and local services tax	65,080	74,027	-	-	65,080	74,027
Public utility taxes	2,694	2,925	-	-	2,694	2,925
Franchise taxes	114,342	111,775	-	-	114,342	111,775
Investment earnings	1,223	1,306	1,060	1,535	2,283	2,841
Miscellaneous	52,064	32,902	-	-	52,064	32,902
Gain (Loss) on sale of capital assets	2,250	(10,580)	-	-	2,250	(10,580)
<b>TOTAL REVENUES</b>	<b>3,338,888</b>	<b>3,096,590</b>	<b>1,204,819</b>	<b>1,197,123</b>	<b>4,543,707</b>	<b>4,293,713</b>
<b>EXPENSES</b>						
General government	436,012	316,838	-	-	436,012	316,838
Public safety	1,521,085	1,324,419	-	-	1,521,085	1,324,419
Highway/streets	625,963	642,689	-	-	625,963	642,689
Culture and recreation	211,000	142,204	-	-	211,000	142,204
Interest on long-term debt	18,139	21,031	-	-	18,139	21,031
Sewer	-	-	815,407	801,262	815,407	801,262
Trash collection	-	-	409,975	407,213	409,975	407,213
<b>TOTAL EXPENSES</b>	<b>2,812,199</b>	<b>2,447,181</b>	<b>1,225,382</b>	<b>1,208,475</b>	<b>4,037,581</b>	<b>3,655,656</b>
<b>EXCESS (DEFICIENCY) OF REVENUES OVER EXPENSES BEFORE TRANSFERS</b>	<b>526,689</b>	<b>649,409</b>	<b>(20,563)</b>	<b>(11,352)</b>	<b>506,126</b>	<b>638,057</b>
<b>TRANSFERS</b>	<b>-</b>	<b>(18,180)</b>	<b>-</b>	<b>18,180</b>	<b>-</b>	<b>-</b>
<b>CHANGE IN NET POSITION</b>	<b>526,689</b>	<b>631,229</b>	<b>(20,563)</b>	<b>6,828</b>	<b>506,126</b>	<b>638,057</b>
<b>NET POSITION AT BEGINNING OF YEAR, restated in 2015</b>	<b>4,468,667</b>	<b>4,469,120</b>	<b>2,291,580</b>	<b>2,314,240</b>	<b>6,760,247</b>	<b>6,783,360</b>
<b>NET POSITION AT END OF YEAR</b>	<b>\$ 4,995,356</b>	<b>\$ 5,100,349</b>	<b>\$ 2,271,017</b>	<b>\$ 2,321,068</b>	<b>\$ 7,266,373</b>	<b>\$ 7,421,417</b>

**BOROUGH OF ROYERSFORD**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)**  
**YEAR ENDED DECEMBER 31, 2015**

---

**ANALYSIS OF BALANCES AND TRANSACTIONS OF INDIVIDUAL FUNDS**

There was no major change in the uncollected real estate taxes or the increase in the earned sick leave of Borough employees. The uncollected fees for the Trash Collection Fund and the Sewer Fund increased from 2014 to 2015.

**VARIATIONS BETWEEN ORIGINAL AND FINAL BUDGET AMOUNTS**

The Borough has not made it a practice to change the budget amounts between the original adoption of the budget and year-end. Where actual expenses are in excess of budget amounts, or less than budget amounts, the department heads are expected to adjust spending in other areas to offset the differences. The total for the department is the driving force, and each department head is accountable for his department. Certain circumstances which are beyond the control of the department head are brought to Borough Council and appropriate actions taken. A review of the operations of all departments is undertaken at the end of June. Reviews are also conducted at the end of September (or more often if necessary) and monthly thereafter through December 31. The Finance Committee within Borough Council and the Borough Manager conduct the reviews. Necessary adjustments in spending are instituted as needed.

**VARIATIONS BETWEEN BUDGET AND ACTUAL AMOUNTS**

**Taxes**

Real Estate Transfer Taxes and Earned Income Taxes both produced amounts that are consistent with the budget. There was a slight increase in transfer tax and a slight decrease in LST tax in 2015.

**Intergovernmental Revenue**

The Borough received liquid fuels money for 2015 and it will be used for 2016 road projects.

**CAPITAL ASSETS AND DEBT ADMINISTRATION**

**Capital Assets**

The Borough of Royersford's investment in capital assets for its governmental and business-type activities as of December 31, 2015, totals \$6,534,334 in all funds (net of accumulated depreciation). The Borough's investment in capital assets includes building and building improvements, equipment, vehicles, recreational equipment, land and the Waste Water Treatment Plant.

**Long-Term Debt**

The interest rate on the 1997 General Obligation Note (utilized to finance the renovations to the Waste Water Treatment Plant) was reduced from 6.00% to 4.90% in 2003. The 1998 General Obligation Note, which was used to purchase the property at 428 Chestnut Street [the Public Works facility], was paid off in 2015.

These lower interest rates continued in 2015 and created a savings in interest expense for the full year.

**BOROUGH OF ROYERSFORD**

**MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)**

**YEAR ENDED DECEMBER 31, 2015**

---

**ECONOMIC FACTORS, NEXT YEAR'S BUDGET AND RATES**

The Borough Council has granted approval for an additional 120 condominiums on a third industrial parcel. Construction has been delayed due to the current economic environment.

Income from the tapping fees for the sewer services will pay for the Infiltration and Inflow Project and provide an increase in the Capital Project Fund. Annual user fees will offset the normal day-to-day operations of the plant with no anticipated rate increase.

The Real Estate Tax Assessment and Real Estate Transfer Tax will provide additional income to the Borough without significantly increasing the cost of providing services to the new communities. Earned Income Taxes are expected to be realized in 2016 and beyond.

The Borough has given approval for two duplex to be built on Second Avenue in 2016.



# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD

### STATEMENT OF NET POSITION

#### DECEMBER 31, 2015

	Governmental Activities	Business-Type Activities	Totals
<b>ASSETS</b>			
Cash and cash equivalents	\$ 774,824	\$ 510,216	\$ 1,285,040
Accounts receivable	2,181	74,369	76,550
Taxes receivable	28,664	-	28,664
Internal balances	(61,842)	61,842	-
Prepaid expenses	49,512	27,352	76,864
Capital assets			
Land	216,461	-	216,461
Infrastructure	5,476,852	-	5,476,852
Plant	-	6,543,653	6,543,653
Buildings and building improvements	610,493	-	610,493
Equipment	396,710	-	396,710
Vehicles	442,343	188,902	631,245
Accumulated depreciation	(1,817,291)	(1,925,654)	(3,742,945)
TOTAL ASSETS	6,118,907	5,480,680	11,599,587
<b>DEFERRED OUTFLOWS OF RESOURCES</b>			
Deferred outflows related to pensions	165,277	55,890	221,167
<b>LIABILITIES</b>			
Accounts payable	33,773	30,792	64,565
Escrows payable	20,080	-	20,080
Payroll and payroll taxes payable	45,504	4,622	50,126
Long-term liabilities			
Portion due or payable within one year			
Capital lease	21,718	-	21,718
Bonds and notes payable	16,646	108,781	125,427
Portion due or payable after one year			
Bonds and notes payable	379,167	3,071,823	3,450,990
Net pension liability	484,359	30,015	514,374
Compensated absences	74,164	-	74,164
TOTAL LIABILITIES	1,075,411	3,246,033	4,321,444
<b>DEFERRED INFLOWS OF RESOURCES</b>			
Deferred inflows related to pensions	213,417	19,520	232,937
<b>NET POSITION</b>			
Net investment in capital assets	4,908,037	1,626,297	6,534,334
Restricted	242,575	-	242,575
Unrestricted	(155,256)	644,720	489,464
TOTAL NET POSITION	\$ 4,995,356	\$ 2,271,017	\$ 7,266,373

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF ACTIVITIES**  
**YEAR ENDED DECEMBER 31, 2015**

Functions/Programs	Expenses	Program Revenues		
		Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions
<b>GOVERNMENTAL ACTIVITIES</b>				
General government	\$ 436,012	\$ -	\$ 10,862	\$ 374,647
Public safety	1,521,085	76,597	104,808	-
Highways and streets	625,963	1,830	102,001	-
Culture and recreation	211,000	820	1,675	198,974
Interest on long-term debt	18,139	-	-	-
<b>TOTAL GOVERNMENTAL ACTIVITIES</b>	<u>2,812,199</u>	<u>79,247</u>	<u>219,346</u>	<u>573,621</u>
<b>BUSINESS-TYPE ACTIVITIES</b>				
Sewer	815,407	757,161	-	-
Trash collection	409,975	446,598	-	-
<b>TOTAL BUSINESS-TYPE ACTIVITIES</b>	<u>1,225,382</u>	<u>1,203,759</u>	<u>-</u>	<u>-</u>
<b>TOTAL BOROUGH ACTIVITIES</b>	<u>\$ 4,037,581</u>	<u>\$ 1,283,006</u>	<u>\$ 219,346</u>	<u>\$ 573,621</u>

**GENERAL REVENUES**

- Property taxes, levied for general purposes
- Earned income taxes
- Transfer taxes
- Per capita taxes and local services tax
- Public utility taxes
- Franchise taxes
- Investment earnings
- Miscellaneous
- Gain on sale of capital assets

**TOTAL GENERAL REVENUES AND TRANSFERS**

**CHANGE IN NET POSITION**

NET POSITION AT BEGINNING OF YEAR, restated

NET POSITION AT END OF YEAR

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

---

Net (Expense) Revenue and Changes in Net Position

<u>Governmental Activities</u>	<u>Business-Type Activities</u>	<u>Totals</u>
\$ (50,503)	\$ -	\$ (50,503)
(1,339,680)	-	(1,339,680)
(522,132)	-	(522,132)
(9,531)	-	(9,531)
<u>(18,139)</u>	<u>-</u>	<u>(18,139)</u>
<u>(1,939,985)</u>	<u>-</u>	<u>(1,939,985)</u>
-	(58,246)	(58,246)
<u>-</u>	<u>36,623</u>	<u>36,623</u>
-	(21,623)	(21,623)
<u>(1,939,985)</u>	<u>(21,623)</u>	<u>(1,961,608)</u>
1,506,437	-	1,506,437
641,623	-	641,623
80,961	-	80,961
65,080	-	65,080
2,694	-	2,694
114,342	-	114,342
1,223	1,060	2,283
52,064	-	52,064
2,250	-	2,250
<u>2,466,674</u>	<u>1,060</u>	<u>2,467,734</u>
526,689	(20,563)	506,126
<u>4,468,667</u>	<u>2,291,580</u>	<u>6,760,247</u>
<u>\$ 4,995,356</u>	<u>\$ 2,271,017</u>	<u>\$ 7,266,373</u>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**BALANCE SHEET**  
**GOVERNMENTAL FUNDS**  
**DECEMBER 31, 2015**

	General Fund	Special Revenue Fund	Capital Project Fund	Total Governmental Funds
<b>ASSETS</b>				
Cash	\$ 531,062	\$ 243,762	\$ -	\$ 774,824
Accounts receivable	2,181	-	-	2,181
Due from other funds	1,187	-	-	1,187
Taxes receivable	4,552	-	-	4,552
Prepaid expenditures	49,512	-	-	49,512
<b>TOTAL ASSETS</b>	<b>\$ 588,494</b>	<b>\$ 243,762</b>	<b>\$ -</b>	<b>\$ 832,256</b>
<b>LIABILITIES AND FUND BALANCES</b>				
<b>LIABILITIES</b>				
Accounts payable	\$ 33,773	\$ -	\$ -	\$ 33,773
Escrows payable	20,080	-	-	20,080
Due to other funds	61,842	1,187	-	63,029
Payroll and payroll taxes payable	45,504	-	-	45,504
<b>TOTAL LIABILITIES</b>	<b>161,199</b>	<b>1,187</b>	<b>-</b>	<b>162,386</b>
<b>FUND BALANCES</b>				
Nonspendable, prepaid expenses	49,512	-	-	49,512
Restricted, highway and street projects	-	242,575	-	242,575
Unassigned	377,783	-	-	377,783
<b>TOTAL FUND BALANCES</b>	<b>427,295</b>	<b>242,575</b>	<b>-</b>	<b>669,870</b>
<b>TOTAL LIABILITIES AND FUND BALANCES</b>	<b>\$ 588,494</b>	<b>\$ 243,762</b>	<b>\$ -</b>	<b>\$ 832,256</b>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

## **BOROUGH OF ROYERSFORD**

### RECONCILIATION OF TOTAL GOVERNMENTAL FUNDS BALANCES

### TO NET POSITION OF GOVERNMENTAL ACTIVITIES

DECEMBER 31, 2015

---

TOTAL GOVERNMENTAL FUNDS BALANCES \$ 669,870

Capital assets used in governmental activities are not current financial resources and therefore are not reported in the funds.

These assets consist of:

Land	216,461
Infrastructure	5,476,852
Buildings and building improvements	610,493
Equipment	396,710
Vehicles	442,343
Accumulated depreciation	(1,817,291)

Deferred charges used in governmental activities are not financial resources and therefore are not reported in the funds. These assets consist of:

Deferred inflows and outflows related to pension activities	(48,140)
---	----------

Some liabilities are not due and payable in the current period and therefore are not reported in the funds. Those liabilities consist of:

Bonds and notes payable and capital lease	(417,531)
Compensated absences	(74,164)
Net pension liability	(484,359)

Some of the Borough's revenues will be collected after year-end but are not available soon enough to pay for the current period's expenditures and therefore are not recorded in the funds.

24,112

NET POSITION OF GOVERNMENTAL ACTIVITIES \$ 4,995,356

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF REVENUES, EXPENDITURES AND**  
**CHANGES IN FUND BALANCES**  
**GOVERNMENTAL FUNDS**  
**YEAR ENDED DECEMBER 31, 2015**

	General Fund	Special Revenue Fund	Capital Project Fund	Total Governmental Funds
<b>REVENUES</b>				
Taxes	\$ 2,296,399	\$ -	\$ -	\$ 2,296,399
Intergovernmental revenues	701,036	100,367	-	801,403
Investment income	1,101	74	48	1,223
Licenses and permits	116,172	-	-	116,172
Fines	27,953	-	-	27,953
Charges for services	51,139	-	-	51,139
Miscellaneous revenues	54,314	-	-	54,314
<b>TOTAL REVENUES</b>	<b>3,248,114</b>	<b>100,441</b>	<b>48</b>	<b>3,348,603</b>
<b>EXPENDITURES</b>				
General government	1,033,755	-	-	1,033,755
Public safety	1,479,062	-	-	1,479,062
Highways and streets	757,144	-	-	757,144
Recreation	199,606	-	-	199,606
Retirement expenses	122,904	-	-	122,904
Debt service				
Principal	105,291	-	-	105,291
Interest and other charges	18,138	-	-	18,138
<b>TOTAL EXPENDITURES</b>	<b>3,715,900</b>	<b>-</b>	<b>-</b>	<b>3,715,900</b>
<b>EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES</b>	<b>(467,786)</b>	<b>100,441</b>	<b>48</b>	<b>(367,297)</b>
<b>OTHER FINANCING SOURCES (USES)</b>				
Transfers in	77,826	-	-	77,826
Transfers out	-	-	(77,826)	(77,826)
<b>TOTAL OTHER FINANCING SOURCES (USES)</b>	<b>77,826</b>	<b>-</b>	<b>(77,826)</b>	<b>-</b>
<b>NET CHANGE IN FUND BALANCES</b>	<b>(389,960)</b>	<b>100,441</b>	<b>(77,778)</b>	<b>(367,297)</b>
<b>FUND BALANCES AT BEGINNING OF YEAR</b>	<b>817,255</b>	<b>142,134</b>	<b>77,778</b>	<b>1,037,167</b>
<b>FUND BALANCES AT END OF YEAR</b>	<b>\$ 427,295</b>	<b>\$ 242,575</b>	<b>\$ -</b>	<b>\$ 669,870</b>

See accompanying notes to the basic financial statements.

# APPENDIX A-5.1 (AUS)

## **BOROUGH OF ROYERSFORD**

### **RECONCILIATION OF THE GOVERNMENTAL FUNDS STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES TO THE STATEMENT OF ACTIVITIES YEAR ENDED DECEMBER 31, 2015**

---

NET CHANGE IN FUND BALANCES - TOTAL GOVERNMENTAL FUNDS	\$	(367,297)
<p>Capital outlays are reported in Governmental Funds as expenditures. However, in the statement of activities, the cost of those assets is allocated over their estimated useful lives as depreciation expense. This is the amount by which capital outlays exceed depreciation in the period.</p>		
		801,759
<p>The issuance of long-term debt (e.g., notes, leases) provides current financial resources to Governmental Funds, but issuing debt increases long-term liabilities in the statement of net position. Repayment of long-term debt principal is an expenditure in the Governmental Funds, but the repayment reduces long-term liabilities in the statement of net position. This is the net effect of these differences in the treatment of long-term debt.</p>		
		137,761
<p>Pension plan expenses are reported in the statement of activities and do not require the use of current financial resources and are not reported as expenditures in Governmental Funds.</p>		
		(34,771)
<p>Because some property taxes will not be collected for several months after the Borough's fiscal year ends, they are not considered as "available" revenues in the Governmental Funds. This is the amount of the change in real estate taxes outstanding during the year.</p>		
		(9,715)
<p>In the statement of activities, certain operating expenses--compensated absences (sick leave)--are measured by the amounts earned during the year. In the Governmental Funds, however, expenditures for these items are measured by the amount of financial resources used (essentially, the amounts actually paid).</p>		
		<u>(1,048)</u>
CHANGE IN NET POSITION OF GOVERNMENTAL ACTIVITIES	\$	<u>526,689</u>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

## **BOROUGH OF ROYERSFORD** **STATEMENT OF NET POSITION** **PROPRIETARY FUNDS** **DECEMBER 31, 2015**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>			
<b>CURRENT ASSETS</b>			
Cash and cash equivalents	\$ 279,806	\$ 230,410	\$ 510,216
Accounts receivable	40,290	34,079	74,369
Due from other funds	65,037	-	65,037
Prepaid expenses	14,814	12,538	27,352
<b>TOTAL CURRENT ASSETS</b>	<b>399,947</b>	<b>277,027</b>	<b>676,974</b>
<b>CAPITAL ASSETS</b>			
Plant	6,543,653	-	6,543,653
Vehicles	29,268	159,634	188,902
Accumulated depreciation	(1,843,178)	(82,476)	(1,925,654)
<b>TOTAL CAPITAL ASSETS</b>	<b>4,729,743</b>	<b>77,158</b>	<b>4,806,901</b>
<b>TOTAL ASSETS</b>	<b>5,129,690</b>	<b>354,185</b>	<b>5,483,875</b>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>			
Deferred outflows related to pensions	33,111	22,779	55,890
<b>TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>	<b>\$ 5,162,801</b>	<b>\$ 376,964</b>	<b>\$ 5,539,765</b>
<b>LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>			
<b>CURRENT LIABILITIES</b>			
Accounts payable	\$ 13,187	\$ 17,605	\$ 30,792
Due to other funds	-	3,195	3,195
Payroll and payroll taxes payable	4,622	-	4,622
Current portion of long-term debt	108,781	-	108,781
<b>TOTAL CURRENT LIABILITIES</b>	<b>126,590</b>	<b>20,800</b>	<b>147,390</b>
<b>NONCURRENT LIABILITIES</b>			
Long-term debt	3,071,823	-	3,071,823
Net pension liability	17,782	12,233	30,015
<b>TOTAL NONCURRENT LIABILITIES</b>	<b>3,089,605</b>	<b>12,233</b>	<b>3,101,838</b>
<b>TOTAL LIABILITIES</b>	<b>3,216,195</b>	<b>33,033</b>	<b>3,249,228</b>
<b>DEFERRED INFLOWS OF RESOURCES</b>			
Deferred inflows related to pensions	11,564	7,956	19,520
<b>NET POSITION</b>			
Net investment in capital assets	1,549,139	77,158	1,626,297
Unrestricted	385,903	258,817	644,720
<b>TOTAL NET POSITION</b>	<b>\$ 1,935,042</b>	<b>\$ 335,975</b>	<b>\$ 2,271,017</b>
<b>TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>	<b>\$ 5,162,801</b>	<b>\$ 376,964</b>	<b>\$ 5,539,765</b>

*See accompanying notes to the basic financial statements.*



# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF REVENUES, EXPENSES AND**  
**CHANGES IN NET POSITION**  
**PROPRIETARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2015**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>OPERATING REVENUES</b>			
Sewer rents and installation	\$ 757,161	\$ -	\$ 757,161
Trash collection	-	446,598	446,598
<b>TOTAL OPERATING REVENUES</b>	<u>757,161</u>	<u>446,598</u>	<u>1,203,759</u>
<b>OPERATING EXPENSES</b>			
Expenses	522,935	393,504	916,439
Depreciation	145,088	15,963	161,051
<b>TOTAL OPERATING EXPENSES</b>	<u>668,023</u>	<u>409,467</u>	<u>1,077,490</u>
<b>OPERATING INCOME</b>	<u>89,138</u>	<u>37,131</u>	<u>126,269</u>
<b>NONOPERATING REVENUES (EXPENSES)</b>			
Investment income	973	87	1,060
Interest expense	(147,384)	(508)	(147,892)
<b>TOTAL NONOPERATING EXPENSES</b>	<u>(146,411)</u>	<u>(421)</u>	<u>(146,832)</u>
<b>CHANGE IN NET POSITION</b>	<u>(57,273)</u>	<u>36,710</u>	<u>(20,563)</u>
<b>NET POSITION AT BEGINNING OF YEAR, restated</b>	<u>1,992,315</u>	<u>299,265</u>	<u>2,291,580</u>
<b>NET POSITION AT END OF YEAR</b>	<u>\$ 1,935,042</u>	<u>\$ 335,975</u>	<u>\$ 2,271,017</u>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF CASH FLOWS**  
**PROPRIETARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2015**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>			
Cash received from customers	\$ 765,954	\$ 451,371	\$ 1,217,325
Payments to suppliers	(379,192)	(277,913)	(657,105)
Payments to employees	(166,077)	(123,780)	(289,857)
<b>NET CASH PROVIDED BY         OPERATING ACTIVITIES</b>	<u>220,685</u>	<u>49,678</u>	<u>270,363</u>
<b>CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES</b>			
Purchase of equipment	(108,018)	-	(108,018)
Principal paid on capital lease	-	(12,943)	(12,943)
Principal paid on long-term debt	(104,011)	-	(104,011)
Interest paid on long-term debt	(147,384)	(508)	(147,892)
<b>NET CASH USED BY CAPITAL AND         RELATED FINANCING ACTIVITIES</b>	<u>(359,413)</u>	<u>(13,451)</u>	<u>(372,864)</u>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>			
Earnings from investments	973	87	1,060
<b>NET INCREASE/(DECREASE) IN CASH         AND CASH EQUIVALENTS</b>	(137,755)	36,314	(101,441)
<b>CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR</b>	<u>417,561</u>	<u>194,096</u>	<u>611,657</u>
<b>CASH AND CASH EQUIVALENTS AT         END OF YEAR</b>	<u>\$ 279,806</u>	<u>\$ 230,410</u>	<u>\$ 510,216</u>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF CASH FLOWS**  
**PROPRIETARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2015**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>RECONCILIATION OF OPERATING INCOME TO NET CASH PROVIDED BY OPERATING ACTIVITIES</b>			
Operating income	\$ 89,138	\$ 37,131	\$ 126,269
Adjustments to reconcile operating income to net cash provided by operating activities			
Depreciation	145,088	15,963	161,051
Pension expense	(21,235)	(14,608)	(35,843)
Change in assets and liabilities			
Accounts receivable	8,793	4,773	13,566
Prepaid expenses	(1,839)	(1,930)	(3,769)
Accounts payable	(148)	8,349	8,201
Payroll and payroll taxes payable	888	-	888
	<u>888</u>	<u>-</u>	<u>888</u>
<b>NET CASH PROVIDED BY OPERATING ACTIVITIES</b>	<u>\$ 220,685</u>	<u>\$ 49,678</u>	<u>\$ 270,363</u>

*See accompanying notes to the basic financial statements.*

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF FIDUCIARY NET POSITION**  
**FIDUCIARY FUNDS**  
**DECEMBER 31, 2015**

	Pension Trust Funds		Agency Fund	Total
	Police Pension	Non-Uniformed Pension	Hometown Heroes	Fiduciary Funds
<b>ASSETS</b>				
Cash and cash equivalents	\$ 38,704	\$ 44,696	\$ 2,839	\$ 86,239
Investments	<u>2,166,190</u>	<u>2,004,449</u>	<u>-</u>	<u>4,170,639</u>
<b>TOTAL ASSETS</b>	<u>\$ 2,204,894</u>	<u>\$ 2,049,145</u>	<u>\$ 2,839</u>	<u>\$ 4,256,878</u>
<b>LIABILITIES</b>				
Accounts payable	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 2,839</u>	<u>\$ 2,839</u>
<b>NET POSITION</b>				
Held in trust for pension benefits and other purposes	<u>\$ 2,204,894</u>	<u>\$ 2,049,145</u>		<u>\$ 4,254,039</u>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

## **BOROUGH OF ROYERSFORD**

### STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

#### FIDUCIARY FUNDS

YEAR ENDED DECEMBER 31, 2015

	Pension Trust Funds		Total Fiduciary Funds
	Police Pension	Non-Uniformed Pension	
<b>ADDITIONS</b>			
Contributions			
Employees	\$ 24,350	\$ 12,375	\$ 36,725
Employer	-	36,646	36,646
State aid	75,396	10,862	86,258
Investment income	19,273	23,312	42,585
TOTAL ADDITIONS	<u>119,019</u>	<u>83,195</u>	<u>202,214</u>
<b>DEDUCTIONS</b>			
Benefits	96,785	82,313	179,098
Administrative	33,862	31,585	65,447
TOTAL DEDUCTIONS	<u>130,647</u>	<u>113,898</u>	<u>244,545</u>
CHANGE IN NET POSITION	(11,628)	(30,703)	(42,331)
<b>NET POSITION HELD IN TRUST FOR PENSION BENEFITS AND OTHER PURPOSES</b>			
BEGINNING OF YEAR	<u>2,216,522</u>	<u>2,079,848</u>	<u>4,296,370</u>
END OF YEAR	<u>\$ 2,204,894</u>	<u>\$ 2,049,145</u>	<u>\$ 4,254,039</u>

*See accompanying notes to the basic financial statements.*

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2015

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

The basic financial statements of the Borough of Royersford (the "Borough") have been prepared in conformity with accounting principles generally accepted in the United States of America as applied to government units. The Governmental Accounting Standards Board (GASB) is the accepted standard setting body for establishing governmental accounting and financial reporting principles.

The more significant of the Borough's accounting policies are described below.

**Reporting Entity**

The financial statements of the Borough include the departments and other organizational units over which Borough Council exercises oversight responsibility, including general government, police protection, parks and recreation, public works and sanitation.

In evaluating the Borough as a reporting entity, management has addressed all potential component units for which the Borough may or may not be financially accountable and, as such, be includable within the Borough's financial statements. Additionally, the primary government is required to consider other organizations for which the nature and significance of their relationship with the primary government are such that exclusion would cause the Borough's financial statements to be misleading or incomplete.

Management has evaluated the following potential component units and determined they did not meet the criteria for inclusion as component units in the December 31, 2015 annual financial report:

- The fire department receives a contribution from the Borough and uses the personal property of the Borough. However, the majority of revenues generated is through private fund-raisers under the direction of a separate independent board not appointed by Borough Council. The department is organized under a separate charter, and, therefore, it is not included in the financial statements.
- The tax collector is an elected officer who collects taxes on behalf of the Borough, the Spring-Ford Area School District and Montgomery County. The Borough regards the tax collector's office as a separate entity and, therefore, does not account for its activity in the financial statements.

**Fund Accounting**

The Borough uses funds to maintain its financial records during the fiscal year. Fund accounting is designed to demonstrate legal compliance and to aid financial management by segregating transactions related to certain Borough functions or activities. A fund is defined as a fiscal and accounting entity with a self-balancing set of accounts that comprise its assets, liabilities, fund balance, revenues and expenditures or expenses. The various funds of the Borough are grouped into the categories governmental, proprietary and fiduciary.

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2015

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

The Borough reports the following major Governmental Funds:

**General Fund** - The General Fund is the general operating fund of the Borough. It is used to account for all financial resources except those required to be accounted for in another fund. The principal activities accounted for in the General Fund are general government, public safety, public works and recreation. Those activities are funded principally by property taxes, state shared taxes and grants from other governmental units. The General Fund balance is available for any purpose provided it is expended or transferred according to the general laws of Pennsylvania.

**Special Revenue Fund** - The Special Revenue Fund is used to account for the proceeds of specific revenue sources (other than trusts or major capital projects) that are legally restricted expenditures for specified purposes. This fund accounts principally for the disposition of dedicated state liquid fuels highway aid funding.

**Capital Project Fund** - The Capital Project Fund is used to account for financial resources to be used for the acquisition of capital equipment and capital improvements in both governmental and business-type activities.

The Borough reports the following major Proprietary Funds:

**Enterprise Funds**

**Sewer Fund** - The Sewer Fund accounts for the activities of the sewage treatment plant, sewage pumping stations and collection systems.

**Trash Collection Fund** - The Trash Collection Fund accounts for the operation of the Borough's trash collection system.

The Borough reports the following Fiduciary Funds:

**Pension Trust Funds** - The Pension Trust Funds are used to account for financial resources restricted solely for life insurance, disability and retirement benefits of the employees participating under the Borough's defined benefit pension plans.

**Agency Fund** - The Agency Fund is used to account for financial resources restricted solely for activities to honor past and present Borough residents who are veterans of the American Military.

**Basis of Presentation and Accounting**

**Government-Wide Financial Statements** - The statement of net position and the statement of activities display information about the Borough as a whole. These statements include the financial activities of the primary government, except for Fiduciary Funds. The statements distinguish between those activities of the Borough that are governmental and those that are considered business-type activities.

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2015

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

The government-wide statements are prepared using the economic resources measurement focus and the accrual basis of accounting. This is the same approach used in the preparation of the Proprietary Funds' financial statements but differs from the manner in which Governmental Funds' financial statements are prepared. Governmental Funds' financial statements therefore include a reconciliation with brief explanations to better identify the relationship between the government-wide statements and the statements for Governmental Funds. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows. Property taxes are recognized as revenues in the year for which they are levied. Grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the provider have been met.

The government-wide statement of activities presents a comparison between direct expenses and program revenues for each segment of the business-type activities of the Borough and for each function or program of the Borough's governmental activities. Direct expenses are those that are specifically associated with a service, program, or department and therefore clearly identifiable to a particular function. Program revenues include charges paid by the recipient of the goods or services offered by the program and grants and contributions that are restricted to meeting the operational or capital requirements of a particular program. Revenues, which are not classified as program revenues, are presented as general revenues of the Borough, with certain limited exceptions. The comparison of direct expenses with program revenues identifies the extent to which each business segment or governmental function is self-financing or draws from the general revenues of the Borough.

As a general rule, the effect of interfund activity has been eliminated from the government-wide financial statements.

**Fund Financial Statements** - Fund financial statements report detailed information about the Borough. The focus of Governmental and Proprietary Funds' financial statements is on major funds rather than reporting funds by type. Each major fund is presented in a separate column. Fiduciary Funds are reported by fund type.

The accounting and financial reporting treatment applied to a fund is determined by its measurement focus. All Governmental Funds are accounted for using the current financial resources measurement focus and the modified accrual basis of accounting. Revenues are recognized as soon as they are both measurable and available. Revenues are considered to be available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the Borough considers revenues to be available if they are collected within 60 days of the end of the fiscal period.

Expenditures generally are recorded when a liability is incurred, as under accrual accounting. However, debt service expenditures, as well as expenditures related to compensated absences, and claims and judgments are recorded only when payment is due. The financial statements for Governmental Funds are a balance sheet, which generally includes only current assets and current liabilities, and a statement of revenues, expenditures and changes in fund balances, which reports on the sources (i.e., revenues and other financing sources) and uses (i.e., expenditures and other financing uses) of current financial resources.



**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2015

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

All Proprietary Funds are accounted for on a flow of economic resources measurement focus. With this measurement focus, all assets and all liabilities associated with the operation of these funds are included on the statement of net position. The statement of revenues, expenses and changes in net position presents increases (i.e., revenues) and decreases (i.e., expenses) in net total assets. The statement of cash flows provides information about how the Borough finances and meets the cash flow needs of its proprietary activities.

Proprietary Funds distinguish operating revenues and expenses from nonoperating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with the Proprietary Funds' ongoing operations. The principal operating revenues of the Borough's Enterprise Funds are sewer rents and trash collection fees. Operating expenses of the Borough's Enterprise Funds include supplies, administrative costs and depreciation on capital assets. All revenues or expenses not meeting this definition are reported as nonoperating revenues and expenses.

Fiduciary Funds are reported using the economic resources measurement focus.

When both restricted and unrestricted resources are available for use, it is the Borough's policy to use restricted resources first, then unrestricted resources as they are needed.

**Cash Equivalents**

For purposes of the statement of cash flows, the Proprietary Funds consider all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents.

**Investments**

Investments are valued at fair value.

State statutes authorize the Borough to invest in obligations of the U.S. Treasury, short-term obligations of the U.S. Government or its agencies or instrumentalities, obligations of the United States or any of its agencies or instrumentalities backed by the full faith and credit of the United States of America, the Commonwealth of Pennsylvania or any of its agencies or instrumentalities backed by the full faith and credit of the political subdivision and insured certificates of deposit.

**Prepaid Expenditures/Expenses**

Certain payments to vendors reflect costs applicable to future accounting periods and are recorded as prepaid expenditures/expenses in both the government-wide and fund financial statements.

**Capital Assets**

Under GASB Statement No. 34, all capital assets, whether owned by governmental activities or business-type activities, are recorded and depreciated in the government-wide financial statements. No long-term capital assets or depreciation are shown in the Governmental Funds' financial statements.

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2015

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

Capital assets are defined as assets with an initial, individual cost of \$5,000 or more and an estimated useful life greater than one year. Capital assets are recorded at cost or estimated historical cost if purchased or constructed. Donated capital assets are recorded at the estimated fair market value at the date of donation.

The costs of normal maintenance and repairs that do not add to the value of the asset or materially extend the asset's life are not capitalized. Major improvements are capitalized and depreciated over the remaining useful lives of the related capital assets.

Capital assets are depreciated using the straight-line method over the following estimated useful lives:

	<u>Years</u>
Buildings and building improvements	5-40
Plant	5-40
Equipment	10-20
Vehicles	3-10
Infrastructure	25

**Deferred Outflows/Inflows of Resources**

In addition to assets, the statement of net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, deferred outflows of resources, represents a consumption of net position that applies to a future period(s) and so will not be recognized as an outflow of resources (expense/expenditure) until then. The Borough has one item that qualifies for reporting in this category. The deferred outflow of resources related to pensions is reported in the government-wide statement of net position and the proprietary fund statement of net position and is the result of the net difference between projected and actual earnings on pension plan investments.

In addition to liabilities, the statement of net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, deferred inflows of resources, represents an acquisition of net position that applies to a future period(s) and so will not be recognized as an inflow of resources (revenue) until that time. The Township has one item that qualifies for reporting in this category. The deferred inflow of resources related to pensions is reported in the government-wide statement of net position and is the result of changes in plan assumptions and the differences between expected and actual experience of the pension plan. Additionally, the deferred inflow of resources related to pensions is reported in the proprietary fund statement of net position and is the result of differences between expected and actual experience of the pension plan.

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2015

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

**Long-Term Obligations**

In the government-wide financial statements and Proprietary Funds in the fund financial statements, long-term debt and other long-term obligations are reported as liabilities in the applicable governmental activities, business-type activities, or Proprietary Funds' statement of net position.

In the fund financial statements, Governmental Funds recognize note premiums and discounts, as well as note issuance costs, during the current period. The face amount of debt issued is reported as other financing sources. Premiums received on debt issuances are reported as other financing sources while discounts on debt issuances are reported as other financing uses. Issuance costs, whether or not withheld from the actual debt proceeds received, are reported as debt service expenditures.

**Fund Balance**

Beginning with the year ended December 31, 2011, the Borough implemented GASB Statement No. 54, *Fund Balance Reporting and Governmental Fund Type Definitions*. This statement provides more clearly defined fund balance categories to make the nature and extent of the constraints placed on the Borough's fund balances more transparent.

The following classifications describe the relative strength of the spending constraints:

- ***Nonspendable Fund Balance*** - Amounts that are not in spendable form (such as prepaid expenses) or are required to be maintained intact.
- ***Restricted Fund Balance*** - Amounts constrained to specific purposes by their providers (such as grantors, bondholders and higher levels of government) through constitutional provisions or by enabling legislation.
- ***Committed Fund Balance*** - Amounts constrained to specific purposes by the Borough itself, using its highest level of decision-making authority (Borough Council). To be reported as committed, amounts cannot be used for any other purpose unless the Borough takes the same highest level action to remove or change the constraint.
- ***Assigned Fund Balance*** - Amounts the Borough intends to use for a specific purpose. Intent can be expressed by Borough Council or by an official or body to which Borough Council delegates the authority.
- ***Unassigned Fund Balance*** - Amounts available for any purpose. Positive amounts are reported only in the General Fund.

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2015

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

Borough Council establishes (and modifies or rescinds) fund balance commitments by passage of a resolution. This is typically done through adoption and amendment of the budget. A fund balance commitment is further indicated in the budget document as a commitment of the fund. Assigned fund balance is intended to be used by the government for specific purposes but does not meet the criteria to be classified as restricted or committed.

The Borough will typically use restricted fund balances first, followed by committed resources and then assigned resources, as appropriate opportunities arise, but reserves the right to selectively spend unassigned resources first to defer the use of these other classified funds.

**Use of Estimates**

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

**Real Estate Tax Calendar**

The original tax duplicate is received by the tax collector and mailed February 1. The discount period extends through March 31, followed by the flat period through May 31 and ends with the penalty period after June 1. The penalty is 10%. Any unpaid taxes at the end of the year are required to be lienied by January 15 with the county.

**NOTE B - DEPOSITS AND INVESTMENTS**

**Deposits**

***Custodial Credit Risk*** - Custodial credit risk is the risk that, in the event of a bank failure, the Borough's deposits may not be returned to it. The Borough follows state statute as it relates to custodial credit risk. As of December 31, 2015, \$1,205,260 of the Borough's bank balance of \$1,554,412 was exposed to custodial credit risk as follows:

Uninsured and collateralized with securities held by the pledging bank's trust department not in the Borough's name	\$ <u>961,398</u>
Invested in state investment pools, which is uninsured and uncollateralized	\$ <u>243,862</u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2015**

**NOTE B - DEPOSITS AND INVESTMENTS (Continued)**

**Investments**

As of December 31, 2015, the Borough's Police Pension and Non-Uniform Pension Plans had the following investments and maturities:

<u>Investment Type</u>	<u>Fair Value</u>	<u>Investment Maturities</u>	
		<u>1 Year or Less</u>	<u>2 to 5 Years</u>
Money market funds	\$ 83,400	\$ 83,400	\$ -
Fixed income securities	66,711	40,689	26,022
Equity securities	2,238,070	2,238,070	-
Mutual funds	1,821,323	1,821,323	-
Exchange-Traded products	44,535	44,535	-
	4,254,039	\$ 4,228,017	\$ 26,022
Deposits in money market funds considered cash equivalents	(83,400)		
	\$ 4,170,639		

**Interest Rate Risk** - The Borough's investment policy does limit investment maturities in accordance with state statutes as a means of managing its exposure to fair value losses arising from increasing interest rates.

**Credit Risk** - The Borough's investment in money market funds was rated AAAM by Standard & Poor's. The Borough's investment in fixed income securities ratings range from BB+ to AAA by Standard & Poor's.

**Concentration of Credit Risk** - The Borough does not have 5% or more of its total investments in a single issuer.

**NOTE C - ACCOUNTS RECEIVABLE**

Accounts receivable are comprised of the following:

	<u>General Fund</u>	<u>Proprietary Fund Type</u>	<u>Totals</u>
Sewer billings	\$ -	\$ 40,290	\$ 40,290
Refuse billings	-	34,079	34,079
Other	2,181	-	2,181
	\$ 2,181	\$ 74,369	\$ 76,550

The Borough believes that all receivables are collectible; therefore, an allowance for doubtful accounts is not needed.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2015**

**NOTE D - CAPITAL ASSETS**

A summary of changes in capital assets is as follows:

	Balance January 1, 2015	Additions	Deletions	Balance December 31, 2015
<b>GOVERNMENTAL ACTIVITIES</b>				
Capital assets not being depreciated				
Land	\$ 216,461	\$ -	\$ -	\$ 216,461
Capital assets being depreciated				
Infrastructure	4,520,549	956,303	-	5,476,852
Buildings and building improvements	591,184	19,309	-	610,493
Equipment	364,225	32,485	-	396,710
Vehicles	439,253	27,970	(24,880)	442,343
<b>TOTAL CAPITAL ASSETS BEING DEPRECIATED</b>	<b>5,915,211</b>	<b>1,036,067</b>	<b>(24,880)</b>	<b>6,926,398</b>
Accumulated depreciation				
Infrastructure	(863,197)	(174,172)	-	(1,037,369)
Buildings and building improvements	(229,276)	(14,500)	-	(243,776)
Equipment	(243,628)	(19,897)	-	(263,525)
Vehicles	(271,761)	(25,740)	24,880	(272,621)
<b>TOTAL ACCUMULATED DEPRECIATION</b>	<b>(1,607,862)</b>	<b>(234,309)</b>	<b>24,880</b>	<b>(1,817,291)</b>
<b>TOTAL CAPITAL ASSETS BEING DEPRECIATED, net</b>	<b>4,307,349</b>	<b>801,758</b>	<b>-</b>	<b>5,109,107</b>
<b>GOVERNMENTAL ACTIVITIES CAPITAL ASSETS, net</b>	<b>4,523,810</b>	<b>801,758</b>	<b>-</b>	<b>5,325,568</b>
<b>BUSINESS-TYPE ACTIVITIES</b>				
Capital assets being depreciated				
Plant	6,543,653	-	-	6,543,653
Vehicles	287,298	-	(98,396)	188,902
<b>TOTAL CAPITAL ASSETS BEING DEPRECIATED</b>	<b>6,830,951</b>	<b>-</b>	<b>(98,396)</b>	<b>6,732,555</b>
Accumulated depreciation				
Plant	(1,689,797)	(142,161)	-	(1,831,958)
Vehicles	(173,202)	(18,890)	98,396	(93,696)
<b>TOTAL ACCUMULATED DEPRECIATION</b>	<b>(1,862,999)</b>	<b>(161,051)</b>	<b>98,396</b>	<b>(1,925,654)</b>
<b>BUSINESS-TYPE ACTIVITIES CAPITAL ASSETS, net</b>	<b>4,967,952</b>	<b>(161,051)</b>	<b>-</b>	<b>4,806,901</b>
<b>CAPITAL ASSETS, net</b>	<b>\$ 9,491,762</b>	<b>\$ 640,707</b>	<b>\$ -</b>	<b>\$ 10,132,469</b>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2015**

**NOTE D - CAPITAL ASSETS (Continued)**

The net book value of each capital asset category for governmental and business-type activities is as follows:

	<u>Cost</u>	<u>Accumulated Depreciation</u>	<u>Net Book Value</u>
<b>GOVERNMENTAL ACTIVITIES</b>			
Capital assets not being depreciated			
Land	\$ 216,461	\$ -	\$ 216,461
Capital assets being depreciated			
Infrastructure	5,476,852	(1,037,369)	4,439,483
Buildings and building improvements	610,493	(243,776)	366,717
Equipment	396,710	(263,525)	133,185
Vehicles	442,343	(272,621)	169,722
	<u>7,142,859</u>	<u>(1,817,291)</u>	<u>5,325,568</u>
<b>BUSINESS-TYPE ACTIVITIES</b>			
Capital assets being depreciated			
Plant	6,543,653	(1,831,958)	4,711,695
Vehicles	188,902	(93,696)	95,206
	<u>6,732,555</u>	<u>(1,925,654)</u>	<u>4,806,901</u>
<b>TOTAL CAPITAL ASSETS</b>	<b>\$ 13,875,414</b>	<b>\$ (3,742,945)</b>	<b>\$ 10,132,469</b>

Depreciation expense was charged to governmental functions as follows:

General government	\$ 14,524
Public safety	20,980
Highways and streets	172,629
Culture and recreation	26,176
	<u>234,309</u>

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2015

---

**NOTE E - CAPITAL LEASE**

The Borough has entered into a lease agreement as lessee for financing the acquisition of two vehicles for the Police Department. The lease agreement qualifies as a capital lease for accounting purposes and, therefore, has been recorded at the present value of the future minimum lease payments as of the inception date. The assets acquired through the capital lease had a cost of \$65,230 and accumulated depreciation of \$13,046 as of December 31, 2015.

The future minimum lease obligations and the net present value of these minimum lease payments as of December 31, 2015, were as follows:

<u>Year Ending December 31,</u>	<u>General Fund</u>
2016	\$ 23,051
Amount representing interest	<u>(1,333)</u>
	<u>\$ 21,718</u>



# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2015**

---

**NOTE F - LONG-TERM LIABILITIES**

The following is a summary of long-term liability activity of the Borough for the year ended December 31, 2015:

	Principal Outstanding January 1, 2015
	2015
<b>GOVERNMENTAL ACTIVITIES</b>	
General Obligation Bonds and Notes	
Note, Series of 1998	\$ 86,106
Bonds, Series of 2011	414,997
<b>TOTAL GENERAL OBLIGATION BONDS AND NOTES</b>	<b>501,103</b>
Capital leases	54,189
Net Pension Liability	497,728
Compensated absences (Note G)	73,116
<b>TOTAL GOVERNMENTAL ACTIVITIES</b>	<b>1,126,136</b>
<b>BUSINESS-TYPE ACTIVITIES</b>	
Notes	
General Obligation Note, Series of 1997	314,615
Guaranteed Sewer Revenue Note, Series of 2008	2,970,000
<b>TOTAL NOTES</b>	<b>3,284,615</b>
Capital lease	12,943
Net Pension Liability	29,488
<b>TOTAL BUSINESS-TYPE ACTIVITIES</b>	<b>3,327,046</b>
<b>TOTAL LONG-TERM LIABILITIES</b>	<b>\$ 4,453,182</b>

The General Fund funds the payment of long-term debt and compensated absences in the governmental activities.

# APPENDIX A-5.1 (AUS)

<u>Additions/ Refundings</u>	<u>Deletions/ Maturities</u>	<u>Principal Outstanding December 31, 2015</u>	<u>Due Within One Year</u>
\$ -	\$ (86,106)	\$ -	\$ -
-	(19,184)	395,813	16,646
-	(105,290)	395,813	16,646
-	(32,471)	21,718	21,718
-	(13,369)	484,359	-
1,048	-	74,164	-
<u>1,048</u>	<u>(151,130)</u>	<u>976,054</u>	<u>38,364</u>
-	(99,011)	215,604	103,781
-	(5,000)	2,965,000	5,000
-	(104,011)	3,180,604	108,781
-	(12,943)	-	-
527	-	30,015	-
<u>527</u>	<u>(116,954)</u>	<u>3,210,619</u>	<u>108,781</u>
<u>\$ 1,575</u>	<u>\$ (268,084)</u>	<u>\$ 4,186,673</u>	<u>\$ 147,145</u>

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2015

---

**NOTE F - LONG-TERM LIABILITIES (Continued)**

Bonds and notes payable at December 31, 2015, consisted of:

**Governmental Activities**

General Obligation Bonds, Series of 2011, used to currently refund the General Obligation Note, Series of 2008, which was originally used to finance the revitalization of Main Street, principal and interest payments are due monthly and began in April 2011 and continue through April 2016 at a fixed rate of 3.45%; in April 2016, the interest rate will be increased to a fixed rate of 6.99% until maturity in April 2031

\$ 395,813

**Business-Type Activities**

General Obligation Note, Series of 1997, used for renovations to the Royersford Waste Water Treatment Plant; principal payments began in February 1998 and continue through January 2018, with interest payments beginning in November 1997 at a rate of 6.00%; as of October 1, 2003, the interest rate was modified to a fixed rate of 4.90%; due in monthly installments of \$9,363 through January 2018

215,604

Guaranteed Sewer Revenue Note, Series of 2008, used for renovations to the Royersford Waste Water Treatment Plant; principal payments began in June 2009 and continue through June 2032 ranging from \$5,000 to \$265,000 annually; interest payments began in July 2008 and are due monthly at a fixed rate of 4.117%

2,965,000

TOTAL BUSINESS-TYPE ACTIVITIES

3,180,604

TOTAL BONDS AND NOTES PAYABLE

\$ 3,576,417

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2015**

---

**NOTE F - LONG-TERM LIABILITIES (Continued)***Debt Service Requirements*

A summary of notes payable debt service requirements to maturity, including principal and interest, is as follows:

<u>Year Ending December 31,</u>	<u>Principal</u>	<u>Interest</u>	<u>Totals</u>
2016	\$ 125,427	\$ 164,891	\$ 290,318
2017	129,920	162,993	292,913
2018	160,929	158,283	319,212
2019	166,322	150,643	316,965
2020	173,644	142,635	316,279
2021 to 2025	1,006,654	578,628	1,585,282
2026 to 2030	1,281,373	308,699	1,590,072
2031 to 2035	532,148	36,327	568,475
	<u>\$ 3,576,417</u>	<u>\$ 1,703,099</u>	<u>\$ 5,279,516</u>

**NOTE G - SICK LEAVE**

The Borough does not accrue accumulated sick leave on its Governmental or Proprietary Funds but expenses these costs as paid in the fund financial statements. Sick leave is accrued on the government-wide financial statements. The amount of vested accumulated sick leave was \$74,164 as of December 31, 2015. Non-uniform employees earn 1 1/4 days of sick leave per month with a maximum accumulation of 75 days for hourly employees and 100 days for salaried employees. Uniform employees earn ten hours of sick leave per month with a maximum accumulation of 840 hours. All employees are entitled to payment for 80% of accumulated sick leave upon retirement and 50% upon termination after five years of employment. Effective January 1, 1985, all non-uniform employees are eligible to receive payment of accumulated sick leave up to a maximum of \$3,000. Effective January 1, 2012, all uniform employees are eligible to receive payment of accumulated sick leave up to a maximum of \$9,000.

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2015**

---

**NOTE H - INTERGOVERNMENTAL REVENUES**

Intergovernmental revenues by source are summarized as follows:

	General Fund	Special Revenue Fund
<b>COMMONWEALTH OF PENNSYLVANIA</b>		
Payment in lieu of taxes	\$ 7,417	\$ -
Public utility realty tax	2,694	-
Liquid fuels	-	100,367
Pension	86,258	-
Snow removal	1,634	-
Liquor Control Board	650	-
Volunteer Fire Fighter	28,762	-
DCNR grants	198,974	-
County of Montgomery		
Trail grant	374,647	-
	\$ 701,036	\$ 100,367

Approximately 18% of all Borough revenues represents federal, state and county grants.

**NOTE I - INTERFUND RECEIVABLES, PAYABLES AND TRANSFERS**

Interfund receivables and payables are summarized as follows:

	Due from Other Funds	Due to Other Funds
General Fund	\$ 1,187	\$ 61,842
Special Revenue Fund	-	1,187
Sewer Fund	65,037	-
Trash Collection Fund	-	3,195
	\$ 66,224	\$ 66,224

Interfund transfers are summarized as follows:

Transfer In	Transfer Out	Amount
General Fund	Capital Project Fund	\$ 77,826

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2015**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN)**

*Summary of Significant Accounting Policies*

**Method Used to Value Investments** - Police Pension Plan investments are carried at fair value as reported by the investment managers. Short-term investments are reported at cost, which approximates fair value.

*Plan Description*

**Plan Administration** - The Borough administers the Police Pension Plan--a single-employer defined benefit pension plan that provides pensions for all regular, full-time sworn police officers.

Management of the plan is vested in the Pension Board, which consists of five members; two elected council members, the Borough Manager, one police department representative and one non-uniformed employees representative--all appointed by the Borough Council President. The Pension Board is responsible for managing, investing and monitoring the Borough's Police Pension Fund.

**Plan Membership** - At December 31, 2015, pension plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefits	2
Inactive plan members entitled to but not yet receiving benefits	0
Active plan members	<u>6</u>
	<u><u>8</u></u>

**Benefits Provided** - The plan provides retirement, disability and death benefits. A member is eligible for normal retirement after attainment of age 50 and completion of 25 years of vesting service. The normal retirement pension is payable monthly during the member's lifetime, with payments continuing after the member's death to the surviving spouse, or eligible child, equal to 50% of the amount payable to the member at the time of the member's death. The amount of monthly pension is equal to 50% of average monthly compensation, plus a service increment equal to \$100 per month per year of benefit service completed in excess of 25 years, up to a maximum of \$500 additional per month. Average compensation is based upon the last 36 months of employment. If a member continues working after his normal retirement date, his pension does not start until he actually retires. If an active member suffers a service related disability, they are eligible for disability retirement. The service related disability retirement is payable monthly equal to 80% of the member's monthly salary at the time of disability reducing to 50% of salary at normal retirement date less worker's compensation benefits. There is no benefit for non-service related disability.

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2015

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

Benefit terms provide for an annual cost-of-living increase, based upon the increase in the Consumer Price Index for the preceding year, shall be granted to retired members equal to not more than the increase in the Consumer Price Index from the year in which the member last worked, with a maximum total cost-of-living increase of 30%.

The benefit provisions of the Borough's Police Pension Plan are established by Borough ordinances.

**Contributions** - The Borough's police employees are required to contribute a percentage of their monthly salaries to the plan. The Borough is required to contribute the remaining amounts necessary to fund the plan using the actuarial basis specified by state statute. The state also provides funds (distribution of foreign casualty insurance premium taxes) to the Borough, which are used by the Borough in making its regular contributions to the plan.

Pennsylvania Act 205 of 1984 (as amended) requires that annual contributions be based upon the minimum municipal obligation ("MMO"), which is based on the plan's biennial actuarial valuation. The MMO includes the normal cost, estimated administrative expenses and an amortization contribution of the unfunded actuarial accrued liability, less estimated member contributions, and a credit equal to 10% of the excess (if any) of the actuarial value of assets over the actuarial accrued liability. The state provides an allocation of funds, which must be used for pension funding. A financial requirement established by the MMO, which exceeds state and member contributions, must be funded by the employer. In accordance with Act 205, the Borough was required to contribute \$75,396 to the plan for the year 2015. The Borough's actual contributions for the plan year 2015 were \$75,396.

Per the collective bargaining agreement, employees are required to contribute 5% of covered payroll. This contribution is governed by the plan's governing ordinances and collective bargaining agreements. Administrative costs, which may include, but are not limited to, investment management fees and actuarial services are charged to the plan and funded through the MMO and/or plan earnings. On-behalf payments of fringe benefits and salaries for the Borough's employees were recognized as revenues and expenditures during the year.

**Investments**

**Investment Policy** - The plan's policy in regard to the allocation of invested assets is established and may be amended by the Pension Board by a majority vote of its members. It is the policy of the Pension Board to pursue an investment strategy that reduces risk through prudent diversification of the portfolio across a broad selection of distinct asset classes. The plan's investment policy discourages the use of cash equivalents, except for liquidity purposes, and aims to refrain from dramatically shifting asset class allocations over short time spans.

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2015

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

The following was the Board's adopted asset allocation policy as of December 31, 2015:

<u>Asset Class</u>	<u>Target Allocation</u>
Dividend and income stocks	30%
Core equity	25%
International	15%
Fixed income	30%
	<u>100%</u>

**Concentrations** - More than 5% of the Borough's investments are in equity securities and mutual funds. These investments are 54% and 44% of the plan's total investments, respectively.

**Rate of Return** - For the year ended December 31, 2015, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was .02%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

**Net Pension Liability of the Borough**

The components of the net pension liability of the Borough at December 31, 2015, were as follows:

Total pension liability	\$ 2,663,136
Plan fiduciary net position	<u>(2,204,894)</u>
<b>NET PENSION LIABILITY</b>	<b>\$ <u>458,242</u></b>
Plan fiduciary net position as a percentage of the total pension liability	<u>82.79%</u>

**Actuarial Assumptions** - The total pension liability was determined by an actuarial valuation as of December 31, 2015, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3%
Salary increases	4.5% average, including inflation
Investment rate of return	7.5%

Mortality rates were based on the RP-2000 Healthy Annuitant Mortality Table.



**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2015

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

Due to the size of the plan, there has been no experience studies used to determine plan assumptions.

The long-term expected rate of return on plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the plan's target asset allocation as of December 31, 2015 (see the plan's investment policy), are summarized in the following table:

<u>Asset Class</u>	<u>Long-Term Expected Real Rate of Return</u>
Dividend and income stocks	7.5%
Core equity	8.0%
International	10.0%
Fixed income	3.8%

**Discount Rate** - The discount rate is based on the long-term expected rate of return on plan investments that are expected to be used to finance the payments of benefits. The plan's fiduciary net position is projected to be sufficient to make projected benefit payments and the plan assets are expected to be invested using a strategy to achieve that return. The employer has always met the funding requirements of Pennsylvania Law Act 205 of 1984. Act 205 requires full funding of the entry age normal cost plus plan expenses, as well as amortization of the unfunded liability to ultimately achieve a 100% funded status.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2015**

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

***Changes in the Net Pension Liability***

	Governmental Activities:		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a)-(b)
Balance at December 31, 2014	\$ 2,688,592	\$ 2,216,522	\$ 472,070
Changes for the year:			
Service cost	82,517	-	82,517
Interest cost	204,204	-	204,204
Changes for experience	(17,032)	-	(17,032)
Changes of assumptions	(198,360)	-	(198,360)
Contributions			
Employer	-	75,396	(75,396)
Member	-	24,350	(24,350)
Net investment income	-	19,273	(19,273)
Benefit payments	(96,785)	(96,785)	-
Administrative expenses	-	(33,862)	33,862
Net Changes	<u>(25,456)</u>	<u>(11,628)</u>	<u>(13,828)</u>
Balance at December 31, 2015	<u>\$ 2,663,136</u>	<u>\$ 2,204,894</u>	<u>\$ 458,242</u>

***Changes in Assumptions***

In the 2015 actuarial valuation, the assumed average annual salary increase was adjusted to 4.5%. In prior years, the assumed average annual salary increase was 5.0%.

***Sensitivity of the Net Pension Liability to Changes in the Discount Rate*** - The following presents the net pension liability of the Borough, calculated using the discount rate of 7.5%, as well as what the Borough's net pension would be if it were calculated using a discount rate that is one percentage point lower (6.5%) or one percentage point higher (8.5%) than the current rate:

	1% Decrease (6.5%)	Current Discount Rate (7.5%)	1% Increase (8.5%)
Net pension liability	<u>\$ 857,966</u>	<u>\$ 458,242</u>	<u>\$ 128,817</u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2015**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

***Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions***

For the year ended December 31, 2015, the Borough recognized pension expense of \$65,958. At December 31, 2015, the Borough reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	<u>Governmental Activities</u>	
	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>
Difference between expected and actual experience	\$ -	\$ 15,533
Change of Assumptions	-	180,899
Net difference between projected and actual earnings on pension plan investments	<u>116,646</u>	<u>-</u>
	<u>\$ 116,646</u>	<u>\$ 196,432</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

<u>Year Ending December 31,</u>	<u>Governmental Activities</u>
2016	\$ 10,201
2017	10,201
2018	10,201
2019	10,201
2020	(18,961)
Thereafter	(101,629)

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2015

---

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN)**

**Summary of Significant Accounting Policies**

**Method Used to Value Investments** - Non-Uniformed Pension Plan investments are carried at fair value as reported by the investment managers. Short-term investments are reported at cost, which approximates fair value.

**Plan Description**

**Plan Administration** - The Borough administers the Non-Uniformed Pension Plan—a single-employer defined benefit pension plan that provides pensions for all regular, full-time non-uniformed Borough employees.

Management of the plan is vested in the Pension Board, which consists of five members; two elected council members, the borough manager, one police department representative and one non-uniformed employees representative—all appointed by the Borough Council President. The Pension Board is responsible for managing, investing and monitoring the Borough's Non-Uniformed Pension Fund.

**Plan Membership** - At December 31, 2015, plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefits	4
Inactive plan members entitled to but not yet receiving benefits	2
Active plan members	11
	<hr/>
	17
	<hr/> <hr/>

**Benefits Provided** - The plan provides retirement, disability and death benefits. A member is eligible for normal retirement after attainment of age 62. The normal retirement pension is payable monthly during the member's lifetime, with payments continuing after the member's death to a designated beneficiary, equal to the present value of the accrued benefit at the time of the member's death. The amount of monthly pension is equal to 1.667% times average monthly compensation. Average compensation is based upon the last 36 months of employment. If a member continues working after his normal retirement date, his pension does not start until he actually retires. If an active member suffers a service related disability, they are eligible for disability retirement. The service related disability retirement is payable monthly equal to 50% of the member's monthly salary at the time of disability. If the disability is not service related, a benefit of 30% of salary is provided to a member who has at least ten years of service.

The benefit provisions of the Borough's plan are established by Borough ordinances.

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2015

---

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

**Contributions** - The Borough's non-uniformed employees are required to contribute a percentage of their monthly salaries to the plan. The Borough is required to contribute the remaining amounts necessary to fund the plan using the actuarial basis specified by state statute. The state also provides funds (distribution of foreign casualty insurance premium taxes) to the Borough, which are used by the Borough in making its regular contributions to the plan.

Pennsylvania Act 205 of 1984 (as amended) requires that annual contributions be based upon the minimum municipal obligation ("MMO"), which is based on the plan's biennial actuarial valuation. The MMO includes the normal cost, estimated administrative expenses and an amortization contribution of the unfunded actuarial accrued liability, less estimated member contributions, and a credit equal to 10% of the excess (if any) of the actuarial value of assets over the actuarial accrued liability. The state provides an allocation of funds, which must be used for pension funding. A financial requirement established by the MMO, which exceeds state and member contributions, must be funded by the employer. In accordance with Act 205, the Borough was required to contribute \$47,508 to the plan for the year 2015. The Borough's actual contributions for the plan year 2015 were \$47,508.

Per Borough ordinance, employees are required to contribute 2.25% of covered payroll. This contribution is governed by the plan's governing ordinances and collective bargaining agreements. Administrative costs, which may include, but are not limited to, investment management fees and actuarial services are charged to the plan and funded through the MMO and/or plan earnings. On-behalf payments of fringe benefits and salaries for the Borough's employees were recognized as revenues and expenditures during the year.

**Investments**

**Investment Policy** - The plan's policy in regard to the allocation of invested assets is established and may be amended by the Pension Board by a majority vote of its members. It is the policy of the Pension Board to pursue an investment strategy that reduces risk through prudent diversification of the portfolio across a broad selection of distinct asset classes. The plan's investment policy discourages the use of cash equivalents, except for liquidity purposes, and aims to refrain from dramatically shifting asset class allocations over short time spans. The following was the Board's adopted asset allocation policy as of December 31, 2015:

<u>Asset Class</u>	<u>Target Allocation</u>
Dividend and income stocks	30%
Core equity	25%
International	15%
Fixed income	30%
	<u>100%</u>

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2015

---

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

**Concentrations** - More than 5% of the Borough's investments are in equity securities and mutual funds. These investments are 54% and 43% of the plan's total investments, respectively.

**Rate of Return** - For the year ended December 31, 2015, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was .02%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

**Net Pension Liability of the Borough**

The components of the net pension liability of the Borough at December 31, 2015, were as follows:

Total pension liability	\$ 2,105,278
Plan fiduciary net position	<u>(2,049,145)</u>
	.
NET PENSION LIABILITY	<u>\$ 56,133</u>
Plan fiduciary net position as a percentage of the total pension liability	<u>97.33%</u>

**Actuarial Assumptions** - The total pension liability was determined by an actuarial valuation as of December 31, 2015, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3%
Salary increases	5% average, including inflation
Investment rate of return	7.5%

Mortality rates were based on the RP-2000 Healthy Annuitant Mortality Table.

Due to the size of the plan, there has been no experience studies used to determine plan assumptions.

The long-term expected rate of return on plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2015**

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

Best estimates of arithmetic real rates of return for each major asset class included in the plan's target asset allocation as of December 31, 2015 (see the plan's investment policy), are summarized in the following table:

Asset Class	Target Allocation
Dividend and income stocks	30%
Core equity	25%
International	15%
Fixed income	30%
	100%

**Discount Rate** - The discount rate is based on the long-term expected rate of return on plan investments that are expected to be used to finance the payments of benefits. The plan's fiduciary net position is projected to be sufficient to make projected benefit payments and the plan assets are expected to be invested using a strategy to achieve that return. The employer has always met the funding requirements of Pennsylvania Law Act 205 of 1984. Act 205 requires full funding of the entry age normal cost plus plan expenses, as well as amortization of the unfunded liability to ultimately achieve a 100% funded status.

**Changes in the Net Pension Liability**

	Governmental Activities:		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a)-(b)
Balance at December 31, 2014	\$ 942,048	\$ 967,706	\$ (25,658)
Changes for the year:			
Service cost	25,149	-	25,149
Interest cost	71,104	-	71,104
Changes for experience	(20,464)	-	(20,464)
Changes of assumptions	-	-	-
Contributions			
Employer	-	22,104	(22,104)
Member	-	5,758	(5,758)
Net investment income	-	10,847	(10,847)
Benefit payments	(38,298)	(38,298)	-
Administrative expenses	-	(14,696)	14,696
Net Changes	37,491	(14,285)	51,776
Balance at December 31, 2015	\$ 979,539	\$ 953,421	\$ 26,118

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2015

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

	Business-type Activities		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a)-(b)
Balance at December 31, 2014	\$ 1,082,654	\$ 1,112,142	\$ (29,488)
Changes for the year:			
Service cost	28,902	-	28,902
Interest cost	81,716	-	81,716
Changes for experience	(23,518)	-	(23,518)
Changes of assumptions	-	-	-
Contributions			
Employer	-	25,404	(25,404)
Member	-	6,617	(6,617)
Net investment income	-	12,465	(12,465)
Benefit payments	(44,015)	(44,015)	-
Administrative expenses	-	(16,889)	16,889
Net Changes	43,085	(16,418)	59,503
Balance at December 31, 2015	\$ 1,125,739	\$ 1,095,724	\$ 30,015

**Sensitivity of the Net Pension Liability to Changes in the Discount Rate** - The following presents the net pension liability of the Borough, calculated using the discount rate of 7.5%, as well as what the Borough's net pension would be if it were calculated using a discount rate that is one percentage point lower (6.5%) or one percentage point higher (8.5%) than the current rate:

	1% Decrease (6.5%)	Current Discount Rate (7.5%)	1% Increase (8.5%)
Net pension liability	\$ 258,612	\$ 56,133	\$ (119,311)



**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2015

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

*Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions*

For the year ended December 31, 2015, the Borough recognized pension expense of \$(67,030). At December 31, 2015, the Township reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	<u>Governmental Activities</u>		<u>Business-type Activities</u>	
	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>
Difference between expected and actual experience	\$ -	\$ 16,985	\$ -	\$ 19,520
Net difference between projected and actual earnings on pension plan investments	<u>48,631</u>	<u>-</u>	<u>55,890</u>	<u>-</u>
	<u>\$ 48,631</u>	<u>\$ 16,985</u>	<u>\$ 55,890</u>	<u>\$ 19,520</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

<u>Year Ending December 31,</u>	<u>Governmental Activities</u>	<u>Business-Type Activities</u>
2016	\$ 8,679	\$ 9,974
2017	8,679	9,974
2018	8,679	9,974
2019	8,679	9,975
2020	(3,070)	(3,527)

**NOTE L - RISK MANAGEMENT**

The Borough is exposed to various risks of loss related to torts; theft of, damage to and destruction of assets; errors and omissions; injuries to employees; and natural disasters. It is the policy of the Borough to purchase commercial insurance for the risks of loss to which it is exposed, including workers' compensation and employee health and accident insurance. Settled claims resulting from these risks have not exceeded commercial insurance coverage in any of the past three years.

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2015

---

**NOTE M - PRIOR PERIOD ADJUSTMENT**

The Borough implemented GASB Statement No. 68, Accounting and Financial Reporting for Pension – An Amendment of GASB Statement No. 27, effective January 1, 2015.

The objective of GASB Statement No. 68 is to improve accounting and financial reporting by state and local governments for pension plans. GASB Statement No. 68 states that local governments have to record any unfunded liability of their pension plans.

For the government-wide governmental activities, the Borough has treated the beginning of year net pension liability of \$497,728 as having been recognized in the period incurred. The Borough has adjusted beginning net position for the governmental activities from \$4,966,395 to \$4,468,667.

For the government-wide business-type activities, the Borough has treated the beginning of year net pension liability of \$29,488 as having been recognized in the period incurred. The Borough has adjusted beginning net position for the business activities from \$2,321,068 to \$2,291,580.

**REQUIRED SUPPLEMENTARY INFORMATION**

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**BUDGETARY COMPARISON SCHEDULE**  
**GENERAL FUND**  
**YEAR ENDED DECEMBER 31, 2015**

---

	Budgeted Amounts	
	Original	Final
<b>REVENUES</b>		
Taxes	\$ 2,256,520	\$ 2,256,520
Intergovernmental revenues	107,620	107,620
Investment income	1,000	1,000
Licenses and permits	102,000	102,000
Fines	20,000	20,000
Charges for services	61,000	61,000
Miscellaneous revenues	10,000	10,000
TOTAL REVENUES	2,558,140	2,558,140
<b>EXPENDITURES</b>		
General government	451,492	451,492
Public safety	1,368,420	1,368,420
Highways and streets	512,478	512,478
Recreation	104,480	104,480
Retirement expenses	97,270	97,270
Debt service		
Principal	24,000	24,000
Interest and other charges	-	-
TOTAL EXPENDITURES	2,558,140	2,558,140
EXCESS OF REVENUES OVER EXPENDITURES	-	-
<b>OTHER FINANCING SOURCES</b>		
Proceeds from capital lease	-	-
Transfers in	-	-
Transfers out	-	-
TOTAL OTHER FINANCING SOURCES	-	-
NET CHANGE IN FUND BALANCE	\$ -	\$ -

*See accompanying notes to the budgetary comparison schedule.*

# APPENDIX A-5.1 (AUS)

<u>Budgetary Basis</u>	<u>Actual Amounts</u>		<u>Variance With Final Budget Favorable (Unfavorable)</u>
	<u>Budget to GAAP Differences</u>	<u>GAAP Basis</u>	
\$ 2,291,629	\$ 4,770	\$ 2,296,399	\$ 35,109
701,036	-	701,036	593,416
1,101	-	1,101	101
116,172	-	116,172	14,172
26,667	1,286	27,953	6,667
51,139	-	51,139	(9,861)
54,314	-	54,314	44,314
<u>3,242,058</u>	<u>6,056</u>	<u>3,248,114</u>	<u>683,918</u>
1,038,909	(5,154)	1,033,755	(587,417)
1,490,460	(11,398)	1,479,062	(122,040)
754,331	2,813	757,144	(241,853)
200,385	(779)	199,606	(95,905)
122,904	-	122,904	(25,634)
105,291	-	105,291	(81,291)
18,138	-	18,138	(18,138)
<u>3,730,418</u>	<u>(14,518)</u>	<u>3,715,900</u>	<u>(1,172,278)</u>
<u>(488,360)</u>	<u>20,574</u>	<u>(467,786)</u>	<u>(488,360)</u>
-	-	-	-
77,826	-	77,826	77,826
-	-	-	-
<u>77,826</u>	<u>-</u>	<u>77,826</u>	<u>77,826</u>
<u>\$ (410,534)</u>	<u>\$ 20,574</u>	<u>\$ (389,960)</u>	<u>\$ (410,534)</u>

**BOROUGH OF ROYERSFORD**

NOTES TO THE BUDGETARY COMPARISON SCHEDULE  
 YEAR ENDED DECEMBER 31, 2015

---

**NOTE A - BUDGETARY INFORMATION**

The Borough's process for establishing its annual operating budget involves submission of the budget by the Borough Manager to Borough Council for its approval and adoption.

The Borough prepares the General Fund budget on the cash basis of accounting, which is not consistent with accounting principles generally accepted in the United States of America.

**NOTE B - EXCESS OF EXPENDITURES OVER APPROPRIATIONS**

For the year ended December 31, 2015, expenditures exceeded appropriations in the following General Fund object levels (the legal level of budgetary control):

General government	\$ (587,417)
Public safety	(122,040)
Highways and streets	(241,853)
Recreation	(95,905)
Retirement expenses	(25,634)
Debt service	(99,429)

These excess expenditures were funded by cash reserves and increased charges for services.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD

### SCHEDULE OF CHANGES IN THE NET POLICE PENSION PLAN LIABILITY AND RELATED RATIOS LAST TWO FISCAL YEARS

	2015	2014
<b>TOTAL PENSION LIABILITY</b>		
Service cost	\$ 82,517	\$ 87,111
Interest	204,204	181,670
Differences between expected and actual experience	(17,032)	41,156
Changes of assumptions	(198,360)	-
Benefit payments	(96,785)	(95,228)
<b>NET CHANGE IN TOTAL PENSION LIABILITY</b>	<b>(25,456)</b>	<b>214,709</b>
Total pension liability, beginning	2,688,592	2,473,883
<b>TOTAL PENSION LIABILITY, ENDING (a)</b>	<b>\$ 2,663,136</b>	<b>\$ 2,688,592</b>
<b>PLAN FIDUCIARY NET POSITION</b>		
Contributions		
Employer	\$ 75,396	\$ 54,795
Member	24,350	23,616
Net investment income	19,273	185,226
Benefit payments, including refunds of member contributions	(96,785)	(95,228)
Administrative expense	(33,862)	(35,637)
<b>NET CHANGE IN PLAN FIDUCIARY NET POSITION</b>	<b>(11,628)</b>	<b>132,772</b>
Plan fiduciary net position, beginning	2,216,522	2,083,750
<b>PLAN FIDUCIARY NET POSITION, ENDING (b)</b>	<b>\$ 2,204,894</b>	<b>\$ 2,216,522</b>
<b>NET PENSION LIABILITY, ENDING (a)-(b)</b>	<b>\$ 458,242</b>	<b>\$ 472,070</b>
<b>PLAN FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL PENSION LIABILITY</b>	<b>83%</b>	<b>82%</b>
<b>COVERED-EMPLOYEE PAYROLL</b>	<b>\$ 523,032</b>	<b>\$ 464,976</b>
<b>NET PENSION LIABILITY AS A PERCENTAGE OF COVERED- EMPLOYEE PAYROLL</b>	<b>88%</b>	<b>102%</b>

**Notes to Schedule:**

*Changes of assumptions.* In 2015 amounts reported as changes of assumptions resulted from adjustment to the assumed average annual salary increase, decreasing the rate from 5.0% to 4.5%.

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**SCHEDULE OF POLICE PENSION PLAN CONTRIBUTIONS**  
**LAST TWO FISCAL YEARS**

	2015	2014
ACTUARIALLY DETERMINED CONTRIBUTION	\$ 75,396	\$ 54,795
CONTRIBUTIONS IN RELATION TO THE ACTUARIALLY DETERMINED CONTRIBUTION	75,396	54,795
CONTRIBUTION DEFICIENCY (EXCESS)	\$ -	\$ -
COVERED-EMPLOYEE PAYROLL	\$ 523,032	\$ 464,976
CONTRIBUTION AS A PERCENTAGE OF COVERED-EMPLOYEE PAYROLL	14%	12%

**NOTES TO SCHEDULE**

Valuation date January 1, 2015

Actuarially determined contribution rates are calculated by September 30 of each year for the upcoming calendar year.

**Methods and assumptions used to determine contribution rates:**

Actuarial cost method	Entry age normal
Amortization method	Level dollar, closed
Remaining amortization period	12 years
Asset valuation method	PMRS asset method
Inflation	3.0%
Salary increases	4.5% annual increase
Investment rate of return	7.5%
Retirement age	Normal retirement age
Mortality	Assumed life expectancies are based on the RP-2000 Healthy Annuitant Mortality Table



**BOROUGH OF ROYERSFORD**  
**SCHEDULE OF POLICE PENSION PLAN**  
**INVESTMENT RETURNS**  
**LAST TWO FISCAL YEARS**

---

PENSION INVESTMENT RETURNS

	<u>2015</u>	<u>2014</u>
ANNUAL MONEY-WEIGHTED RATE OF RETURN, NET OF INVESTMENT EXPENSE	<u>0.02%</u>	<u>7.20%</u>

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD

### SCHEDULE OF CHANGES IN THE NET NON-UNIFORMED PENSION PLAN LIABILITY AND RELATED RATIOS LAST TWO FISCAL YEARS

	2015	2014
<b>TOTAL PENSION LIABILITY</b>		
Service cost	\$ 54,051	\$ 46,392
Interest	152,820	137,776
Differences between expected and actual experience	(43,982)	50,099
Changes of assumptions	-	-
Benefit payments	(82,313)	(101,635)
<b>NET CHANGE IN TOTAL PENSION LIABILITY</b>	<b>80,576</b>	<b>132,632</b>
Total pension liability, beginning	2,024,702	1,892,070
<b>TOTAL PENSION LIABILITY, ENDING (a)</b>	<b>\$ 2,105,278</b>	<b>\$ 2,024,702</b>
 <b>PLAN FIDUCIARY NET POSITION</b>		
Contributions		
Employer	\$ 47,508	\$ 42,475
Member	12,375	10,730
Net investment income	23,312	191,181
Benefit payments, including refunds of member contributions	(82,313)	(101,635)
Administrative expense	(31,585)	(33,668)
<b>NET CHANGE IN PLAN FIDUCIARY NET POSITION</b>	<b>(30,703)</b>	<b>109,083</b>
Plan fiduciary net position, beginning	2,079,848	1,970,765
<b>PLAN FIDUCIARY NET POSITION, ENDING (b)</b>	<b>\$ 2,049,145</b>	<b>\$ 2,079,848</b>
<b>NET PENSION LIABILITY, ENDING (a)-(b)</b>	<b>\$ 56,133</b>	<b>\$ (55,146)</b>
 <b>PLAN FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL PENSION LIABILITY</b>	<b>97%</b>	<b>103%</b>
 <b>COVERED-EMPLOYEE PAYROLL</b>	<b>\$ 617,654</b>	<b>\$ 502,883</b>
 <b>NET PENSION LIABILITY AS A PERCENTAGE OF COVERED- EMPLOYEE PAYROLL</b>	<b>9%</b>	<b>-11%</b>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**SCHEDULE OF NON-UNIFORMED PENSION**  
**PLAN CONTRIBUTIONS**  
**LAST TWO FISCAL YEARS**

	2015	2014
ACTUARIALLY DETERMINED CONTRIBUTION	\$ 47,508	\$ 42,475
CONTRIBUTIONS IN RELATION TO THE ACTUARIALLY DETERMINED CONTRIBUTION	47,508	42,475
CONTRIBUTION DEFICIENCY (EXCESS)	\$ -	\$ -
COVERED-EMPLOYEE PAYROLL	\$ 462,914	\$ 502,883
CONTRIBUTION AS A PERCENTAGE OF COVERED-EMPLOYEE PAYROLL	10%	9%

**NOTES TO SCHEDULE**

Valuation date January 1, 2015

Actuarially determined contribution rates are calculated by September 30 of each year for the upcoming calendar year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Entry age normal
Amortization method	Level dollar, closed
Remaining amortization period	0 years
Asset valuation method	PMRS asset method
Inflation	3.0%
Salary increases	5% annual increase
Investment rate of return	7.5%
Retirement age	Normal retirement age
Mortality	Assumed life expectancies are based on the RP-2000 Healthy Annuitant Mortality Table

**BOROUGH OF ROYERSFORD**  
**SCHEDULE OF NON-UNIFORMED PENSION PLAN**  
**INVESTMENT RETURNS**  
**LAST TWO FISCAL YEARS**

---

PENSION INVESTMENT RETURNS

	<u>2015</u>	<u>2014</u>
ANNUAL MONEY-WEIGHTED RATE OF RETURN, NET OF INVESTMENT EXPENSE	<u>0.02%</u>	<u>8.00%</u>

**BOROUGH OF ROYERSFORD**  
**ANNUAL FINANCIAL REPORT**  
*Year Ended December 31, 2016*



*Certified Public Accountants and Business Consultants*

**INTRODUCTORY SECTION**

**BOROUGH OF ROYERSFORD**  
**TABLE OF CONTENTS**  
**YEAR ENDED DECEMBER 31, 2016**

---

	<b>Page</b>
<b>Introductory Section</b>	
Table of Contents	1
<b>Financial Section</b>	
Independent Auditors' Report	3
Management's Discussion and Analysis (Unaudited)	5
Basic Financial Statements	
<b><i>Government-Wide Financial Statements</i></b>	
Statement of Net Position	11
Statement of Activities	12
<b><i>Fund Financial Statements</i></b>	
<b><i>Governmental Funds</i></b>	
Balance Sheet	13
Reconciliation of Total Governmental Funds Balances to Net Position of Governmental Activities	14
Statement of Revenues, Expenditures and Changes in Fund Balances	15
Reconciliation of the Governmental Funds Statement of Revenues, Expenditures and Changes in Fund Balances to the Statement of Activities	16
<b><i>Proprietary Funds</i></b>	
Statement of Net Position	17
Statement of Revenues, Expenses and Changes in Net Position	18
Statement of Cash Flows	19
<b><i>Fiduciary Funds</i></b>	
Statement of Fiduciary Net Position	21
Statement of Changes in Fiduciary Net Position	22
Notes to the Basic Financial Statements	23

**BOROUGH OF ROYERSFORD**  
**TABLE OF CONTENTS**  
**YEAR ENDED DECEMBER 31, 2016**

---

	<b>Page</b>
<b>Required Supplementary Information</b>	
Budgetary Comparison Schedule	50
Notes to the Budgetary Comparison Schedule	51
Police Pension Plan	
Schedule of Changes in the Net Police Pension Plan Liability and Related Ratios	52
Schedule of Police Pension Plan Contributions	53
Schedule of Police Pension Plan Investment Returns	54
Non-Uniformed Pension Plan	
Schedule of Changes in the Net Non-Uniformed Pension Plan Liability and Related Ratios	55
Schedule of Non-Uniformed Pension Plan Contributions	56
Schedule of Non-Uniformed Pension Plan Investment Returns	57



**FINANCIAL SECTION**



## ***Independent Auditors' Report***

To the Borough Council  
Borough of Royersford  
Royersford, Pennsylvania

We have audited the accompanying financial statements of the governmental activities, the business-type activities, each major fund and the aggregate remaining fund information of the Borough of Royersford as of and for the year ended December 31, 2016, and the related notes to the financial statements, which collectively comprise the Borough of Royersford's basic financial statements as listed in the table of contents.

### ***Management's Responsibility for the Financial Statements***

The Borough of Royersford's management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

### ***Auditors' Responsibility***

Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

To the Borough Council  
Borough of Royersford  
Royersford, Pennsylvania

***Opinion***

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities, the business-type activities, each major fund and the aggregate remaining fund information of the Borough of Royersford as of December 31, 2016, and the respective changes in financial position and, where applicable, cash flows thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America (GAAP).

***Emphasis of Matter***

For the year ended December 31, 2016, the Borough of Royersford adopted new accounting guidance, implementing Governmental Accounting Standards Board Statements No. 72, *Fair Value Measurement and Application*. Our opinion is not modified with respect to this matter.

***Other Matters***

***Required Supplementary Information***

Accounting principles generally accepted in the United States of America require that management's discussion and analysis on pages 5 through 10, budgetary comparison information on pages 50 and 51 and schedule of changes in the net police pension plan liability and related ratios on page 52, schedule of police pension plan contributions on page 53, schedule of police pension plan investment returns on page 54, schedule of changes in the net non-uniformed pension plan liability and related ratios on page 55, schedule of non-uniformed pension plan contributions on page 56 and schedule of non-uniformed pension plan investment returns on page 57 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

*Maille LLP*

Oaks, Pennsylvania  
May 30, 2017

## **BOROUGH OF ROYERSFORD MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited) YEAR ENDED DECEMBER 31, 2016**

---

Our discussion and analysis of the Borough of Royersford's financial performance provides an overview of the Borough's financial activities for the fiscal year ended December 31, 2016. Please read it in conjunction with the Borough's financial statements, which begin with the statement of net position.

### **FINANCIAL HIGHLIGHTS**

The assets of the Borough exceeded its liabilities by \$7 million.

### **OVERVIEW OF FINANCIAL STATEMENTS**

The Borough's annual financial report consists of several sections. Taken together, they provide a comprehensive financial look at the Borough. The components of the report include the independent auditors' report, management's discussion and analysis, government-wide financial statements, fund financial statements and notes to the basic financial statements. This report also contains other required supplementary information in addition to the basic financial statements.

The independent auditors' report briefly describes the audit engagement and also renders an opinion as to the material components of the Borough's financial position.

### **STATEMENT OF NET POSITION AND STATEMENT OF ACTIVITIES**

Our analysis of the Borough as a whole begins with the statement of net position. One of the most important questions asked about the Borough's finances is, "What is the Borough's overall financial condition?" The statement of net position and the statement of activities report information about the Borough as a whole and about its activities in a way that helps answer this question.

#### **Governmental Activities**

Most of the Borough's basic services are reported here, including police, public works, planning and zoning, parks and recreation and administration. The Borough also contributes to the fire departments, library and historical society.

#### **Business-Type Activities**

The Borough charges a fee to customers to cover the cost of the operation of the Waste Water Treatment Plant and the collection of solid waste, including recyclables.

**BOROUGH OF ROYERSFORD  
MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)  
YEAR ENDED DECEMBER 31, 2016**

---

**ANALYSIS OF THE OVERALL FINANCIAL POSITION AND RESULTS OF OPERATIONS**

**General Fund**

The Borough realizes two major sources of income for the operation of the general government (excluding the trash collection service and the operations of the waste water treatment facility). The two major income sources are real estate taxes and earned income taxes (EIT). The tax millage rate did not change in 2016; the rate is 6.95 mills per \$1 of assessed valuation for general purposes and a fire tax of 1.25 mills per \$1 of assessed valuation for a total assessment of 8.20 mills per \$1 of assessed valuation. A property assessed at \$100,000 would have paid \$820 including fire tax for Borough taxes in 2016.

EIT tax revenue has remained steady. Continued monitoring of collections reflects the proper amount being received by the Borough.

General Real Estate Taxes remained steady in 2016. Real estate transfer tax increased due to some high value property sales taking place in 2016.

Increasing costs will be experienced with the ongoing Storm Water Management related to compliance with the Department of Environmental Protection requirements of permitting and inspecting storm water systems.

A number of minor projects were completed and are reflected in the Capital Project Fund.

**Sewer Fund**

The Sewer Fund operates as a business-type activity. All income and expenses are accounted for in this fund. The income sources are connection fees for new construction and user fees based on water consumption.

The Borough has started its Infiltration Inflow Project required by the Department of Environmental Protection. The Borough's engineer has recommended completing the project within five years. In 2012, the Borough implemented the Root Control Program and Sewer Lining Project. The project should be completed by 2017.

**Trash Collection Fund**

The Trash Collection Fund operates as a business-type activity. All income and expenses are accounted for in this fund. The income source is the user fees.

A contract with the landfill which accepts the Borough's solid waste showed a slight increase in the volume of trash collected. The recycling collector's contract is a fixed cost for five years (through 2018). The Borough went through the bidding process for a new trash collection contract in 2015. The recycling contract runs from 2014 to 2018. The trash contract for dumping portion of trash collection runs from 2015 to 2019. Long term contracts of trash and recycling will enable the Borough to budget for future years with some certainty.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited) YEAR ENDED DECEMBER 31, 2016

The analysis which follows focuses on the net position (Table 1) and changes in net position (Table 2) of the Borough's governmental and business-type activities. Comparative data from fiscal year 2015 is included.

**Table 1**  
**Condensed Statements of Net Position**  
**December 31, 2016 and 2015**

	Governmental Activities		Business-Type Activities		Totals	
	2016	2015	2016	2015	2016	2015
<b>ASSETS</b>						
Cash and cash equivalents	\$ 382,586	\$ 774,824	\$ 328,926	\$ 510,216	\$ 711,512	\$ 1,285,040
Other assets	27,723	18,515	150,999	163,563	178,722	182,078
Capital assets	6,017,438	5,325,568	4,816,810	4,806,901	10,834,248	10,132,469
<b>TOTAL ASSETS</b>	<u>6,427,747</u>	<u>6,118,907</u>	<u>5,296,735</u>	<u>5,480,680</u>	<u>11,724,482</u>	<u>11,599,587</u>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>						
Deferred outflows related to pensions	127,219	165,277	38,656	55,890	165,875	221,167
<b>LIABILITIES</b>						
Other liabilities	165,577	99,357	36,987	35,414	202,564	134,771
Long-term	924,222	976,054	3,071,627	3,210,619	3,995,849	4,186,673
<b>TOTAL LIABILITIES</b>	<u>1,089,799</u>	<u>1,075,411</u>	<u>3,108,614</u>	<u>3,246,033</u>	<u>4,198,413</u>	<u>4,321,444</u>
<b>DEFERRED INFLOWS OF RESOURCES</b>						
Deferred inflows related to pensions	282,604	213,417	54,891	19,520	337,495	232,937
<b>NET POSITION</b>						
Net investment in capital assets	5,641,973	4,908,037	1,745,183	1,626,297	7,387,156	6,534,334
Restricted	57,358	242,575	-	-	57,358	242,575
Unrestricted	(516,768)	(155,256)	426,703	644,720	(90,065)	489,464
<b>TOTAL NET POSITION</b>	<u>\$ 5,182,563</u>	<u>\$ 4,995,356</u>	<u>\$ 2,171,886</u>	<u>\$ 2,271,017</u>	<u>\$ 7,354,449</u>	<u>\$ 7,266,373</u>

Cash and cash equivalents represent 6% and 11% of the Borough's total assets for the years ended December 31, 2016 and 2015, respectively.

By far, the largest portion of the Borough's assets, 92% (2016) and 87% (2015), reflects its investment in capital assets (e.g., land, buildings, waste water treatment plant, vehicles and recreation equipment). Because the Borough uses these capital assets to provide services to residents, these assets are not available for future spending.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited) YEAR ENDED DECEMBER 31, 2016

**Table 2**  
**Changes in Net Position**  
**Years Ended December 31, 2016 and 2015**

	Governmental Activities		Business-Type Activities		Totals	
	2016	2015	2016	2015	2016	2015
<b>REVENUES</b>						
Program revenues						
Charges for services	\$ 69,204	\$ 79,247	\$ 1,130,205	\$ 1,203,759	\$ 1,199,409	\$ 1,283,006
Operating grants and contributions	287,736	219,346	7,384	-	295,120	219,346
Capital grants and contributions	377,044	573,621	-	-	377,044	573,621
General revenues						
Property taxes	1,524,339	1,506,437	-	-	1,524,339	1,506,437
Earned income taxes	644,043	641,623	-	-	644,043	641,623
Real estate transfer taxes	254,948	80,961	-	-	254,948	80,961
Per capita taxes and local services tax	71,944	65,080	-	-	71,944	65,080
Public utility taxes	2,526	2,694	-	-	2,526	2,694
Franchise taxes	113,723	114,342	-	-	113,723	114,342
Investment earnings	2,302	1,223	959	1,060	3,261	2,283
Miscellaneous	64,609	52,064	-	-	64,609	52,064
Gain on sale of capital assets	-	2,250	7,775	-	7,775	2,250
<b>TOTAL REVENUES</b>	<b>3,412,418</b>	<b>3,338,888</b>	<b>1,146,323</b>	<b>1,204,819</b>	<b>4,558,741</b>	<b>4,543,707</b>
<b>EXPENSES</b>						
General government	673,710	436,012	-	-	673,710	436,012
Public safety	1,635,445	1,521,085	-	-	1,635,445	1,521,085
Highway/streets	762,894	625,963	-	-	762,894	625,963
Culture and recreation	210,189	211,000	-	-	210,189	211,000
Health and public welfare	1,345	-	-	-	1,345	-
Interest on long-term debt	11,928	18,139	-	-	11,928	18,139
Sewer	-	-	794,754	815,407	794,754	815,407
Trash collection	-	-	380,400	409,975	380,400	409,975
<b>TOTAL EXPENSES</b>	<b>3,295,511</b>	<b>2,812,199</b>	<b>1,175,154</b>	<b>1,225,382</b>	<b>4,470,665</b>	<b>4,037,581</b>
<b>EXCESS (DEFICIENCY) OF REVENUES OVER EXPENSES BEFORE TRANSFERS</b>	<b>116,907</b>	<b>526,689</b>	<b>(28,831)</b>	<b>(20,563)</b>	<b>88,076</b>	<b>506,126</b>
<b>TRANSFERS</b>	<b>70,300</b>	<b>-</b>	<b>(70,300)</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>CHANGE IN NET POSITION</b>	<b>187,207</b>	<b>526,689</b>	<b>(99,131)</b>	<b>(20,563)</b>	<b>88,076</b>	<b>506,126</b>
<b>NET POSITION AT BEGINNING OF YEAR, restated in 2015</b>	<b>4,995,356</b>	<b>4,468,667</b>	<b>2,271,017</b>	<b>2,291,580</b>	<b>7,266,373</b>	<b>6,760,247</b>
<b>NET POSITION AT END OF YEAR</b>	<b>\$ 5,182,563</b>	<b>\$ 4,995,356</b>	<b>\$ 2,171,886</b>	<b>\$ 2,271,017</b>	<b>\$ 7,354,449</b>	<b>\$ 7,266,373</b>

**BOROUGH OF ROYERSFORD  
MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)  
YEAR ENDED DECEMBER 31, 2016**

---

**ANALYSIS OF BALANCES AND TRANSACTIONS OF INDIVIDUAL FUNDS**

The uncollected real estate taxes increased from 2015 to 2016, as well as the earned sick leave of Borough employees. The uncollected fees for the Trash Collection Fund and the Sewer Fund increased from 2015 to 2016.

**VARIATIONS BETWEEN ORIGINAL AND FINAL BUDGET AMOUNTS**

The Borough has not made it a practice to change the budget amounts between the original adoption of the budget and year-end. Where actual expenses are in excess of budget amounts, or less than budget amounts, the department heads are expected to adjust spending in other areas to offset the differences. The total for the department is the driving force, and each department head is accountable for his department. Certain circumstances which are beyond the control of the department head are brought to Borough Council and appropriate actions taken. A review of the operations of all departments is undertaken at the end of June. Reviews are also conducted at the end of September (or more often if necessary) and monthly thereafter through December 31. The Finance Committee within Borough Council and the Borough Manager conduct the reviews. Necessary adjustments in spending are instituted as needed.

**VARIATIONS BETWEEN BUDGET AND ACTUAL AMOUNTS**

**Taxes**

Real Estate Transfer Taxes and Earned Income Taxes both produced amounts that are consistent with the budget. There was an increase in transfer tax and an increase in LST tax in 2016.

**Intergovernmental Revenue**

The Borough received liquid fuels money for 2016 and it will be used for 2017 road projects.

**CAPITAL ASSETS AND DEBT ADMINISTRATION**

**Capital Assets**

The Borough of Royersford's investment in capital assets for its governmental and business-type activities as of December 31, 2016, totals \$7,387,156 in all funds (net of accumulated depreciation). The Borough's investment in capital assets includes building and building improvements, equipment, vehicles, recreational equipment, land and the Waste Water Treatment Plant.

**Long-Term Debt**

The interest rate on the 1997 General Obligation Note (utilized to finance the renovations to the Waste Water Treatment Plant) was reduced from 6.00% to 4.90% in 2003. The 1998 General Obligation Note, which was used to purchase the property at 428 Chestnut Street [the Public Works facility], was paid off in 2015.

These lower interest rates continued in 2016 and created a savings in interest expense for the full year.



**BOROUGH OF ROYERSFORD  
MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)  
YEAR ENDED DECEMBER 31, 2016**

---

**ECONOMIC FACTORS, NEXT YEAR'S BUDGET AND RATES**

The Borough Council has granted approval for an additional 120 condominiums on a third industrial parcel. Construction has been delayed due to the current economic environment.

Income from the tapping fees for the sewer services will pay for the Infiltration and Inflow Project and provide an increase in the Capital Project Fund. Annual user fees will offset the normal day-to-day operations of the plant with no anticipated rate increase.

The Real Estate Tax Assessment and Real Estate Transfer Tax will provide additional income to the Borough without significantly increasing the cost of providing services to the new communities. Earned Income Taxes are expected to be realized in 2016 and beyond.

The Borough has given approval for two duplex to be built on Second Avenue in 2016 and should be on the tax rolls by the middle of 2017.

At the end of 2016 a piece of land at Second Avenue and Arch Street in the Borough of Royersford was donated to the Borough.

The Hill School in Pottstown, PA approached Royersford Borough regarding having the Schools rowing team use the river in Royersford and they will build a boat ramp and turn it over to the Borough.

**CONTACTING THE BOROUGH'S MANAGEMENT**

This financial report is designed to provide our citizens, taxpayers, customers, investors and creditors with a general overview of the Borough's finances and to demonstrate the accountability for the money that the Borough receives and disburses. If you have any questions about this report or need additional information, contact Michael Leonard, Borough Manager.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD STATEMENT OF NET POSITION DECEMBER 31, 2016

	<u>Governmental Activities</u>	<u>Business-Type Activities</u>	<u>Totals</u>
<b>ASSETS</b>			
Cash and cash equivalents	\$ 382,586	\$ 328,926	\$ 711,512
Accounts receivable	4,702	61,221	65,923
Taxes receivable	21,379	-	21,379
Internal balances	(61,842)	61,842	-
Prepaid expenses	63,484	23,380	86,864
Net pension asset	-	4,556	4,556
Capital assets			
Land	216,461	-	216,461
Infrastructure	6,437,699	-	6,437,699
Plant	-	6,791,842	6,791,842
Buildings and building improvements	615,753	-	615,753
Equipment	413,235	-	413,235
Vehicles	442,343	29,268	471,611
Accumulated depreciation	(2,108,053)	(2,004,300)	(4,112,353)
TOTAL ASSETS	<u>6,427,747</u>	<u>5,296,735</u>	<u>11,724,482</u>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>			
Deferred outflows related to pensions	<u>127,219</u>	<u>38,656</u>	<u>165,875</u>
<b>LIABILITIES</b>			
Accounts payable	81,780	31,762	113,542
Escrows payable	35,257	-	35,257
Payroll and payroll taxes payable	48,540	5,225	53,765
Long-term liabilities			
Portion due or payable within one year			
Bonds and notes payable	22,701	114,317	137,018
Portion due or payable after one year			
Bonds and notes payable	352,764	2,957,310	3,310,074
Net pension liability	443,785	-	443,785
Compensated absences	104,972	-	104,972
TOTAL LIABILITIES	<u>1,089,799</u>	<u>3,108,614</u>	<u>4,198,413</u>
<b>DEFERRED INFLOWS OF RESOURCES</b>			
Deferred inflows related to pensions	<u>282,604</u>	<u>54,891</u>	<u>337,495</u>
<b>NET POSITION</b>			
Net investment in capital assets	5,641,973	1,745,183	7,387,156
Restricted	57,358	-	57,358
Unrestricted	(516,768)	426,703	(90,065)
TOTAL NET POSITION	<u>\$ 5,182,563</u>	<u>\$ 2,171,886</u>	<u>\$ 7,354,449</u>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF ACTIVITIES**  
**YEAR ENDED DECEMBER 31, 2016**

Functions/Programs	Expenses	Program Revenues		
		Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions
<b>GOVERNMENTAL ACTIVITIES</b>				
General government	\$ 673,710	\$ -	\$ 20,154	\$ 357,044
Public safety	1,635,445	67,309	114,103	-
Highways and streets	762,894	1,150	152,179	-
Health and public welfare	1,345	-	-	-
Culture and recreation	210,189	745	1,300	20,000
Interest on long-term debt	11,928	-	-	-
TOTAL GOVERNMENTAL ACTIVITIES	<u>3,295,511</u>	<u>69,204</u>	<u>287,736</u>	<u>377,044</u>
<b>BUSINESS-TYPE ACTIVITIES</b>				
Sewer	794,754	759,518	-	-
Trash collection	380,400	370,687	7,384	-
TOTAL BUSINESS-TYPE ACTIVITIES	<u>1,175,154</u>	<u>1,130,205</u>	<u>7,384</u>	<u>-</u>
TOTAL BOROUGH ACTIVITIES	<u>\$ 4,470,665</u>	<u>\$ 1,199,409</u>	<u>\$ 295,120</u>	<u>\$ 377,044</u>

**GENERAL REVENUES**

- Property taxes, levied for general purposes
- Earned income taxes
- Transfer taxes
- Per capita taxes and local services tax
- Public utility taxes
- Franchise taxes
- Investment earnings
- Miscellaneous
- Gain on sale of capital assets

**TRANSFERS**

TOTAL GENERAL REVENUES AND TRANSFERS

CHANGE IN NET POSITION

NET POSITION AT BEGINNING OF YEAR

NET POSITION AT END OF YEAR

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

## Net (Expense) Revenue and Changes in Net Position

Governmental Activities	Business-Type Activities	Totals
\$ (296,512)	\$ -	\$ (296,512)
(1,454,033)	-	(1,454,033)
(609,565)	-	(609,565)
(1,345)	-	(1,345)
(188,144)	-	(188,144)
(11,928)	-	(11,928)
<u>(2,561,527)</u>	<u>-</u>	<u>(2,561,527)</u>
-	(35,236)	(35,236)
-	(2,329)	(2,329)
-	(37,565)	(37,565)
<u>(2,561,527)</u>	<u>(37,565)</u>	<u>(2,599,092)</u>
1,524,339	-	1,524,339
644,043	-	644,043
254,948	-	254,948
71,944	-	71,944
2,526	-	2,526
113,723	-	113,723
2,302	959	3,261
64,609	-	64,609
-	7,775	7,775
70,300	(70,300)	-
<u>2,748,734</u>	<u>(61,566)</u>	<u>2,687,168</u>
187,207	(99,131)	88,076
<u>4,995,356</u>	<u>2,271,017</u>	<u>7,266,373</u>
<u>\$ 5,182,563</u>	<u>\$ 2,171,886</u>	<u>\$ 7,354,449</u>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**BALANCE SHEET**  
**GOVERNMENTAL FUNDS**  
**DECEMBER 31, 2016**

	General Fund	Special Revenue Fund	Total Governmental Funds
<b>ASSETS</b>			
Cash	\$ 325,228	\$ 57,358	\$ 382,586
Accounts receivable	4,702	-	4,702
Taxes receivable	5,037	-	5,037
Prepaid expenditures	63,484	-	63,484
<b>TOTAL ASSETS</b>	<b>\$ 398,451</b>	<b>\$ 57,358</b>	<b>\$ 455,809</b>
<b>LIABILITIES AND FUND BALANCES</b>			
<b>LIABILITIES</b>			
Accounts payable	\$ 81,780	\$ -	\$ 81,780
Escrows payable	35,257	-	35,257
Due to other funds	61,842	-	61,842
Payroll and payroll taxes payable	48,540	-	48,540
<b>TOTAL LIABILITIES</b>	<b>227,419</b>	<b>-</b>	<b>227,419</b>
<b>FUND BALANCES</b>			
Nonspendable, prepaid expenses	63,484	-	63,484
Restricted, highway and street projects	-	57,358	57,358
Unassigned	107,548	-	107,548
<b>TOTAL FUND BALANCES</b>	<b>171,032</b>	<b>57,358</b>	<b>228,390</b>
<b>TOTAL LIABILITIES AND FUND BALANCES</b>	<b>\$ 398,451</b>	<b>\$ 57,358</b>	<b>\$ 455,809</b>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

## **BOROUGH OF ROYERSFORD**

### RECONCILIATION OF TOTAL GOVERNMENTAL FUNDS BALANCES TO NET POSITION OF GOVERNMENTAL ACTIVITIES DECEMBER 31, 2016

---

TOTAL GOVERNMENTAL FUNDS BALANCES	\$	228,390
<p>Capital assets used in governmental activities are not current financial resources and therefore are not reported in the funds. These assets consist of:</p>		
Land		216,461
Infrastructure		6,437,699
Buildings and building improvements		615,753
Equipment		413,235
Vehicles		442,343
Accumulated depreciation		(2,108,053)
<p>Deferred charges used in governmental activities are not financial resources and therefore are not reported in the funds. These assets consist of:</p>		
Deferred inflows and outflows related to pension activities		(155,385)
<p>Some liabilities are not due and payable in the current period and therefore are not reported in the funds. Those liabilities consist of:</p>		
Bonds and notes payable and capital lease		(375,465)
Compensated absences		(104,972)
Net pension liability		(443,785)
<p>Some of the Borough's revenues will be collected after year-end but are not available soon enough to pay for the current period's expenditures and therefore are not recorded in the funds.</p>		16,342
NET POSITION OF GOVERNMENTAL ACTIVITIES	\$	5,182,563

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF REVENUES, EXPENDITURES AND**  
**CHANGES IN FUND BALANCES**  
**GOVERNMENTAL FUNDS**  
**YEAR ENDED DECEMBER 31, 2016**

	<u>General Fund</u>	<u>Special Revenue Fund</u>	<u>Total Governmental Funds</u>
<b>REVENUES</b>			
Taxes	\$ 2,497,386	\$ -	\$ 2,497,386
Intergovernmental revenues	554,100	117,564	671,664
Investment income	1,517	785	2,302
Licenses and permits	114,873	-	114,873
Fines	20,968	-	20,968
Charges for services	48,386	-	48,386
Miscellaneous revenues	64,609	-	64,609
	<u>3,301,839</u>	<u>118,349</u>	<u>3,420,188</u>
<b>TOTAL REVENUES</b>			
<b>EXPENDITURES</b>			
General government	449,575	-	449,575
Public safety	1,764,689	-	1,764,689
Highways and streets	1,008,648	303,566	1,312,214
Health	1,345	-	1,345
Recreation	235,382	-	235,382
Retirement expenses	136,487	-	136,487
Debt service			
Principal	20,348	-	20,348
Interest and other charges	11,928	-	11,928
	<u>3,628,402</u>	<u>303,566</u>	<u>3,931,968</u>
<b>TOTAL EXPENDITURES</b>			
<b>DEFICIENCY OF REVENUES OVER EXPENDITURES</b>			
	<u>(326,563)</u>	<u>(185,217)</u>	<u>(511,780)</u>
<b>OTHER FINANCING SOURCES (USES)</b>			
Transfers in	<u>70,300</u>	<u>-</u>	<u>70,300</u>
<b>NET CHANGE IN FUND BALANCES</b>			
	<u>(256,263)</u>	<u>(185,217)</u>	<u>(441,480)</u>
<b>FUND BALANCES AT BEGINNING OF YEAR</b>			
	<u>427,295</u>	<u>242,575</u>	<u>669,870</u>
<b>FUND BALANCES AT END OF YEAR</b>			
	<u>\$ 171,032</u>	<u>\$ 57,358</u>	<u>\$ 228,390</u>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

## **BOROUGH OF ROYERSFORD**

### **RECONCILIATION OF THE GOVERNMENTAL FUNDS STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES TO THE STATEMENT OF ACTIVITIES YEAR ENDED DECEMBER 31, 2016**

---

NET CHANGE IN FUND BALANCES - TOTAL GOVERNMENTAL FUNDS	\$	(441,480)
<p>Capital outlays are reported in Governmental Funds as expenditures. However, in the statement of activities, the cost of those assets is allocated over their estimated useful lives as depreciation expense. This is the amount by which capital outlays exceed depreciation in the period.</p>		
		691,870
<p>The issuance of long-term debt (e.g., notes, leases) provides current financial resources to Governmental Funds, but issuing debt increases long-term liabilities in the statement of net position. Repayment of long-term debt principal is an expenditure in the Governmental Funds, but the repayment reduces long-term liabilities in the statement of net position. This is the net effect of these differences in the treatment of long-term debt.</p>		
		42,066
<p>Pension plan expenses are reported in the statement of activities and do not require the use of current financial resources and are not reported as expenditures in Governmental Funds.</p>		
		(66,671)
<p>Because some property taxes will not be collected for several months after the Borough's fiscal year ends, they are not considered as "available" revenues in the Governmental Funds. This is the amount of the change in real estate taxes outstanding during the year.</p>		
		(7,770)
<p>In the statement of activities, certain operating expenses--compensated absences (sick leave)--are measured by the amounts earned during the year. In the Governmental Funds, however, expenditures for these items are measured by the amount of financial resources used (essentially, the amounts actually paid).</p>		
		<u>(30,808)</u>
CHANGE IN NET POSITION OF GOVERNMENTAL ACTIVITIES	\$	<u><u>187,207</u></u>

*See accompanying notes to the basic financial statements.*



# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD STATEMENT OF NET POSITION PROPRIETARY FUNDS DECEMBER 31, 2016

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>			
<b>CURRENT ASSETS</b>			
Cash and cash equivalents	\$ 69,239	\$ 259,687	\$ 328,926
Accounts receivable	35,039	26,182	61,221
Due from other funds	65,037	-	65,037
Prepaid expenses	12,896	10,484	23,380
<b>TOTAL CURRENT ASSETS</b>	<b>182,211</b>	<b>296,353</b>	<b>478,564</b>
<b>NON CURRENT ASSETS</b>			
<b>CAPITAL ASSETS</b>			
Plant	6,791,842	-	6,791,842
Vehicles	29,268	-	29,268
Accumulated depreciation	(2,004,300)	-	(2,004,300)
Net pension asset	3,400	1,156	4,556
<b>TOTAL NON CURRENT ASSETS</b>	<b>4,820,210</b>	<b>1,156</b>	<b>4,821,366</b>
<b>TOTAL ASSETS</b>	<b>5,002,421</b>	<b>297,509</b>	<b>5,299,930</b>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>			
Deferred outflows related to pensions	28,844	9,812	38,656
<b>TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>	<b>\$ 5,031,265</b>	<b>\$ 307,321</b>	<b>\$ 5,338,586</b>
<b>LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>			
<b>CURRENT LIABILITIES</b>			
Accounts payable	\$ 12,703	\$ 19,059	\$ 31,762
Due to other funds	-	3,195	3,195
Payroll and payroll taxes payable	5,225	-	5,225
Current portion of long-term debt	114,317	-	114,317
<b>TOTAL CURRENT LIABILITIES</b>	<b>132,245</b>	<b>22,254</b>	<b>154,499</b>
<b>NONCURRENT LIABILITIES</b>			
Long-term debt	2,957,310	-	2,957,310
<b>TOTAL LIABILITIES</b>	<b>3,089,555</b>	<b>22,254</b>	<b>3,111,809</b>
<b>DEFERRED INFLOWS OF RESOURCES</b>			
Deferred inflows related to pensions	40,959	13,932	54,891
<b>NET POSITION</b>			
Net investment in capital assets	1,745,183	-	1,745,183
Unrestricted	155,568	271,135	426,703
<b>TOTAL NET POSITION</b>	<b>1,900,751</b>	<b>271,135</b>	<b>2,171,886</b>
<b>TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>	<b>\$ 5,031,265</b>	<b>\$ 307,321</b>	<b>\$ 5,338,586</b>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF REVENUES, EXPENSES AND**  
**CHANGES IN NET POSITION**  
**PROPRIETARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2016**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>OPERATING REVENUES</b>			
Sewer rents and installation	\$ 759,518	\$ -	\$ 759,518
Trash collection	-	370,687	370,687
<b>TOTAL OPERATING REVENUES</b>	<u>759,518</u>	<u>370,687</u>	<u>1,130,205</u>
<b>OPERATING EXPENSES</b>			
Expenses	524,456	365,767	890,223
Depreciation	161,122	14,633	175,755
<b>TOTAL OPERATING EXPENSES</b>	<u>685,578</u>	<u>380,400</u>	<u>1,065,978</u>
<b>OPERATING INCOME</b>	<u>73,940</u>	<u>(9,713)</u>	<u>64,227</u>
<b>NONOPERATING REVENUES (EXPENSES)</b>			
Grants	-	7,384	7,384
Investment income	945	14	959
Interest expense	(109,176)	-	(109,176)
Gain on sale of capital assets	-	7,775	7,775
<b>TOTAL NONOPERATING REVENUES (EXPENSES)</b>	<u>(108,231)</u>	<u>15,173</u>	<u>(93,058)</u>
<b>INCOME (LOSS) BEFORE FUND TRANSFERS</b>	<u>(34,291)</u>	<u>5,460</u>	<u>(28,831)</u>
<b>FUND TRANSFERS</b>			
Transfers out	-	(70,300)	(70,300)
<b>CHANGE IN NET POSITION</b>	<u>(34,291)</u>	<u>(64,840)</u>	<u>(99,131)</u>
<b>NET POSITION AT BEGINNING OF YEAR</b>	<u>1,935,042</u>	<u>335,975</u>	<u>2,271,017</u>
<b>NET POSITION AT END OF YEAR</b>	<u>\$ 1,900,751</u>	<u>\$ 271,135</u>	<u>\$ 2,171,886</u>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF CASH FLOWS**  
**PROPRIETARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2016**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>			
Cash received from customers	\$ 764,769	\$ 378,584	\$ 1,143,353
Payments to suppliers	(317,660)	(299,405)	(617,065)
Payments to employees	(192,279)	(57,300)	(249,579)
<b>NET CASH PROVIDED BY OPERATING ACTIVITIES</b>	<u>254,830</u>	<u>21,879</u>	<u>276,709</u>
<b>CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES</b>			
Grants received	-	7,384	7,384
<b>NET CASH PROVIDED BY NONCAPITAL FINANCING ACTIVITIES</b>	<u>-</u>	<u>7,384</u>	<u>7,384</u>
<b>CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES</b>			
Purchase of equipment	(248,189)	-	(248,189)
Principal paid on capital lease	-	-	-
Principal paid on long-term debt	(108,977)	-	(108,977)
Interest paid on long-term debt	(109,176)	-	(109,176)
<b>NET CASH USED BY CAPITAL AND RELATED FINANCING ACTIVITIES</b>	<u>(466,342)</u>	<u>-</u>	<u>(466,342)</u>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>			
Earnings from investments	945	14	959
<b>NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS</b>	(210,567)	29,277	(181,290)
<b>CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR</b>			
	<u>279,806</u>	<u>230,410</u>	<u>510,216</u>
<b>CASH AND CASH EQUIVALENTS AT END OF YEAR</b>	<u>\$ 69,239</u>	<u>\$ 259,687</u>	<u>\$ 328,926</u>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF CASH FLOWS**  
**PROPRIETARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2016**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>RECONCILIATION OF OPERATING INCOME TO NET CASH PROVIDED BY OPERATING ACTIVITIES</b>			
Operating income	\$ 73,940	\$ (9,713)	\$ 64,227
Adjustments to reconcile operating income to net cash provided by operating activities			
Depreciation	161,122	14,633	175,755
Pension expense	12,480	5,554	18,034
Change in assets and liabilities			
Accounts receivable	5,251	7,897	13,148
Prepaid expenses	1,918	2,054	3,972
Accounts payable	(484)	1,454	970
Payroll and payroll taxes payable	603	-	603
	<u>\$ 254,830</u>	<u>\$ 21,879</u>	<u>\$ 276,709</u>
<b>NET CASH PROVIDED BY OPERATING ACTIVITIES</b>	<b>\$ <u>254,830</u></b>	<b>\$ <u>21,879</u></b>	<b>\$ <u>276,709</u></b>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF FIDUCIARY NET POSITION**  
**FIDUCIARY FUNDS**  
**DECEMBER 31, 2016**

---

	Pension Trust Funds		Total Fiduciary Funds
	Police Pension	Non-Uniformed Pension	
<b>ASSETS</b>			
Cash and cash equivalents	\$ 24,720	\$ 25,364	\$ 50,084
Investments	2,373,849	2,178,153	4,552,002
<b>TOTAL ASSETS</b>	<b>\$ 2,398,569</b>	<b>\$ 2,203,517</b>	<b>\$ 4,602,086</b>
<b>NET POSITION</b>			
Held in trust for pension benefits and other purposes	\$ 2,398,569	\$ 2,203,517	\$ 4,602,086

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

## **BOROUGH OF ROYERSFORD**

### STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

#### FIDUCIARY FUNDS

YEAR ENDED DECEMBER 31, 2016

	Pension Trust Funds		Total Fiduciary Funds
	Police Pension	Non-Uniformed Pension	
<b>ADDITIONS</b>			
Contributions			
Employees	\$ 28,541	\$ 13,419	\$ 41,960
Employer	-	31,496	31,496
State aid	84,837	20,154	104,991
Investment income	218,177	211,303	429,480
	<u>331,555</u>	<u>276,372</u>	<u>607,927</u>
<b>DEDUCTIONS</b>			
Benefits	96,785	83,298	180,083
Administrative	41,095	38,702	79,797
	<u>137,880</u>	<u>122,000</u>	<u>259,880</u>
	193,675	154,372	348,047
<b>NET POSITION HELD IN TRUST FOR PENSION BENEFITS AND OTHER PURPOSES</b>			
BEGINNING OF YEAR	<u>2,204,894</u>	<u>2,049,145</u>	<u>4,254,039</u>
END OF YEAR	<u>\$ 2,398,569</u>	<u>\$ 2,203,517</u>	<u>\$ 4,602,086</u>

*See accompanying notes to the basic financial statements.*

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2016

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

The basic financial statements of the Borough of Royersford (the "Borough") have been prepared in conformity with accounting principles generally accepted in the United States of America as applied to government units. The Governmental Accounting Standards Board (GASB) is the accepted standard setting body for establishing governmental accounting and financial reporting principles.

The more significant of the Borough's accounting policies are described below.

**Reporting Entity**

The financial statements of the Borough include the departments and other organizational units over which Borough Council exercises oversight responsibility, including general government, police protection, parks and recreation, public works and sanitation.

In evaluating the Borough as a reporting entity, management has addressed all potential component units for which the Borough may or may not be financially accountable and, as such, be includable within the Borough's financial statements. Additionally, the primary government is required to consider other organizations for which the nature and significance of their relationship with the primary government are such that exclusion would cause the Borough's financial statements to be misleading or incomplete.

Management has evaluated the following potential component units and determined they did not meet the criteria for inclusion as component units in the December 31, 2016 annual financial report:

- The fire department receives a contribution from the Borough and uses the personal property of the Borough. However, the majority of revenues generated is through private fund-raisers under the direction of a separate independent board not appointed by Borough Council. The department is organized under a separate charter, and, therefore, it is not included in the financial statements.
- The tax collector is an elected officer who collects taxes on behalf of the Borough, the Spring-Ford Area School District and Montgomery County. The Borough regards the tax collector's office as a separate entity and, therefore, does not account for its activity in the financial statements.

**Fund Accounting**

The Borough uses funds to maintain its financial records during the fiscal year. Fund accounting is designed to demonstrate legal compliance and to aid financial management by segregating transactions related to certain Borough functions or activities. A fund is defined as a fiscal and accounting entity with a self-balancing set of accounts that comprise its assets, liabilities, fund balance, revenues and expenditures or expenses. The various funds of the Borough are grouped into the categories governmental, proprietary and fiduciary.

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2016

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

The Borough reports the following major Governmental Funds:

**General Fund** - The General Fund is the general operating fund of the Borough. It is used to account for all financial resources except those required to be accounted for in another fund. The principal activities accounted for in the General Fund are general government, public safety, public works and recreation. Those activities are funded principally by property taxes, state shared taxes and grants from other governmental units. The General Fund balance is available for any purpose provided it is expended or transferred according to the general laws of Pennsylvania.

**Special Revenue Fund** - The Special Revenue Fund is used to account for the proceeds of specific revenue sources (other than trusts or major capital projects) that are legally restricted expenditures for specified purposes. This fund accounts principally for the disposition of dedicated state liquid fuels highway aid funding.

The Borough reports the following major Proprietary Funds:

**Enterprise Funds**

**Sewer Fund** - The Sewer Fund accounts for the activities of the sewage treatment plant, sewage pumping stations and collection systems.

**Trash Collection Fund** - The Trash Collection Fund accounts for the operation of the Borough's trash collection system.

The Borough reports the following Fiduciary Funds:

**Pension Trust Funds** - The Pension Trust Funds are used to account for financial resources restricted solely for life insurance, disability and retirement benefits of the employees participating under the Borough's defined benefit pension plans.

**Basis of Presentation and Accounting**

**Government-Wide Financial Statements** - The statement of net position and the statement of activities display information about the Borough as a whole. These statements include the financial activities of the primary government, except for Fiduciary Funds. The statements distinguish between those activities of the Borough that are governmental and those that are considered business-type activities.



**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2016

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

The government-wide statements are prepared using the economic resources measurement focus and the accrual basis of accounting. This is the same approach used in the preparation of the Proprietary Funds' financial statements but differs from the manner in which Governmental Funds' financial statements are prepared. Governmental Funds' financial statements therefore include a reconciliation with brief explanations to better identify the relationship between the government-wide statements and the statements for Governmental Funds. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows. Property taxes are recognized as revenues in the year for which they are levied. Grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the provider have been met.

The government-wide statement of activities presents a comparison between direct expenses and program revenues for each segment of the business-type activities of the Borough and for each function or program of the Borough's governmental activities. Direct expenses are those that are specifically associated with a service, program, or department and therefore clearly identifiable to a particular function. Program revenues include charges paid by the recipient of the goods or services offered by the program and grants and contributions that are restricted to meeting the operational or capital requirements of a particular program. Revenues, which are not classified as program revenues, are presented as general revenues of the Borough, with certain limited exceptions. The comparison of direct expenses with program revenues identifies the extent to which each business segment or governmental function is self-financing or draws from the general revenues of the Borough.

As a general rule, the effect of interfund activity has been eliminated from the government-wide financial statements.

**Fund Financial Statements** - Fund financial statements report detailed information about the Borough. The focus of Governmental and Proprietary Funds' financial statements is on major funds rather than reporting funds by type. Each major fund is presented in a separate column. Fiduciary Funds are reported by fund type.

The accounting and financial reporting treatment applied to a fund is determined by its measurement focus. All Governmental Funds are accounted for using the current financial resources measurement focus and the modified accrual basis of accounting. Revenues are recognized as soon as they are both measurable and available. Revenues are considered to be available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the Borough considers revenues to be available if they are collected within 60 days of the end of the fiscal period.

Expenditures generally are recorded when a liability is incurred, as under accrual accounting. However, debt service expenditures, as well as expenditures related to compensated absences, and claims and judgments are recorded only when payment is due. The financial statements for Governmental Funds are a balance sheet, which generally includes only current assets and current liabilities, and a statement of revenues, expenditures and changes in fund balances, which reports on the sources (i.e., revenues and other financing sources) and uses (i.e., expenditures and other financing uses) of current financial resources.

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2016

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

All Proprietary Funds are accounted for on a flow of economic resources measurement focus. With this measurement focus, all assets and all liabilities associated with the operation of these funds are included on the statement of net position. The statement of revenues, expenses and changes in net position presents increases (i.e., revenues) and decreases (i.e., expenses) in net total assets. The statement of cash flows provides information about how the Borough finances and meets the cash flow needs of its proprietary activities.

Proprietary Funds distinguish operating revenues and expenses from nonoperating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with the Proprietary Funds' ongoing operations. The principal operating revenues of the Borough's Enterprise Funds are sewer rents and trash collection fees. Operating expenses of the Borough's Enterprise Funds include supplies, administrative costs and depreciation on capital assets. All revenues or expenses not meeting this definition are reported as nonoperating revenues and expenses.

Fiduciary Funds are reported using the economic resources measurement focus.

When both restricted and unrestricted resources are available for use, it is the Borough's policy to use restricted resources first, then unrestricted resources as they are needed.

**Cash Equivalents**

For purposes of the statement of cash flows, the Proprietary Funds consider all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents.

**Investments**

Statutes authorize the Borough to invest in: 1) obligations, participations and other instruments of any Federal agency, 2) repurchase agreements with respect to U.S. Treasury bills or obligations, 3) negotiable certificates of deposit, 4) bankers' acceptances, 5) commercial paper, 6) shares of an investment company registered under the Investment Company Act of 1940 whose shares are registered under the Securities Act of 1933, and 7) savings or demand deposits. The specific conditions under which the Borough may invest in these categories are detailed in Pennsylvania Act No. 53 of 1973, as amended by Pennsylvania Act No. 10 of 2016. State law does not limit pension investments. Investments are stated at fair value.

Under Act No. 72, enacted by the General Assembly of the Commonwealth of Pennsylvania, the funds deposited with the various banks are permitted to be secured on a pooled basis with all other public funds which the banking institution has on deposit. These may be bonds of the United States, any state of the United States, or bonds of any political subdivision of Pennsylvania or the general state authority or their authorities created by the General Assembly of the Commonwealth of Pennsylvania, or insured with the Federal Deposit Insurance Corporation. The market value of such bonds pledged must equal 120% of the funds deposited. The security pledged by the various depositories utilized during the year and at December 31, 2016, was in excess of the minimum requirements just described.

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2016

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

The Borough has adopted GASB Statement No. 72, *Fair Value Measurement and Application*. In accordance with this Statements, investments in marketable securities with readily determinable fair value and all investments in debt securities are reported at their fair values.

**Prepaid Expenditures/Expenses**

Certain payments to vendors reflect costs applicable to future accounting periods and are recorded as prepaid expenditures/expenses in both the government-wide and fund financial statements.

**Capital Assets**

Under GASB Statement No. 34, all capital assets, whether owned by governmental activities or business-type activities, are recorded and depreciated in the government-wide financial statements. No long-term capital assets or depreciation are shown in the Governmental Funds' financial statements.

Capital assets are defined as assets with an initial, individual cost of \$5,000 or more and an estimated useful life greater than one year. Capital assets are recorded at cost or estimated historical cost if purchased or constructed. Donated capital assets are recorded at the estimated fair market value at the date of donation.

The costs of normal maintenance and repairs that do not add to the value of the asset or materially extend the asset's life are not capitalized. Major improvements are capitalized and depreciated over the remaining useful lives of the related capital assets.

Capital assets are depreciated using the straight-line method over the following estimated useful lives:

	<u>Years</u>
Buildings and building improvements	5-40
Plant	5-40
Equipment	10-20
Vehicles	3-10
Infrastructure	25

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2016

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

**Deferred Outflows/Inflows of Resources**

In addition to assets, the statement of net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, deferred outflows of resources, represents a consumption of net position that applies to a future period(s) and so will not be recognized as an outflow of resources (expense/expenditure) until then. The Borough has one item that qualifies for reporting in this category. The deferred outflow of resources related to pensions is reported in the government-wide statement of net position and the proprietary fund statement of net position and is the result of the net difference between projected and actual earnings on pension plan investments.

In addition to liabilities, the statement of net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, deferred inflows of resources, represents an acquisition of net position that applies to a future period(s) and so will not be recognized as an inflow of resources (revenue) until that time. The Township has one item that qualifies for reporting in this category. The deferred inflow of resources related to pensions is reported in the government-wide statement of net position and is the result of changes in plan assumptions and the differences between expected and actual experience of the pension plan. Additionally, the deferred inflow of resources related to pensions is reported in the proprietary fund statement of net position and is the result of differences between expected and actual experience of the pension plan.

**Long-Term Obligations**

In the government-wide financial statements and Proprietary Funds in the fund financial statements, long-term debt and other long-term obligations are reported as liabilities in the applicable governmental activities, business-type activities, or Proprietary Funds' statement of net position.

In the fund financial statements, Governmental Funds recognize note premiums and discounts, as well as note issuance costs, during the current period. The face amount of debt issued is reported as other financing sources. Premiums received on debt issuances are reported as other financing sources while discounts on debt issuances are reported as other financing uses. Issuance costs, whether or not withheld from the actual debt proceeds received, are reported as debt service expenditures.

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2016

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

**Fund Balance**

Beginning with the year ended December 31, 2011, the Borough implemented GASB Statement No. 54, *Fund Balance Reporting and Governmental Fund Type Definitions*. This statement provides more clearly defined fund balance categories to make the nature and extent of the constraints placed on the Borough's fund balances more transparent.

The following classifications describe the relative strength of the spending constraints:

- ***Nonspendable Fund Balance*** - Amounts that are not in spendable form (such as prepaid expenses) or are required to be maintained intact.
- ***Restricted Fund Balance*** - Amounts constrained to specific purposes by their providers (such as grantors, bondholders and higher levels of government) through constitutional provisions or by enabling legislation.
- ***Committed Fund Balance*** - Amounts constrained to specific purposes by the Borough itself, using its highest level of decision-making authority (Borough Council). To be reported as committed, amounts cannot be used for any other purpose unless the Borough takes the same highest level action to remove or change the constraint.
- ***Assigned Fund Balance*** - Amounts the Borough intends to use for a specific purpose. Intent can be expressed by Borough Council or by an official or body to which Borough Council delegates the authority.
- ***Unassigned Fund Balance*** - Amounts available for any purpose. Positive amounts are reported only in the General Fund.

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2016

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

Borough Council establishes (and modifies or rescinds) fund balance commitments by passage of a resolution. This is typically done through adoption and amendment of the budget. A fund balance commitment is further indicated in the budget document as a commitment of the fund. Assigned fund balance is intended to be used by the government for specific purposes but does not meet the criteria to be classified as restricted or committed.

The Borough will typically use restricted fund balances first, followed by committed resources and then assigned resources, as appropriate opportunities arise, but reserves the right to selectively spend unassigned resources first to defer the use of these other classified funds.

**Use of Estimates**

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

**Real Estate Tax Calendar**

The original tax duplicate is received by the tax collector and mailed February 1. The discount period extends through March 31, followed by the flat period through May 31 and ends with the penalty period after June 1. The penalty is 10%. Any unpaid taxes at the end of the year are required to be lienied by January 15 with the county.

**NOTE B - DEPOSITS AND INVESTMENTS**

**Deposits**

***Custodial Credit Risk*** - Custodial credit risk is the risk that, in the event of a bank failure, the Borough's deposits may not be returned to it. The Borough follows state statute as it relates to custodial credit risk. As of December 31, 2016, \$536,010 of the Borough's bank balance of \$864,646 was exposed to custodial credit risk as follows:

Uninsured and collateralized with securities held by the pledging bank's trust department not in the Borough's name	\$ <u>476,636</u>
Held by PLGIT, which is uninsured and uncollateralized	\$ <u>59,374</u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2016**

**NOTE B - DEPOSITS AND INVESTMENTS (Continued)**

**Investments**

**Fair Value Measurement** - The Borough categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are those that lack significant observable inputs. The Borough had the following recurring fair value measurements as of December 31, 2016.

Investment Type	Level 1 Inputs	Fair Value	Investment Maturities	
			1 Year or Less	2 to 5 Years
Fixed income	\$ 25,181	\$ 25,181	\$ 25,181	\$ -
Equity investments	2,444,682	2,444,682	2,444,682	-
Mutual funds	2,057,948	2,057,948	2,057,948	-
Exchange traded products	24,191	24,191	24,191	-
	<u>\$ 4,552,002</u>	<u>\$ 4,552,002</u>	<u>\$ 4,552,002</u>	<u>\$ -</u>

**Interest Rate Risk** - The Borough's investment policy does limit investment maturities in accordance with state statutes as a means of managing its exposure to fair value losses arising from increasing interest rates.

**NOTE C - ACCOUNTS RECEIVABLE**

Accounts receivable are comprised of the following:

	General Fund	Proprietary Fund Type	Totals
Sewer billings	\$ -	\$ 35,039	\$ 35,039
Refuse billings	-	26,182	26,182
Other	4,702	-	4,702
	<u>\$ 4,702</u>	<u>\$ 61,221</u>	<u>\$ 65,923</u>

The Borough believes that all receivables are collectible; therefore, an allowance for doubtful accounts is not needed.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2016**

**NOTE D - CAPITAL ASSETS**

A summary of changes in capital assets is as follows:

	Balance January 1, 2016	Additions	Deletions	Balance December 31, 2016
<b>GOVERNMENTAL ACTIVITIES</b>				
Capital assets not being depreciated				
Land	\$ 216,461	\$ -	\$ -	\$ 216,461
Capital assets being depreciated				
Infrastructure	5,476,852	960,847	-	6,437,699
Buildings and building improvements	610,493	5,260	-	615,753
Equipment	396,710	16,525	-	413,235
Vehicles	442,343	-	-	442,343
<b>TOTAL CAPITAL ASSETS BEING DEPRECIATED</b>	<b>6,926,398</b>	<b>982,632</b>	<b>-</b>	<b>7,909,030</b>
Accumulated depreciation				
Infrastructure	(1,037,369)	(227,256)	-	(1,264,625)
Buildings and building improvements	(243,776)	(14,917)	-	(258,693)
Equipment	(263,525)	(23,449)	-	(286,974)
Vehicles	(272,621)	(25,140)	-	(297,761)
<b>TOTAL ACCUMULATED DEPRECIATION</b>	<b>(1,817,291)</b>	<b>(290,762)</b>	<b>-</b>	<b>(2,108,053)</b>
<b>TOTAL CAPITAL ASSETS BEING DEPRECIATED, net</b>	<b>5,109,107</b>	<b>691,870</b>	<b>-</b>	<b>5,800,977</b>
<b>GOVERNMENTAL ACTIVITIES CAPITAL ASSETS, net</b>	<b>5,325,568</b>	<b>691,870</b>	<b>-</b>	<b>6,017,438</b>
<b>BUSINESS-TYPE ACTIVITIES</b>				
Capital assets being depreciated				
Plant	6,543,653	248,189	-	6,791,842
Vehicles	188,902	-	(159,634)	29,268
<b>TOTAL CAPITAL ASSETS BEING DEPRECIATED</b>	<b>6,732,555</b>	<b>248,189</b>	<b>(159,634)</b>	<b>6,821,110</b>
Accumulated depreciation				
Plant	(1,831,958)	(158,195)	-	(1,990,153)
Vehicles	(93,696)	(17,560)	97,109	(14,147)
<b>TOTAL ACCUMULATED DEPRECIATION</b>	<b>(1,925,654)</b>	<b>(175,755)</b>	<b>97,109</b>	<b>(2,004,300)</b>
<b>BUSINESS-TYPE ACTIVITIES CAPITAL ASSETS, net</b>	<b>4,806,901</b>	<b>72,434</b>	<b>(62,525)</b>	<b>4,816,810</b>
<b>CAPITAL ASSETS, net</b>	<b>\$ 10,132,469</b>	<b>\$ 764,304</b>	<b>\$ (62,525)</b>	<b>\$ 10,834,248</b>



# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2016**

---

**NOTE D - CAPITAL ASSETS (Continued)**

The net book value of each capital asset category for governmental and business-type activities is as follows:

	Cost	Accumulated Depreciation	Net Book Value
<b>GOVERNMENTAL ACTIVITIES</b>			
Capital assets not being depreciated			
Land	\$ 216,461	\$ -	\$ 216,461
Capital assets being depreciated			
Infrastructure	6,437,699	(1,264,625)	5,173,074
Buildings and building improvements	615,753	(258,693)	357,060
Equipment	413,235	(286,974)	126,261
Vehicles	442,343	(297,761)	144,582
	8,125,491	(2,108,053)	6,017,438
<b>BUSINESS-TYPE ACTIVITIES</b>			
Capital assets being depreciated			
Plant	6,791,842	(1,990,153)	4,801,689
Vehicles	29,268	(14,147)	15,121
	6,821,110	(2,004,300)	4,816,810
<b>TOTAL CAPITAL ASSETS</b>	<b>\$ 14,946,601</b>	<b>\$ (4,112,353)</b>	<b>\$ 10,834,248</b>

Depreciation expense was charged to governmental functions as follows:

General government	\$ 16,042
Public safety	23,395
Highways and streets	206,313
Culture and recreation	45,012
	<b>\$ 290,762</b>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2016**

---

**NOTE E - LONG-TERM LIABILITIES**

The following is a summary of long-term liability activity of the Borough for the year ended December 31, 2016:

	<u>Principal Outstanding January 1, 2016</u>	<u>Additions/ Refundings</u>
<b>GOVERNMENTAL ACTIVITIES</b>		
General Obligation Bonds and Notes		
Bonds, Series of 2011	\$ 395,813	\$ -
Capital leases	21,718	-
Net Pension Liability	484,359	-
Compensated absences (Note G)	74,164	30,808
<b>TOTAL GOVERNMENTAL ACTIVITIES</b>	<u>976,054</u>	<u>30,808</u>
<b>BUSINESS-TYPE ACTIVITIES</b>		
Notes		
General Obligation Note, Series of 1997	215,604	-
Guaranteed Sewer Revenue Note, Series of 2008	2,965,000	-
<b>TOTAL BUSINESS-TYPE ACTIVITIES</b>	<u>3,180,604</u>	<u>-</u>
<b>TOTAL LONG-TERM LIABILITIES</b>	<u>\$ 4,156,658</u>	<u>\$ 30,808</u>

The General Fund funds the payment of long-term debt and compensated absences in the governmental activities.

# APPENDIX A-5.1 (AUS)

Deletions/ Maturities	Principal Outstanding December 31, 2016	Due Within One Year
\$ (20,348) (21,718) (40,574) - <u>(82,640)</u>	\$ 375,465 - 443,785 104,972 <u>924,222</u>	\$ 22,701 - - - <u>22,701</u>
(103,977) (5,000) <u>(108,977)</u>	111,627 2,960,000 <u>3,071,627</u>	109,317 5,000 <u>114,317</u>
\$ <u><u>(191,617)</u></u>	\$ <u><u>3,995,849</u></u>	\$ <u><u>137,018</u></u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2016**

---

**NOTE E - LONG-TERM LIABILITIES (Continued)**

Bonds and notes payable at December 31, 2016, consisted of:

**Governmental Activities**

General Obligation Bonds, Series of 2011, used to currently refund the General Obligation Note, Series of 2008, which was originally used to finance the revitalization of Main Street, principal and interest payments were due monthly and began in April 2011 and continued through July 2016 at a fixed rate of 3.45%. In August 2016, the interest rate was set at a fixed rate of 2.08% continuing through April 2021. In April 2021 and continuing through April 2026 interest will be set at a variable rate of the prime rate plus an additional .25%, not to exceed 5.99%. In April 2026 the rate will change to a fixed rate of 5.99% through maturity in April 2031.

\$ 375,465

**Business-Type Activities**

General Obligation Note, Series of 1997, used for renovations to the Royersford Waste Water Treatment Plant; principal payments began in February 1998 and continue through January 2018, with interest payments beginning in November 1997 at a rate of 6.00%; as of October 1, 2003, the interest rate was modified to a fixed rate of 4.90%; due in monthly installments of \$9,363 through January 2018

111,627

Guaranteed Sewer Revenue Note, Series of 2008, used for renovations to the Royersford Waste Water Treatment Plant; principal payments began in June 2009 and continue through June 2032 ranging from \$5,000 to \$265,000 annually; interest payments began in July 2008 and are due monthly at a fixed rate of 1.84%

2,960,000

TOTAL BUSINESS-TYPE ACTIVITIES

3,071,627

TOTAL BONDS AND NOTES PAYABLE

\$ 3,447,092

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2016

---

**NOTE E - LONG-TERM LIABILITIES (Continued)***Debt Service Requirements*

A summary of notes payable debt service requirements to maturity, including principal and interest, is as follows:

<u>Year Ending December 31,</u>	<u>Principal</u>	<u>Interest</u>	<u>Totals</u>
2017	\$ 137,018	\$ 60,548	\$ 197,566
2018	197,488	61,492	258,980
2019	198,645	57,830	256,475
2020	203,144	54,131	257,275
2021	203,734	57,320	261,054
2022 to 2026	1,084,107	232,845	1,316,952
2027 to 2031	1,198,956	98,980	1,297,936
2032 to 2036	224,000	4,121	228,121
	<u>\$ 3,447,092</u>	<u>\$ 627,267</u>	<u>\$ 4,074,359</u>

**NOTE F - SICK LEAVE**

The Borough does not accrue accumulated sick leave on its Governmental or Proprietary Funds but expenses these costs as paid in the fund financial statements. Sick leave is accrued on the government-wide financial statements. The amount of vested accumulated sick leave was \$104,972 as of December 31, 2016. Non-uniform employees earn 1 1/4 days of sick leave per month with a maximum accumulation of 75 days for hourly employees and 100 days for salaried employees. Uniform employees earn ten hours of sick leave per month with a maximum accumulation of 1040 hours. All employees are entitled to payment for 80% of accumulated sick leave upon retirement and 50% upon termination after three years of employment. Effective January 1, 2012, all uniform employees are eligible to receive payment of accumulated sick leave up to a maximum of \$9,000.

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2016**

---

**NOTE G - INTERGOVERNMENTAL REVENUES**

Intergovernmental revenues by source are summarized as follows:

	General Fund	Special Revenue Fund
<b>COMMONWEALTH OF PENNSYLVANIA</b>		
Payment in lieu of taxes	\$ 5,658	\$ -
Public utility realty tax	2,526	-
Liquid fuels	-	117,564
Pension	104,991	-
Snow removal	6,221	-
Liquor Control Board	650	-
Volunteer Fire Fighter	28,616	-
Disaster grant	28,394	-
DCNR grants	20,000	-
<b>County of Montgomery</b>		
Streetscape enhancement	357,044	-
	\$ 554,100	\$ 117,564

Approximately 14% of all Borough revenues represents federal, state and county grants.

**NOTE H - INTERFUND RECEIVABLES, PAYABLES AND TRANSFERS**

Interfund receivables and payables are summarized as follows:

	Due from Other Funds	Due to Other Funds
General Fund	\$ -	\$ 61,842
Sewer Fund	65,037	-
Trash Collection Fund	-	3,195
	\$ 65,037	\$ 65,037

Interfund transfers are summarized as follows:

Transfer In	Transfer Out	Amount
General Fund	Trash Collection Fund	\$ 70,300

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2016

---

**NOTE I - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN)**

*Summary of Significant Accounting Policies*

**Method Used to Value Investments** - Police Pension Plan investments are carried at fair value as reported by the investment managers. Short-term investments are reported at cost, which approximates fair value.

*Plan Description*

**Plan Administration** - The Borough administers the Police Pension Plan—a single-employer defined benefit pension plan that provides pensions for all regular, full-time sworn police officers.

Management of the plan is vested in the Pension Board, which consists of five members; two elected council members, the Borough Manager, one police department representative and one non-uniformed employees representative—all appointed by the Borough Council President. The Pension Board is responsible for managing, investing and monitoring the Borough's Police Pension Fund.

**Plan Membership** - At December 31, 2016, pension plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefits	2
Inactive plan members entitled to but not yet receiving benefits	-
Active plan members	<u>6</u>
	<u>8</u>

**Benefits Provided** - The plan provides retirement, disability and death benefits. A member is eligible for normal retirement after attainment of age 50 and completion of 25 years of vesting service. The normal retirement pension is payable monthly during the member's lifetime, with payments continuing after the member's death to the surviving spouse, or eligible child, equal to 50% of the amount payable to the member at the time of the member's death. The amount of monthly pension is equal to 50% of average monthly compensation, plus a service increment equal to \$100 per month per year of benefit service completed in excess of 25 years, up to a maximum of \$500 additional per month. Average compensation is based upon the last 36 months of employment. If a member continues working after his normal retirement date, his pension does not start until he actually retires. If an active member suffers a service related disability, they are eligible for disability retirement. The service related disability retirement is payable monthly equal to 80% of the member's monthly salary at the time of disability reducing to 50% of salary at normal retirement date less worker's compensation benefits. There is no benefit for non-service related disability.

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2016

---

**NOTE I - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

Benefit terms provide for an annual cost-of-living increase, based upon the increase in the Consumer Price Index for the preceding year, shall be granted to retired members equal to not more than the increase in the Consumer Price Index from the year in which the member last worked, with a maximum total cost-of-living increase of 30%.

The benefit provisions of the Borough's Police Pension Plan are established by Borough ordinances.

**Contributions** - The Borough's police employees are required to contribute a percentage of their monthly salaries to the plan. The Borough is required to contribute the remaining amounts necessary to fund the plan using the actuarial basis specified by state statute. The state also provides funds (distribution of foreign casualty insurance premium taxes) to the Borough, which are used by the Borough in making its regular contributions to the plan.

Pennsylvania Act 205 of 1984 (as amended) requires that annual contributions be based upon the minimum municipal obligation (MMO), which is based on the plan's biennial actuarial valuation. The MMO includes the normal cost, estimated administrative expenses and an amortization contribution of the unfunded actuarial accrued liability, less estimated member contributions, and a credit equal to 10% of the excess (if any) of the actuarial value of assets over the actuarial accrued liability. The state provides an allocation of funds, which must be used for pension funding. A financial requirement established by the MMO, which exceeds state and member contributions, must be funded by the employer. In accordance with Act 205, the Borough was required to contribute \$84,837 to the plan for the year 2016. The Borough's actual contributions for the plan year 2016 were \$84,837.

Per the collective bargaining agreement, employees are required to contribute 5% of covered payroll. This contribution is governed by the plan's governing ordinances and collective bargaining agreements. Administrative costs, which may include, but are not limited to, investment management fees and actuarial services are charged to the plan and funded through the MMO and/or plan earnings. On-behalf payments of fringe benefits and salaries for the Borough's employees were recognized as revenues and expenditures during the year.

**Investments**

**Investment Policy** - The plan's policy in regard to the allocation of invested assets is established and may be amended by the Pension Board by a majority vote of its members. It is the policy of the Pension Board to pursue an investment strategy that reduces risk through prudent diversification of the portfolio across a broad selection of distinct asset classes. The plan's investment policy discourages the use of cash equivalents, except for liquidity purposes, and aims to refrain from dramatically shifting asset class allocations over short time spans.



**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2016

---

**NOTE I - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

The following was the Board's adopted asset allocation policy as of December 31, 2016:

<u>Asset Class</u>	<u>Target Allocation</u>
Dividend and income stocks	30%
Core equity	25%
International	15%
Fixed income	30%
	<u>100%</u>

**Concentrations** - More than 5% of the Borough's investments are in equity securities and mutual funds. These investments are 53% and 45% of the plan's total investments, respectively.

**Rate of Return** - For the year ended December 31, 2016, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 8.5%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

**Net Pension Liability of the Borough**

The components of the net pension liability of the Borough at December 31, 2016, were as follows:

Total pension liability	\$ 2,847,037
Plan fiduciary net position	<u>(2,398,569)</u>
<b>NET PENSION LIABILITY</b>	<b>\$ <u>448,468</u></b>
Plan fiduciary net position as a percentage of the total pension liability	<u>84.25%</u>

**Actuarial Assumptions** - The total pension liability was determined by an actuarial valuation as of December 31, 2016, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3%
Salary increases	4.5% average, including inflation
Investment rate of return	7.5%

Mortality rates were based on the RP-2000 Healthy Annuitant Mortality Table.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2016**

---

**NOTE I - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

Due to the size of the plan, there has been no experience studies used to determine plan assumptions.

The long-term expected rate of return on plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the plan's target asset allocation as of December 31, 2016 (see the plan's investment policy), are summarized in the following table:

<u>Asset Class</u>	<u>Long-Term Expected Real Rate of Return</u>
Dividend and income stocks	7.5%
Core equity	8.0%
International	10.0%
Fixed income	3.8%

**Discount Rate** - The discount rate is based on the long-term expected rate of return on plan investments that are expected to be used to finance the payments of benefits. The plan's fiduciary net position is projected to be sufficient to make projected benefit payments and the plan assets are expected to be invested using a strategy to achieve that return. The employer has always met the funding requirements of Pennsylvania Law Act 205 of 1984. Act 205 requires full funding of the entry age normal cost plus plan expenses, as well as amortization of the unfunded liability to ultimately achieve a 100% funded status.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2016**

**NOTE I - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

***Changes in the Net Pension Liability***

	Governmental Activities:		
	Total	Plan	Net
	Pension Liability (a)	Fiduciary Net Position (b)	Pension Liability (a)-(b)
Balance at December 31, 2015	\$ 2,663,136	\$ 2,204,894	\$ 458,242
Changes for the year:			
Service cost	84,558	-	84,558
Interest cost	202,448	-	202,448
Changes for experience	(6,320)	-	(6,320)
Contributions			
Employer	-	84,837	(84,837)
Member	-	28,541	(28,541)
Net investment income	-	218,177	(218,177)
Benefit payments	(96,785)	(96,785)	-
Administrative expenses	-	(41,095)	41,095
Net Changes	<u>183,901</u>	<u>193,675</u>	<u>(9,774)</u>
Balance at December 31, 2016	<u>\$ 2,847,037</u>	<u>\$ 2,398,569</u>	<u>\$ 448,468</u>

***Changes in Assumptions***

In the 2015 actuarial valuation, the assumed average annual salary increase was adjusted to 4.5%. In prior years, the assumed average annual salary increase was 5.0%.

***Sensitivity of the Net Pension Liability to Changes in the Discount Rate*** - The following presents the net pension liability of the Borough, calculated using the discount rate of 7.5%, as well as what the Borough's net pension would be if it were calculated using a discount rate that is one percentage point lower (6.5%) or one percentage point higher (8.5%) than the current rate:

	1% Decrease (6.5%)	Current Discount Rate (7.5%)	1% Increase (8.5%)
Net pension liability	\$ <u>871,122</u>	\$ <u>448,468</u>	\$ <u>99,388</u>

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2016

---

**NOTE I - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

*Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions*

For the year ended December 31, 2016, the Borough recognized pension expense of \$49,137. At December 31, 2016, the Borough reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	<u>Governmental Activities</u>	
	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>
Difference between expected and actual experience	\$ -	\$ 19,761
Change of assumptions	-	163,438
Net difference between projected and actual earnings on pension plan investments	<u>87,485</u>	<u>42,983</u>
	<u>\$ 87,485</u>	<u>\$ 226,182</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

<u>Year Ending December 31,</u>	<u>Governmental Activities</u>
2017	\$ (1,138)
2018	(1,138)
2019	(1,138)
2020	(30,299)
2021	(19,553)
Thereafter	(85,431)

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2016

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN)**

**Summary of Significant Accounting Policies**

**Method Used to Value Investments** - Non-Uniformed Pension Plan investments are carried at fair value as reported by the investment managers. Short-term investments are reported at cost, which approximates fair value.

**Plan Description**

**Plan Administration** - The Borough administers the Non-Uniformed Pension Plan--a single-employer defined benefit pension plan that provides pensions for all regular, full-time non-uniformed Borough employees.

Management of the plan is vested in the Pension Board, which consists of five members; two elected council members, the borough manager, one police department representative and one non-uniformed employees representative--all appointed by the Borough Council President. The Pension Board is responsible for managing, investing and monitoring the Borough's Non-Uniformed Pension Fund.

**Plan Membership** - At December 31, 2016, plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefits	4
Inactive plan members entitled to but not yet receiving benefits	2
Active plan members	11
	<hr/>
	17
	<hr/> <hr/>

**Benefits Provided** - The plan provides retirement, disability and death benefits. A member is eligible for normal retirement after attainment of age 62. The normal retirement pension is payable monthly during the member's lifetime, with payments continuing after the member's death to a designated beneficiary, equal to the present value of the accrued benefit at the time of the member's death. The amount of monthly pension is equal to 1.667% times average monthly compensation. Average compensation is based upon the last 36 months of employment. If a member continues working after his normal retirement date, his pension does not start until he actually retires. If an active member suffers a service related disability, they are eligible for disability retirement. The service related disability retirement is payable monthly equal to 50% of the member's monthly salary at the time of disability. If the disability is not service related, a benefit of 30% of salary is provided to a member who has at least ten years of service.

The benefit provisions of the Borough's plan are established by Borough ordinances.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2016**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

**Contributions** - The Borough's non-uniformed employees are required to contribute a percentage of their monthly salaries to the plan. The Borough is required to contribute the remaining amounts necessary to fund the plan using the actuarial basis specified by state statute. The state also provides funds (distribution of foreign casualty insurance premium taxes) to the Borough, which are used by the Borough in making its regular contributions to the plan.

Pennsylvania Act 205 of 1984 (as amended) requires that annual contributions be based upon the minimum municipal obligation (MMO), which is based on the plan's biennial actuarial valuation. The MMO includes the normal cost, estimated administrative expenses and an amortization contribution of the unfunded actuarial accrued liability, less estimated member contributions, and a credit equal to 10% of the excess (if any) of the actuarial value of assets over the actuarial accrued liability. The state provides an allocation of funds, which must be used for pension funding. A financial requirement established by the MMO, which exceeds state and member contributions, must be funded by the employer. In accordance with Act 205, the Borough was required to contribute \$51,650 to the plan for the year 2016. The Borough's actual contributions for the plan year 2016 were \$51,650.

Per Borough ordinance, employees are required to contribute 2.25% of covered payroll. This contribution is governed by the plan's governing ordinances and collective bargaining agreements. Administrative costs, which may include, but are not limited to, investment management fees and actuarial services are charged to the plan and funded through the MMO and/or plan earnings. On-behalf payments of fringe benefits and salaries for the Borough's employees were recognized as revenues and expenditures during the year.

**Investments**

**Investment Policy** - The plan's policy in regard to the allocation of invested assets is established and may be amended by the Pension Board by a majority vote of its members. It is the policy of the Pension Board to pursue an investment strategy that reduces risk through prudent diversification of the portfolio across a broad selection of distinct asset classes. The plan's investment policy discourages the use of cash equivalents, except for liquidity purposes, and aims to refrain from dramatically shifting asset class allocations over short time spans. The following was the Board's adopted asset allocation policy as of December 31, 2016:

<u>Asset Class</u>	<u>Target Allocation</u>
Dividend and income stocks	30%
Core equity	25%
International	15%
Fixed income	30%
	<u>100%</u>

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2016

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

**Concentrations** - More than 5% of the Borough's investments are in equity securities and mutual funds. These investments are 52% and 45% of the plan's total investments, respectively.

**Rate of Return** - For the year ended December 31, 2016, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 9.0%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

**Net Pension Liability of the Borough**

The components of the net pension liability of the Borough at December 31, 2016, were as follows:

Total pension liability	\$ 2,194,279
Plan fiduciary net position	<u>(2,203,517)</u>
NET PENSION LIABILITY	<u>\$ (9,238)</u>
Plan fiduciary net position as a percentage of the total pension liability	<u>100.42%</u>

**Actuarial Assumptions** - The total pension liability was determined by an actuarial valuation as of December 31, 2015, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3%
Salary increases	5% average, including inflation
Investment rate of return	7.5%

Mortality rates were based on the RP-2000 Healthy Annuitant Mortality Table.

Due to the size of the plan, there has been no experience studies used to determine plan assumptions.

The long-term expected rate of return on plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2016**

**NOTE J - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

Best estimates of arithmetic real rates of return for each major asset class included in the plan's target asset allocation as of December 31, 2015 (see the plan's investment policy), are summarized in the following table:

<u>Asset Class</u>	<u>Target Allocation</u>
Dividend and income stocks	30%
Core equity	25%
International	15%
Fixed income	30%
	<u>100%</u>

**Discount Rate** - The discount rate is based on the long-term expected rate of return on plan investments that are expected to be used to finance the payments of benefits. The plan's fiduciary net position is projected to be sufficient to make projected benefit payments and the plan assets are expected to be invested using a strategy to achieve that return. The employer has always met the funding requirements of Pennsylvania Law Act 205 of 1984. Act 205 requires full funding of the entry age normal cost plus plan expenses, as well as amortization of the unfunded liability to ultimately achieve a 100% funded status.

**Changes in the Net Pension Liability**

	<u>Governmental Activities:</u>		
	<u>Total Pension Liability (a)</u>	<u>Plan Fiduciary Net Position (b)</u>	<u>Net Pension Liability (a)-(b)</u>
Balance at December 31, 2015	\$ 979,539	\$ 953,421	\$ 26,118
Allocation Changes	87,578	85,242	2,336
Changes for the year:			
Service cost	28,110	-	28,110
Interest cost	80,559	-	80,559
Changes for experience	(21,335)	-	(21,335)
Contributions			
Employer	-	26,180	(26,180)
Member	-	6,802	(6,802)
Net investment income	-	107,105	(107,105)
Benefit payments	(42,222)	(42,222)	-
Administrative expenses	-	(19,617)	19,617
Net changes	<u>132,690</u>	<u>163,490</u>	<u>(30,800)</u>
Balance at December 31, 2016	<u>\$ 1,112,229</u>	<u>\$ 1,116,911</u>	<u>\$ (4,682)</u>



# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2016**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

	Business-type Activities		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a)-(b)
	Balance at December 31, 2015	\$ 1,125,739	\$ 1,095,724
Allocation changes	(87,578)	(85,242)	(2,336)
Changes for the year:			
Service cost	27,348	-	27,348
Interest cost	78,373	-	78,373
Changes for experience	(20,756)	-	(20,756)
Contributions			
Employer	-	25,470	(25,470)
Member	-	6,617	(6,617)
Net investment income	-	104,198	(104,198)
Benefit payments	(41,076)	(41,076)	-
Administrative expenses	-	(19,085)	19,085
Net changes	(43,689)	(9,118)	(34,571)
Balance at December 31, 2016	\$ 1,082,050	\$ 1,086,606	\$ (4,556)

***Sensitivity of the Net Pension Liability to Changes in the Discount Rate*** - The following presents the net pension liability of the Borough, calculated using the discount rate of 7.5%, as well as what the Borough's net pension would be if it were calculated using a discount rate that is one percentage point lower (6.5%) or one percentage point higher (8.5%) than the current rate:

	1% Decrease (6.5%)	Current Discount Rate (7.5%)	1% Increase (8.5%)
Net pension liability	\$ 197,603	\$ (9,238)	\$ (188,640)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2016**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

***Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions***

For the year ended December 31, 2016, the Borough recognized pension expense of \$35,568. At December 31, 2016, the Township reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Governmental Activities		Business-type Activities	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	\$ -	\$ 32,193	\$ -	\$ 31,319
Net difference between projected and actual earnings on pension plan investments	39,734	24,229	38,656	23,572
	<u>\$ 39,734</u>	<u>\$ 56,422</u>	<u>\$ 38,656</u>	<u>\$ 54,891</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year Ending December 31,	Governmental Activities	Business-Type Activities
2017	\$ (459)	\$ (446)
2018	(459)	(446)
2019	(459)	(446)
2020	(13,256)	(12,896)
2021	(2,055)	(2,001)

**NOTE K - RISK MANAGEMENT**

The Borough is exposed to various risks of loss related to torts; theft of, damage to and destruction of assets; errors and omissions; injuries to employees; and natural disasters. It is the policy of the Borough to purchase commercial insurance for the risks of loss to which it is exposed, including workers' compensation and employee health and accident insurance. Settled claims resulting from these risks have not exceeded commercial insurance coverage in any of the past three years.

**REQUIRED SUPPLEMENTARY INFORMATION**

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**BUDGETARY COMPARISON SCHEDULE**  
**GENERAL FUND**  
**YEAR ENDED DECEMBER 31, 2016**

	Budgeted Amounts	
	Original	Final
<b>REVENUES</b>		
Taxes	\$ 2,361,640	\$ 2,361,640
Intergovernmental revenues	146,840	146,840
Investment income	1,200	1,200
Licenses and permits	122,000	122,000
Fines	26,000	26,000
Charges for services	70,350	70,350
Miscellaneous revenues	41,000	41,000
<b>TOTAL REVENUES</b>	<b>2,769,030</b>	<b>2,769,030</b>
<b>EXPENDITURES</b>		
General government	453,170	453,170
Public safety	1,488,025	1,488,025
Highways and streets	584,780	584,780
Health	-	-
Recreation	106,565	106,565
Retirement expenses	136,490	136,490
Debt service		
Principal	-	-
Interest and other charges	-	-
<b>TOTAL EXPENDITURES</b>	<b>2,769,030</b>	<b>2,769,030</b>
<b>EXCESS OF REVENUES OVER EXPENDITURES</b>	<b>-</b>	<b>-</b>
<b>OTHER FINANCING SOURCES</b>		
Transfers in	-	-
<b>NET CHANGE IN FUND BALANCE</b>	<b>\$ -</b>	<b>\$ -</b>

*See accompanying notes to the budgetary comparison schedule.*

# APPENDIX A-5.1 (AUS)

<u>Budgetary Basis</u>	<u>Actual Amounts Budget to GAAP Differences</u>	<u>GAAP Basis</u>	<u>Variance With Final Budget Favorable (Unfavorable)</u>
\$ 2,493,791	\$ 3,595	\$ 2,497,386	\$ 132,151
554,100	-	554,100	407,260
1,517	-	1,517	317
114,873	-	114,873	(7,127)
21,008	(40)	20,968	(4,992)
48,292	94	48,386	(22,058)
59,752	4,857	64,609	18,752
<u>3,293,333</u>	<u>8,506</u>	<u>3,301,839</u>	<u>524,303</u>
440,444	9,131	449,575	12,726
1,757,354	7,335	1,764,689	(269,329)
991,805	16,843	1,008,648	(407,025)
-	1,345	1,345	-
232,179	3,203	235,382	(125,614)
136,487	-	136,487	3
20,348	-	20,348	(20,348)
11,928	-	11,928	(11,928)
<u>3,590,545</u>	<u>37,857</u>	<u>3,628,402</u>	<u>(821,515)</u>
<u>(297,212)</u>	<u>(29,351)</u>	<u>(326,563)</u>	<u>(297,212)</u>
<u>70,300</u>	<u>-</u>	<u>70,300</u>	<u>70,300</u>
<u>\$ (226,912)</u>	<u>\$ (29,351)</u>	<u>\$ (256,263)</u>	<u>\$ (226,912)</u>

**BOROUGH OF ROYERSFORD**

NOTES TO THE BUDGETARY COMPARISON SCHEDULE

YEAR ENDED DECEMBER 31, 2016

**NOTE A - BUDGETARY INFORMATION**

The Borough's process for establishing its annual operating budget involves submission of the budget by the Borough Manager to Borough Council for its approval and adoption.

The Borough prepares the General Fund budget on the cash basis of accounting, which is not consistent with accounting principles generally accepted in the United States of America.

**NOTE B - EXCESS OF EXPENDITURES OVER APPROPRIATIONS**

For the year ended December 31, 2016, expenditures exceeded appropriations in the following General Fund object levels (the legal level of budgetary control):

Public safety	\$ (269,329)
Highways and streets	(407,025)
Recreation	(125,614)
Debt service	(32,276)

These excess expenditures were funded by cash reserves and increased charges for services.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD

### SCHEDULE OF CHANGES IN THE NET POLICE PENSION

#### PLAN LIABILITY AND RELATED RATIOS

#### LAST THREE FISCAL YEARS

	2016	2015	2014
<b>TOTAL PENSION LIABILITY</b>			
Service cost	\$ 84,558	\$ 82,517	\$ 87,111
Interest	202,448	204,204	181,670
Differences between expected and actual experience	(6,320)	(17,032)	41,156
Changes of assumptions	-	(198,360)	-
Benefit payments	(96,785)	(96,785)	(95,228)
<b>NET CHANGE IN TOTAL PENSION LIABILITY</b>	<b>183,901</b>	<b>(25,456)</b>	<b>214,709</b>
Total pension liability, beginning	2,663,136	2,688,592	2,473,883
<b>TOTAL PENSION LIABILITY, ENDING (a)</b>	<b>\$ 2,847,037</b>	<b>\$ 2,663,136</b>	<b>\$ 2,688,592</b>
<b>PLAN FIDUCIARY NET POSITION</b>			
Contributions			
Employer	\$ 84,837	\$ 75,396	\$ 54,795
Member	28,541	24,350	23,616
Net investment income	218,177	19,273	185,226
Benefit payments, including refunds of member contributions	(96,785)	(96,785)	(95,228)
Administrative expense	(41,095)	(33,862)	(35,637)
<b>NET CHANGE IN PLAN FIDUCIARY NET POSITION</b>	<b>193,675</b>	<b>(11,628)</b>	<b>132,772</b>
Plan fiduciary net position, beginning	2,204,894	2,216,522	2,083,750
<b>PLAN FIDUCIARY NET POSITION, ENDING (b)</b>	<b>\$ 2,398,569</b>	<b>\$ 2,204,894</b>	<b>\$ 2,216,522</b>
<b>NET PENSION LIABILITY, ENDING (a)-(b)</b>	<b>\$ 448,468</b>	<b>\$ 458,242</b>	<b>\$ 472,070</b>
<b>PLAN FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL PENSION LIABILITY</b>	<b>84%</b>	<b>83%</b>	<b>82%</b>
<b>COVERED-EMPLOYEE PAYROLL</b>	<b>\$ 557,623</b>	<b>\$ 523,032</b>	<b>\$ 464,976</b>
<b>NET PENSION LIABILITY AS A PERCENTAGE OF COVERED-EMPLOYEE PAYROLL</b>	<b>80%</b>	<b>88%</b>	<b>102%</b>

#### NOTE TO SCHEDULE

*Changes of assumptions.* In 2015 amounts reported as changes of assumptions resulted from adjustment to the assumed average annual salary increase, decreasing the rate from 5.0% to 4.5%.

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

# APPENDIX A-5.1 (AUS)

## **BOROUGH OF ROYERSFORD** **SCHEDULE OF POLICE PENSION PLAN CONTRIBUTIONS** **LAST THREE FISCAL YEARS**

	2016	2015	2014
ACTUARIALLY DETERMINED CONTRIBUTION	\$ 84,837	\$ 75,396	\$ 54,795
CONTRIBUTIONS IN RELATION TO THE ACTUARIALLY DETERMINED CONTRIBUTION	84,837	75,396	54,795
CONTRIBUTION DEFICIENCY (EXCESS)	\$ -	\$ -	\$ -
COVERED-EMPLOYEE PAYROLL	\$ 557,623	\$ 523,032	\$ 464,976
CONTRIBUTION AS A PERCENTAGE OF COVERED-EMPLOYEE PAYROLL	15%	14%	12%

### **NOTES TO SCHEDULE**

Valuation date January 1, 2015

Actuarially determined contribution rates are calculated by September 30 of each year for the upcoming calendar year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Entry age normal
Amortization method	Level dollar, closed
Remaining amortization period	11 years
Asset valuation method	PMRS asset method
Inflation	3.0%
Salary increases	4.5% annual increase
Investment rate of return	7.5%
Retirement age	Normal retirement age
Mortality	Assumed life expectancies are based on the RP-2000 Healthy Annuitant Mortality Table

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.



**BOROUGH OF ROYERSFORD**  
**SCHEDULE OF POLICE PENSION PLAN**  
**INVESTMENT RETURNS**  
**LAST THREE FISCAL YEARS**

---

	<u>2016</u>	<u>2015</u>	<u>2014</u>
ANNUAL MONEY-WEIGHTED RATE OF RETURN, NET OF INVESTMENT EXPENSE	<u>8.50%</u>	<u>0.02%</u>	<u>7.20%</u>

**NOTE TO SCHEDULE**

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD

### SCHEDULE OF CHANGES IN THE NET NON-UNIFORMED PENSION PLAN LIABILITY AND RELATED RATIOS LAST THREE FISCAL YEARS

	<u>2016</u>	<u>2015</u>	<u>2014</u>
<b>TOTAL PENSION LIABILITY</b>			
Service cost	\$ 55,458	\$ 54,051	\$ 46,392
Interest	158,932	152,820	137,776
Differences between expected and actual experience	(42,091)	(43,982)	50,099
Benefit payments	<u>(83,298)</u>	<u>(82,313)</u>	<u>(101,635)</u>
NET CHANGE IN TOTAL PENSION LIABILITY	89,001	80,576	132,632
Total pension liability, beginning	<u>2,105,278</u>	<u>2,024,702</u>	<u>1,892,070</u>
<b>TOTAL PENSION LIABILITY, ENDING (a)</b>	<u>\$ 2,194,279</u>	<u>\$ 2,105,278</u>	<u>\$ 2,024,702</u>
<b>PLAN FIDUCIARY NET POSITION</b>			
Contributions			
Employer	\$ 51,650	\$ 47,508	\$ 42,475
Member	13,419	12,375	10,730
Net investment income	211,303	23,312	191,181
Benefit payments, including refunds of member contributions	(83,298)	(82,313)	(101,635)
Administrative expense	<u>(38,702)</u>	<u>(31,585)</u>	<u>(33,668)</u>
NET CHANGE IN PLAN FIDUCIARY NET POSITION	154,372	(30,703)	109,083
Plan fiduciary net position, beginning	<u>2,049,145</u>	<u>2,079,848</u>	<u>1,970,765</u>
<b>PLAN FIDUCIARY NET POSITION, ENDING (b)</b>	<u>\$ 2,203,517</u>	<u>\$ 2,049,145</u>	<u>\$ 2,079,848</u>
<b>NET PENSION LIABILITY, ENDING (a)-(b)</b>	<u>\$ (9,238)</u>	<u>\$ 56,133</u>	<u>\$ (55,146)</u>
<b>PLAN FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL PENSION LIABILITY</b>	<u>100%</u>	<u>97%</u>	<u>103%</u>
<b>COVERED-EMPLOYEE PAYROLL</b>	<u>\$ 582,264</u>	<u>\$ 617,654</u>	<u>\$ 502,883</u>
<b>NET PENSION LIABILITY AS A PERCENTAGE OF COVERED-EMPLOYEE PAYROLL</b>	<u>-2%</u>	<u>9%</u>	<u>-11%</u>

#### NOTE TO SCHEDULE

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**SCHEDULE OF NON-UNIFORMED PENSION**  
**PLAN CONTRIBUTIONS**  
**LAST THREE FISCAL YEARS**

	2016	2015	2014
ACTUARIALLY DETERMINED CONTRIBUTION	\$ 51,650	\$ 47,508	\$ 42,475
CONTRIBUTIONS IN RELATION TO THE ACTUARIALLY DETERMINED CONTRIBUTION	51,650	47,508	42,475
CONTRIBUTION DEFICIENCY (EXCESS)	\$ -	\$ -	\$ -
COVERED-EMPLOYEE PAYROLL	\$ 582,264	\$ 462,914	\$ 502,883
CONTRIBUTION AS A PERCENTAGE OF COVERED-EMPLOYEE PAYROLL	9%	10%	8%

**NOTES TO SCHEDULE**

Valuation date January 1, 2015

Actuarially determined contribution rates are calculated by September 30 of each year for the upcoming calendar year.

**Methods and assumptions used to determine contribution rates:**

Actuarial cost method	Entry age normal
Amortization method	Level dollar, closed
Remaining amortization period	0 years
Asset valuation method	PMRS asset method
Inflation	3.0%
Salary increases	5% annual increase
Investment rate of return	7.5%
Retirement age	Normal retirement age
Mortality	Assumed life expectancies are based on the RP-2000 Healthy Annuitant Mortality Table

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

**BOROUGH OF ROYERSFORD**  
**SCHEDULE OF NON-UNIFORMED PENSION PLAN**  
**INVESTMENT RETURNS**  
**LAST THREE FISCAL YEARS**

---

	<u>2016</u>	<u>2015</u>	<u>2014</u>
ANNUAL MONEY-WEIGHTED RATE OF RETURN, NET OF INVESTMENT EXPENSE	<u>9.00%</u>	<u>0.02%</u>	<u>8.00%</u>

**NOTE TO SCHEDULE**

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

**BOROUGH OF ROYERSFORD**  
**ANNUAL FINANCIAL REPORT**  
*Year Ended December 31, 2017*



*Certified Public Accountants and Business Consultants*

**INTRODUCTORY SECTION**

**BOROUGH OF ROYERSFORD**  
**TABLE OF CONTENTS**  
**YEAR ENDED DECEMBER 31, 2017**

---

	Page
<b>Introductory Section</b>	
Table of Contents	1
<b>Financial Section</b>	
Independent Auditors' Report	3
Management's Discussion and Analysis (Unaudited)	5
Basic Financial Statements	
<b><i>Government-Wide Financial Statements</i></b>	
Statement of Net Position	11
Statement of Activities	12
<b><i>Fund Financial Statements</i></b>	
<b><i>Governmental Funds</i></b>	
Balance Sheet	13
Reconciliation of Total Governmental Funds Balances to Net Position of Governmental Activities	14
Statement of Revenues, Expenditures and Changes in Fund Balances	15
Reconciliation of the Governmental Funds Statement of Revenues, Expenditures and Changes in Fund Balances to the Statement of Activities	16
<b><i>Proprietary Funds</i></b>	
Statement of Net Position	17
Statement of Revenues, Expenses and Changes in Net Position	18
Statement of Cash Flows	19
<b><i>Fiduciary Funds</i></b>	
Statement of Fiduciary Net Position	21
Statement of Changes in Fiduciary Net Position	22
Notes to the Basic Financial Statements	23

**BOROUGH OF ROYERSFORD**  
**TABLE OF CONTENTS**  
**YEAR ENDED DECEMBER 31, 2017**

---

	<b>Page</b>
<b>Required Supplementary Information</b>	
Budgetary Comparison Schedule	50
Notes to the Budgetary Comparison Schedule	51
Police Pension Plan	
Schedule of Changes in the Net Police Pension Plan Liability and Related Ratios	52
Schedule of Police Pension Plan Contributions	53
Schedule of Police Pension Plan Investment Returns	54
Non-Uniformed Pension Plan	
Schedule of Changes in the Net Non-Uniformed Pension Plan Liability and Related Ratios	55
Schedule of Non-Uniformed Pension Plan Contributions	56
Schedule of Non-Uniformed Pension Plan Investment Returns	57



**FINANCIAL SECTION**



PO Box 680, Oaks, PA 19456-0680 | 610.935.1420 | Fax: 610.935.1632  
600 Willowbrook Lane, Suite 624, West Chester, PA 19382 | 610.696.4353 | Fax: 610.430.8811  
PO Box 11847, Wilmington, DE 19850-1847 | 302.324.0780 | Fax: 302.324.0783  
Maillie LLP | maillie.com

## ***Independent Auditors' Report***

To the Borough Council  
Borough of Royersford  
Royersford, Pennsylvania

We have audited the accompanying financial statements of the governmental activities, the business-type activities, each major fund and the aggregate remaining fund information of the Borough of Royersford as of and for the year ended December 31, 2017, and the related notes to the financial statements, which collectively comprise the Borough of Royersford's basic financial statements as listed in the table of contents.

### ***Management's Responsibility for the Financial Statements***

The Borough of Royersford's management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

### ***Auditors' Responsibility***

Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

# APPENDIX A-5.1 (AUS)

To the Borough Council  
Borough of Royersford  
Royersford, Pennsylvania

## ***Opinion***

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities, the business-type activities, each major fund and the aggregate remaining fund information of the Borough of Royersford as of December 31, 2017, and the respective changes in financial position and, where applicable, cash flows thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America (GAAP).

## ***Other Matters***

### ***Required Supplementary Information***

Accounting principles generally accepted in the United States of America require that management's discussion and analysis on pages 5 through 10, budgetary comparison information on pages 50 and 51, and schedule of changes in the net police pension plan liability and related ratios on page 52, schedule of police pension plan contributions on page 53, schedule of police pension plan investment returns on page 54, schedule of changes in the net non-uniformed pension plan liability and related ratios on page 55, schedule of non-uniformed pension plan contributions on page 56 and schedule of non-uniformed pension plan investment returns on page 57 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

*Maillie LLP*

Oaks, Pennsylvania  
July 24, 2018

## **BOROUGH OF ROYERSFORD** **MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)** **YEAR ENDED DECEMBER 31, 2017**

---

Our discussion and analysis of the Borough of Royersford's financial performance provides an overview of the Borough's financial activities for the fiscal year ended December 31, 2017. Please read it in conjunction with the Borough's financial statements, which begin with the statement of net position.

### **FINANCIAL HIGHLIGHTS**

The assets of the Borough exceeded its liabilities by \$8 million.

### **OVERVIEW OF FINANCIAL STATEMENTS**

The Borough's annual financial report consists of several sections. Taken together, they provide a comprehensive financial look at the Borough. The components of the report include the independent auditors' report, management's discussion and analysis, government-wide financial statements, fund financial statements and notes to the basic financial statements. This report also contains other required supplementary information in addition to the basic financial statements.

The independent auditors' report briefly describes the audit engagement and also renders an opinion as to the material components of the Borough's financial position.

### **STATEMENT OF NET POSITION AND STATEMENT OF ACTIVITIES**

Our analysis of the Borough as a whole begins with the statement of net position. One of the most important questions asked about the Borough's finances is, "What is the Borough's overall financial condition?" The statement of net position and the statement of activities report information about the Borough as a whole and about its activities in a way that helps answer this question.

#### **Governmental Activities**

Most of the Borough's basic services are reported here, including police, public works, planning and zoning, parks and recreation and administration. The Borough also contributes to the fire departments, library and historical society.

#### **Business-Type Activities**

The Borough charges a fee to customers to cover the cost of the operation of the Waste Water Treatment Plant and the collection of solid waste, including recyclables.

## **BOROUGH OF ROYERSFORD**

MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)  
YEAR ENDED DECEMBER 31, 2017

---

### **ANALYSIS OF THE OVERALL FINANCIAL POSITION AND RESULTS OF OPERATIONS**

#### **General Fund**

The Borough realizes two major sources of income for the operation of the general government (excluding the trash collection service and the operations of the waste water treatment facility). The two major income sources are real estate taxes and earned income taxes (EIT). The tax millage rate increased for general purposes and decreased for the fire tax in 2017; the rate increased from 6.95 mills to 7.45 mills per \$1 of assessed valuation for general purposes and decreased for the fire tax from 1.25 mills to 1.00 mills per \$1 of assessed valuation for a total assessment of 8.45 mills per \$1 of assessed valuation. A property assessed at \$100,000 would have paid \$845 including fire tax for Borough taxes in 2017.

EIT tax revenue has remained steady. Continued monitoring of collections reflects the proper amount being received by the Borough.

General Real Estate Taxes increased in 2017 due to the millage increase. Real estate transfer tax decreased due to some high value property sales taking place in 2016.

Increasing costs will be experienced with the ongoing Storm Water Management related to compliance with the Department of Environmental Protection requirements of permitting and inspecting storm water systems.

A number of minor projects were completed and are reflected in the Capital Project Fund.

#### **Sewer Fund**

The Sewer Fund operates as a business-type activity. All income and expenses are accounted for in this fund. The income sources are connection fees for new construction and user fees based on water consumption.

The Borough has started its Infiltration Inflow Project required by the Department of Environmental Protection. The Borough's engineer has recommended completing the project within five years. In 2012, the Borough implemented the Root Control Program and Sewer Lining Project. The project should be completed by 2017.

#### **Trash Collection Fund**

The Trash Collection Fund operates as a business-type activity. All income and expenses are accounted for in this fund. The income source is the user fees.

A contract with the landfill which accepts the Borough's solid waste showed a slight increase in the volume of trash collected. The recycling collector's contract is a fixed cost for five years (through 2018). The Borough went through the bidding process for a new trash collection contract in 2015. The recycling contract runs from 2014 to 2018. The trash contract for dumping portion of trash collection runs from 2015 to 2019. Long term contracts of trash and recycling will enable the Borough to budget for future years with some certainty.

**BOROUGH OF ROYERSFORD**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)**  
**YEAR ENDED DECEMBER 31, 2017**

The analysis which follows focuses on the net position (Table 1) and changes in net position (Table 2) of the Borough's governmental and business-type activities. Comparative data from fiscal year 2016 is included.

**Table 1**  
**Condensed Statements of Net Position**  
**December 31, 2017 and 2016**

	Governmental Activities		Business-Type Activities		Totals	
	2017	2016	2017	2016	2017	2016
<b>ASSETS</b>						
Cash and cash equivalents	\$ 587,627	\$ 382,586	\$ 381,725	\$ 328,926	\$ 969,352	\$ 711,512
Other assets	114,918	27,723	256,835	150,999	371,753	178,722
Capital assets	6,094,996	6,017,438	4,661,294	4,816,810	10,756,290	10,834,248
<b>TOTAL ASSETS</b>	<b>6,797,541</b>	<b>6,427,747</b>	<b>5,299,854</b>	<b>5,296,735</b>	<b>12,097,395</b>	<b>11,724,482</b>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>						
Deferred outflows related to pensions	83,728	127,219	15,710	38,656	99,438	165,875
<b>LIABILITIES</b>						
Other liabilities	214,803	165,577	37,731	36,987	252,534	202,564
Long-term	655,203	924,222	2,955,000	3,071,627	3,610,203	3,995,849
<b>TOTAL LIABILITIES</b>	<b>870,006</b>	<b>1,089,799</b>	<b>2,992,731</b>	<b>3,108,614</b>	<b>3,862,737</b>	<b>4,198,413</b>
<b>DEFERRED INFLOWS OF RESOURCES</b>						
Deferred inflows related to pensions	523,169	282,604	114,196	54,891	637,365	337,495
<b>NET POSITION</b>						
Net investment in capital assets	5,710,997	5,641,973	1,706,294	1,745,183	7,417,291	7,387,156
Restricted	112,408	57,358	-	-	112,408	57,358
Unrestricted	(335,311)	(516,768)	502,343	426,703	167,032	(90,065)
<b>TOTAL NET POSITION</b>	<b>\$ 5,488,094</b>	<b>\$ 5,182,563</b>	<b>\$ 2,208,637</b>	<b>\$ 2,171,886</b>	<b>\$ 7,696,731</b>	<b>\$ 7,354,449</b>

Cash and cash equivalents represent 8% and 6% of the Borough's total assets for the years ended December 31, 2017 and 2016, respectively.

By far, the largest portion of the Borough's assets, 90% (2017) and 92% (2016), reflects its investment in capital assets (e.g., land, buildings, waste water treatment plant, vehicles and recreation equipment). Because the Borough uses these capital assets to provide services to residents, these assets are not available for future spending.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited) YEAR ENDED DECEMBER 31, 2017

**Table 2**  
**Changes in Net Position**  
**Years Ended December 31, 2017 and 2016**

	Governmental Activities		Business-Type Activities		Totals	
	2017	2016	2017	2016	2017	2016
<b>REVENUES</b>						
Program revenues						
Charges for services	\$ 148,800	\$ 69,204	\$ 1,177,215	\$ 1,130,205	\$ 1,326,015	\$ 1,199,409
Operating grants and contributions	266,074	287,736	-	7,384	266,074	295,120
Capital grants and contributions	126,527	377,044	-	-	126,527	377,044
General revenues						
Property taxes	1,563,972	1,524,339	-	-	1,563,972	1,524,339
Earned income taxes	676,205	644,043	-	-	676,205	644,043
Real estate transfer taxes	106,065	254,948	-	-	106,065	254,948
Per capita taxes and local services tax	71,803	71,944	-	-	71,803	71,944
Public utility taxes	2,281	2,526	-	-	2,281	2,526
Franchise taxes	114,213	113,723	-	-	114,213	113,723
Amusement taxes	11,790		-	-	-	-
Investment earnings	9,020	2,302	2,821	959	11,841	3,261
Miscellaneous	64,864	64,609	-	-	64,864	64,609
Gain on sale of capital assets	-	-	-	7,775	-	7,775
<b>TOTAL REVENUES</b>	<u>3,161,614</u>	<u>3,412,418</u>	<u>1,180,036</u>	<u>1,146,323</u>	<u>4,329,860</u>	<u>4,558,741</u>
<b>EXPENSES</b>						
General government	655,305	673,710	-	-	655,305	673,710
Public safety	1,463,325	1,635,445	-	-	1,463,325	1,635,445
Highway/streets	588,540	762,894	-	-	588,540	762,894
Culture and recreation	141,326	210,189	-	-	141,326	210,189
Health and public welfare	-	1,345	-	-	-	1,345
Interest on long-term debt	7,587	11,928	-	-	7,587	11,928
Sewer	-	-	758,768	794,754	758,768	794,754
Trash collection	-	-	384,517	380,400	384,517	380,400
<b>TOTAL EXPENSES</b>	<u>2,856,083</u>	<u>3,295,511</u>	<u>1,143,285</u>	<u>1,175,154</u>	<u>3,999,368</u>	<u>4,470,665</u>
<b>EXCESS (DEFICIENCY) OF REVENUES OVER EXPENSES BEFORE TRANSFERS</b>	305,531	116,907	36,751	(28,831)	330,492	88,076
<b>TRANSFERS</b>	-	70,300	-	(70,300)	-	-
<b>CHANGE IN NET POSITION</b>	305,531	187,207	36,751	(99,131)	330,492	88,076
<b>NET POSITION AT BEGINNING OF YEAR, 2016</b>	<u>5,182,563</u>	<u>4,995,356</u>	<u>2,171,886</u>	<u>2,271,017</u>	<u>7,354,449</u>	<u>7,266,373</u>
<b>NET POSITION AT END OF YEAR</b>	<u>\$ 5,488,094</u>	<u>\$ 5,182,563</u>	<u>\$ 2,208,637</u>	<u>\$ 2,171,886</u>	<u>\$ 7,684,941</u>	<u>\$ 7,354,449</u>

## **BOROUGH OF ROYERSFORD**

MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)

YEAR ENDED DECEMBER 31, 2017

---

### **ANALYSIS OF BALANCES AND TRANSACTIONS OF INDIVIDUAL FUNDS**

The uncollected real estate taxes increased from 2016 to 2017, while the earned sick leave of Borough employees decreased. The uncollected fees for the Trash Collection Fund and the Sewer Fund increased from 2016 to 2017.

### **VARIATIONS BETWEEN ORIGINAL AND FINAL BUDGET AMOUNTS**

The Borough has not made it a practice to change the budget amounts between the original adoption of the budget and year-end. Where actual expenses are in excess of budget amounts, or less than budget amounts, the department heads are expected to adjust spending in other areas to offset the differences. The total for the department is the driving force, and each department head is accountable for his department. Certain circumstances which are beyond the control of the department head are brought to Borough Council and appropriate actions taken. A review of the operations of all departments is undertaken at the end of June. Reviews are also conducted at the end of September (or more often if necessary) and monthly thereafter through December 31. The Finance Committee within Borough Council and the Borough Manager conduct the reviews. Necessary adjustments in spending are instituted as needed.

### **VARIATIONS BETWEEN BUDGET AND ACTUAL AMOUNTS**

#### **Taxes**

Real Estate Transfer Taxes produced \$27,000 over the budgeted amount and Earned Income Tax produced \$26,000 over the budgeted amount. There was also an increase in Local Services Tax of \$4,200.

#### **Intergovernmental Revenue**

The Borough received liquid fuels money for 2017 and it will be used for 2018 road projects.

### **CAPITAL ASSETS AND DEBT ADMINISTRATION**

#### **Capital Assets**

The Borough of Royersford's investment in capital assets for its governmental and business-type activities as of December 31, 2016, totals \$10,756,290 in all funds (net of accumulated depreciation). The Borough's investment in capital assets includes building and building improvements, equipment, vehicles, recreational equipment, land and the Waste Water Treatment Plant.

#### **Long-Term Debt**

The 1997 General Obligation Note (utilized to finance the renovations to the Waste Water Treatment Plant) was paid off in 2017.

The Borough has a 2008 series sewer bond in the amount of \$2,960,000. Interest on this fixed loan is 1.840% and payment is until the year 2032.



## **BOROUGH OF ROYERSFORD**

MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)  
YEAR ENDED DECEMBER 31, 2017

---

### **ECONOMIC FACTORS, NEXT YEAR'S BUDGET AND RATES**

Income from the tapping fees for the sewer services paid for the Infiltration and Airflow Project in 2017.

The Borough has given approval for two duplexes to be built on Second Avenue in 2016 and were finished in 2017.

The Hill School in Pottstown, PA built a boat ramp on the Borough's river front at the bottom of Arch Street. The Hill School partnered with the Borough on the ramp allowing the public to use the boat ramp.

### **CONTACTING THE BOROUGH'S MANAGEMENT**

This financial report is designed to provide our citizens, taxpayers, customers, investors and creditors with a general overview of the Borough's finances and to demonstrate the accountability for the money that the Borough receives and disburses. If you have any questions about this report or need additional information, contact Michael Leonard, Borough Manager.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD STATEMENT OF NET POSITION DECEMBER 31, 2017

	Governmental Activities	Business-Type Activities	Totals
<b>ASSETS</b>			
Cash and cash equivalents	\$ 587,627	\$ 381,725	\$ 969,352
Accounts receivable	2,948	82,297	85,245
Taxes receivable	25,797	-	25,797
Internal balances	(61,842)	61,842	-
Prepaid expenses	148,015	24,010	172,025
Net pension asset	-	88,686	88,686
Capital assets			
Land	216,461	-	216,461
Infrastructure	6,780,236	-	6,780,236
Plant	-	6,802,794	6,802,794
Buildings and building improvements	642,197	-	642,197
Equipment	413,235	-	413,235
Vehicles	448,117	29,268	477,385
Accumulated depreciation	(2,405,250)	(2,170,768)	(4,576,018)
TOTAL ASSETS	6,797,541	5,299,854	12,097,395
<b>DEFERRED OUTFLOWS OF RESOURCES</b>			
Deferred outflows related to pensions	83,728	15,710	99,438
<b>LIABILITIES</b>			
Accounts payable	147,912	32,092	180,004
Escrows payable	15,225	-	15,225
Payroll and payroll taxes payable	51,666	5,639	57,305
Long-term liabilities			
Portion due or payable within one year			
Capital lease	9,984	-	9,984
Bonds and notes payable	23,178	172,000	195,178
Portion due or payable after one year			
Capital lease	21,251	-	21,251
Bonds and notes payable	329,586	2,783,000	3,112,586
Net pension liability	170,736	-	170,736
Compensated absences	100,468	-	100,468
TOTAL LIABILITIES	870,006	2,992,731	3,862,737
<b>DEFERRED INFLOWS OF RESOURCES</b>			
Deferred inflows related to pensions	523,169	114,196	637,365
<b>NET POSITION</b>			
Net investment in capital assets	5,710,997	1,706,294	7,417,291
Restricted	112,408	-	112,408
Unrestricted	(335,311)	502,343	167,032
TOTAL NET POSITION	\$ 5,488,094	\$ 2,208,637	\$ 7,696,731

See accompanying notes to the basic financial statements.

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF ACTIVITIES**  
**YEAR ENDED DECEMBER 31, 2017**

Functions/Programs	Expenses	Program Revenues		
		Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions
<b>GOVERNMENTAL ACTIVITIES</b>				
General government	\$ 655,305	\$ -	\$ 22,764	\$ 126,527
Public safety	1,463,325	88,448	114,569	-
Highways and streets	588,540	59,482	126,866	-
Culture and recreation	141,326	870	1,875	-
Interest on long-term debt	7,587	-	-	-
TOTAL GOVERNMENTAL ACTIVITIES	<u>2,856,083</u>	<u>148,800</u>	<u>266,074</u>	<u>126,527</u>
<b>BUSINESS-TYPE ACTIVITIES</b>				
Sewer	758,768	797,521	-	-
Trash collection	384,517	379,694	-	-
TOTAL BUSINESS-TYPE ACTIVITIES	<u>1,143,285</u>	<u>1,177,215</u>	<u>-</u>	<u>-</u>
TOTAL BOROUGH ACTIVITIES	<u>\$ 3,999,368</u>	<u>\$ 1,326,015</u>	<u>\$ 266,074</u>	<u>\$ 126,527</u>

**GENERAL REVENUES**

- Property taxes, levied for general purposes
- Earned income taxes
- Transfer taxes
- Per capita taxes and local services tax
- Public utility taxes
- Franchise taxes
- Amusement taxes
- Investment earnings
- Miscellaneous

TOTAL GENERAL REVENUES

CHANGE IN NET POSITION

NET POSITION AT BEGINNING OF YEAR

NET POSITION AT END OF YEAR

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

---

**Net (Expense) Revenue and Changes in Net Position**

<u>Governmental Activities</u>	<u>Business-Type Activities</u>	<u>Totals</u>
\$ (506,014)	\$ -	\$ (506,014)
(1,260,308)	-	(1,260,308)
(402,192)	-	(402,192)
(138,581)	-	(138,581)
(7,587)	-	(7,587)
<u>(2,314,682)</u>	<u>-</u>	<u>(2,314,682)</u>
-	38,753	38,753
-	(4,823)	(4,823)
-	33,930	33,930
<u>(2,314,682)</u>	<u>33,930</u>	<u>(2,280,752)</u>
1,563,972	-	1,563,972
676,205	-	676,205
106,065	-	106,065
71,803	-	71,803
2,281	-	2,281
114,213	-	114,213
11,790	-	11,790
9,020	2,821	11,841
64,864	-	64,864
<u>2,620,213</u>	<u>2,821</u>	<u>2,623,034</u>
305,531	36,751	342,282
<u>5,182,563</u>	<u>2,171,886</u>	<u>7,354,449</u>
<u>\$ 5,488,094</u>	<u>\$ 2,208,637</u>	<u>\$ 7,696,731</u>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**BALANCE SHEET**  
**GOVERNMENTAL FUNDS**  
**DECEMBER 31, 2017**

	<u>General Fund</u>	<u>Special Revenue Fund</u>	<u>Total Governmental Funds</u>
<b>ASSETS</b>			
Cash	\$ 475,219	\$ 112,408	\$ 587,627
Accounts receivable	2,948	-	2,948
Taxes receivable	3,525	-	3,525
Prepaid expenditures	<u>148,015</u>	<u>-</u>	<u>148,015</u>
<b>TOTAL ASSETS</b>	<b>\$ <u>629,707</u></b>	<b>\$ <u>112,408</u></b>	<b>\$ <u>742,115</u></b>
<b>LIABILITIES AND FUND BALANCES</b>			
<b>LIABILITIES</b>			
Accounts payable	\$ 147,912	\$ -	\$ 147,912
Escrows payable	15,225	-	15,225
Due to other funds	61,842	-	61,842
Payroll and payroll taxes payable	<u>51,666</u>	<u>-</u>	<u>51,666</u>
<b>TOTAL LIABILITIES</b>	<b><u>276,645</u></b>	<b><u>-</u></b>	<b><u>276,645</u></b>
<b>FUND BALANCES</b>			
Nonspendable, prepaid expenses	148,015	-	148,015
Restricted, highway and street projects	-	112,408	112,408
Unassigned	<u>205,047</u>	<u>-</u>	<u>205,047</u>
<b>TOTAL FUND BALANCES</b>	<b><u>353,062</u></b>	<b><u>112,408</u></b>	<b><u>465,470</u></b>
<b>TOTAL LIABILITIES AND FUND BALANCES</b>	<b>\$ <u>629,707</u></b>	<b>\$ <u>112,408</u></b>	<b>\$ <u>742,115</u></b>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

## **BOROUGH OF ROYERSFORD**

### **RECONCILIATION OF TOTAL GOVERNMENTAL FUNDS BALANCES TO NET POSITION OF GOVERNMENTAL ACTIVITIES DECEMBER 31, 2017**

---

TOTAL GOVERNMENTAL FUNDS BALANCES	\$ 465,470
<p>Capital assets used in governmental activities are not current financial resources and therefore are not reported in the funds. These assets consist of:</p>	
Land	216,461
Infrastructure	6,780,236
Buildings and building improvements	642,197
Equipment	413,235
Vehicles	448,117
Accumulated depreciation	(2,405,250)
<p>Deferred charges used in governmental activities are not financial resources and therefore are not reported in the funds. These assets consist of:</p>	
Deferred inflows and outflows related to pension activities	(439,441)
<p>Some liabilities are not due and payable in the current period and therefore are not reported in the funds. Those liabilities consist of:</p>	
Bonds and notes payable and capital lease	(383,999)
Compensated absences	(100,468)
Net pension liability	(170,736)
<p>Some of the Borough's revenues will be collected after year-end but are not available soon enough to pay for the current period's expenditures and therefore are not recorded in the funds.</p>	
	<u>22,272</u>
NET POSITION OF GOVERNMENTAL ACTIVITIES	<u>\$ 5,488,094</u>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF REVENUES, EXPENDITURES AND**  
**CHANGES IN FUND BALANCES**  
**GOVERNMENTAL FUNDS**  
**YEAR ENDED DECEMBER 31, 2017**

	<u>General Fund</u>	<u>Special Revenue Fund</u>	<u>Total Governmental Funds</u>
<b>REVENUES</b>			
Taxes	\$ 2,418,344	\$ -	\$ 2,418,344
Intergovernmental revenues	275,533	123,035	398,568
Investment income	8,012	1,008	9,020
Licenses and permits	115,313	-	115,313
Fines	26,148	-	26,148
Charges for services	123,427	-	123,427
Miscellaneous revenues	10,540	-	10,540
<b>TOTAL REVENUES</b>	<u>2,977,317</u>	<u>124,043</u>	<u>3,101,360</u>
<b>EXPENDITURES</b>			
General government	430,515	-	430,515
Public safety	1,615,983	-	1,615,983
Highways and streets	586,275	68,993	655,268
Recreation	95,397	-	95,397
Retirement expenses	122,388	-	122,388
Debt service			
Principal	22,701	-	22,701
Interest and other charges	7,587	-	7,587
<b>TOTAL EXPENDITURES</b>	<u>2,880,846</u>	<u>68,993</u>	<u>2,949,839</u>
<b>DEFICIENCY OF REVENUES OVER EXPENDITURES</b>	<u>96,471</u>	<u>55,050</u>	<u>151,521</u>
<b>OTHER FINANCING SOURCES (USES)</b>			
Proceeds from capital lease	31,235	-	31,235
Insurance recoveries	54,324	-	54,324
<b>TOTAL OTHER FINANCING SOURCES (USES)</b>	<u>85,559</u>	<u>-</u>	<u>85,559</u>
<b>NET CHANGE IN FUND BALANCES</b>	182,030	55,050	237,080
<b>FUND BALANCES AT BEGINNING OF YEAR</b>	<u>171,032</u>	<u>57,358</u>	<u>228,390</u>
<b>FUND BALANCES AT END OF YEAR</b>	<u>\$ 353,062</u>	<u>\$ 112,408</u>	<u>\$ 465,470</u>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

## **BOROUGH OF ROYERSFORD**

### **RECONCILIATION OF THE GOVERNMENTAL FUNDS STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES TO THE STATEMENT OF ACTIVITIES YEAR ENDED DECEMBER 31, 2017**

---

NET CHANGE IN FUND BALANCES - TOTAL GOVERNMENTAL FUNDS	\$	237,080
<p>Capital outlays are reported in Governmental Funds as expenditures. However, in the statement of activities, the cost of those assets is allocated over their estimated useful lives as depreciation expense. This is the amount by which capital outlays exceed depreciation in the period.</p>		
		77,558
<p>The issuance of long-term debt (e.g., notes, leases) provides current financial resources to Governmental Funds, but issuing debt increases long-term liabilities in the statement of net position. Repayment of long-term debt principal is an expenditure in the Governmental Funds, but the repayment reduces long-term liabilities in the statement of net position. This is the net effect of these differences in the treatment of long-term debt.</p>		
		(8,534)
<p>Pension plan expenses are reported in the statement of activities and do not require the use of current financial resources and are not reported as expenditures in Governmental Funds.</p>		
		(11,007)
<p>Because some property taxes will not be collected for several months after the Borough's fiscal year ends, they are not considered as "available" revenues in the Governmental Funds. This is the amount of the change in real estate taxes outstanding during the year.</p>		
		5,930
<p>In the statement of activities, certain operating expenses--compensated absences (sick leave)--are measured by the amounts earned during the year. In the Governmental Funds, however, expenditures for these items are measured by the amount of financial resources used (essentially, the amounts actually paid).</p>		
		<u>4,504</u>
CHANGE IN NET POSITION OF GOVERNMENTAL ACTIVITIES	\$	<u><u>305,531</u></u>

*See accompanying notes to the basic financial statements.*



# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD STATEMENT OF NET POSITION PROPRIETARY FUNDS DECEMBER 31, 2017

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>			
<b>CURRENT ASSETS</b>			
Cash and cash equivalents	\$ 129,839	\$ 251,886	\$ 381,725
Accounts receivable	49,162	33,135	82,297
Due from other funds	65,037	-	65,037
Prepaid expenses	19,239	4,771	24,010
<b>TOTAL CURRENT ASSETS</b>	<b>263,277</b>	<b>289,792</b>	<b>553,069</b>
<b>NON CURRENT ASSETS</b>			
<b>CAPITAL ASSETS</b>			
Plant	6,802,794	-	6,802,794
Vehicles	29,268	-	29,268
Accumulated depreciation	(2,170,768)	-	(2,170,768)
Net pension asset	66,168	22,518	88,686
<b>TOTAL NON CURRENT ASSETS</b>	<b>4,727,462</b>	<b>22,518</b>	<b>4,749,980</b>
<b>TOTAL ASSETS</b>	<b>4,990,739</b>	<b>312,310</b>	<b>5,303,049</b>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>			
Deferred outflows related to pensions	11,721	3,989	15,710
<b>TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>	<b>\$ 5,002,460</b>	<b>\$ 316,299</b>	<b>\$ 5,318,759</b>
<b>LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>			
<b>CURRENT LIABILITIES</b>			
Accounts payable	\$ 14,295	\$ 17,797	\$ 32,092
Due to other funds	-	3,195	3,195
Payroll and payroll taxes payable	5,639	-	5,639
Current portion of long-term debt	172,000	-	172,000
<b>TOTAL CURRENT LIABILITIES</b>	<b>191,934</b>	<b>20,992</b>	<b>212,926</b>
<b>NONCURRENT LIABILITIES</b>			
Long-term debt	2,783,000	-	2,783,000
<b>TOTAL LIABILITIES</b>	<b>2,974,934</b>	<b>20,992</b>	<b>2,995,926</b>
<b>DEFERRED INFLOWS OF RESOURCES</b>			
Deferred inflows related to pensions	85,201	28,995	114,196
<b>NET POSITION</b>			
Net investment in capital assets	1,706,294	-	1,706,294
Unrestricted	236,031	266,312	502,343
<b>TOTAL NET POSITION</b>	<b>1,942,325</b>	<b>266,312</b>	<b>2,208,637</b>
<b>TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>	<b>\$ 5,002,460</b>	<b>\$ 316,299</b>	<b>\$ 5,318,759</b>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF REVENUES, EXPENSES AND**  
**CHANGES IN NET POSITION**  
**PROPRIETARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2017**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>OPERATING REVENUES</b>			
Sewer rents and installation	\$ 797,521	\$ -	\$ 797,521
Trash collection	-	379,694	379,694
TOTAL OPERATING REVENUES	<u>797,521</u>	<u>379,694</u>	<u>1,177,215</u>
<b>OPERATING EXPENSES</b>			
Expenses	534,843	384,517	919,360
Depreciation	166,468	-	166,468
TOTAL OPERATING EXPENSES	<u>701,311</u>	<u>384,517</u>	<u>1,085,828</u>
OPERATING INCOME (LOSS)	<u>96,210</u>	<u>(4,823)</u>	<u>91,387</u>
<b>NONOPERATING REVENUES (EXPENSES)</b>			
Investment income	2,821	-	2,821
Interest expense	(57,457)	-	(57,457)
TOTAL NONOPERATING REVENUES (EXPENSES)	<u>(54,636)</u>	<u>-</u>	<u>(54,636)</u>
CHANGE IN NET POSITION	41,574	(4,823)	36,751
NET POSITION AT BEGINNING OF YEAR	<u>1,900,751</u>	<u>271,135</u>	<u>2,171,886</u>
NET POSITION AT END OF YEAR	<u>\$ 1,942,325</u>	<u>\$ 266,312</u>	<u>\$ 2,208,637</u>

*See accompanying notes to the basic financial statements.*

## APPENDIX A-5.1 (AUS)

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF CASH FLOWS**  
**PROPRIETARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2017**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>			
Cash received from customers	\$ 783,398	\$ 372,741	\$ 1,156,139
Payments to suppliers	(349,290)	(329,271)	(678,561)
Payments to employees	(191,293)	(51,271)	(242,564)
NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES	<u>242,815</u>	<u>(7,801)</u>	<u>235,014</u>
<b>CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES</b>			
Purchase of equipment	(10,952)	-	(10,952)
Principal paid on long-term debt	(116,627)	-	(116,627)
Interest paid on long-term debt	(57,457)	-	(57,457)
NET CASH USED BY CAPITAL AND RELATED FINANCING ACTIVITIES	<u>(185,036)</u>	<u>-</u>	<u>(185,036)</u>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>			
Earnings from investments	2,821	-	2,821
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	60,600	(7,801)	52,799
<b>CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR</b>			
	<u>69,239</u>	<u>259,687</u>	<u>328,926</u>
CASH AND CASH EQUIVALENTS AT END OF YEAR	<u>\$ 129,839</u>	<u>\$ 251,886</u>	<u>\$ 381,725</u>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF CASH FLOWS**  
**PROPRIETARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2017**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>RECONCILIATION OF OPERATING INCOME TO NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES</b>			
Operating income (loss)	\$ 96,210	\$ (4,823)	\$ 91,387
Adjustments to reconcile operating income (loss) to net cash provided (used) by operating activities			
Depreciation	166,468	-	166,468
Pension expense	(1,403)	(476)	(1,879)
Change in assets and liabilities			
Accounts receivable	(14,123)	(6,953)	(21,076)
Prepaid expenses	(6,343)	5,713	(630)
Accounts payable	1,592	(1,262)	330
Payroll and payroll taxes payable	414	-	414
	<u>\$ 242,815</u>	<u>\$ (7,801)</u>	<u>\$ 235,014</u>
<b>NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES</b>	<b>\$ <u>242,815</u></b>	<b>\$ <u>(7,801)</u></b>	<b>\$ <u>235,014</u></b>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF FIDUCIARY NET POSITION**  
**FIDUCIARY FUNDS**  
**DECEMBER 31, 2017**

---

	Pension Trust Funds		Total Fiduciary Funds
	Police Pension	Non-Uniformed Pension	
<b>ASSETS</b>			
Cash and cash equivalents	\$ 81,395	\$ 24,161	\$ 105,556
Investments	2,710,944	2,470,292	5,181,236
<b>TOTAL ASSETS</b>	<b>\$ 2,792,339</b>	<b>\$ 2,494,453</b>	<b>\$ 5,286,792</b>
<b>NET POSITION</b>			
Held in trust for pension benefits and other purposes	\$ 2,792,339	\$ 2,494,453	\$ 5,286,792

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF CHANGES IN FIDUCIARY NET POSITION**  
**FIDUCIARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2017**

	Pension Trust Funds		Total Fiduciary Funds
	Police Pension	Non-Uniformed Pension	
<b>ADDITIONS</b>			
Contributions			
Employees	\$ 30,458	\$ 12,851	\$ 43,309
Employer	12,270	-	12,270
State aid	75,084	35,034	110,118
Investment income	413,998	372,904	786,902
<b>TOTAL ADDITIONS</b>	<u>531,810</u>	<u>420,789</u>	<u>952,599</u>
<b>DEDUCTIONS</b>			
Benefits	98,183	93,200	191,383
Administrative	39,857	36,653	76,510
<b>TOTAL DEDUCTIONS</b>	<u>138,040</u>	<u>129,853</u>	<u>267,893</u>
<b>CHANGE IN NET POSITION</b>	393,770	290,936	684,706
<b>NET POSITION HELD IN TRUST FOR PENSION BENEFITS AND OTHER PURPOSES</b>			
<b>BEGINNING OF YEAR</b>	<u>2,398,569</u>	<u>2,203,517</u>	<u>4,602,086</u>
<b>END OF YEAR</b>	<u>\$ 2,792,339</u>	<u>\$ 2,494,453</u>	<u>\$ 5,286,792</u>

*See accompanying notes to the basic financial statements.*

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2017

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

The basic financial statements of the Borough of Royersford (the "Borough") have been prepared in conformity with accounting principles generally accepted in the United States of America as applied to government units. The Governmental Accounting Standards Board (GASB) is the accepted standard setting body for establishing governmental accounting and financial reporting principles.

The more significant of the Borough's accounting policies are described below.

**Reporting Entity**

The financial statements of the Borough include the departments and other organizational units over which Borough Council exercises oversight responsibility, including general government, police protection, parks and recreation, public works and sanitation.

In evaluating the Borough as a reporting entity, management has addressed all potential component units for which the Borough may or may not be financially accountable and, as such, be includable within the Borough's financial statements. Additionally, the primary government is required to consider other organizations for which the nature and significance of their relationship with the primary government are such that exclusion would cause the Borough's financial statements to be misleading or incomplete.

Management has evaluated the following potential component units and determined they did not meet the criteria for inclusion as component units in the December 31, 2017 annual financial report:

- The fire department receives a contribution from the Borough and uses the personal property of the Borough. However, the majority of revenues generated is through private fund-raisers under the direction of a separate independent board not appointed by Borough Council. The department is organized under a separate charter, and, therefore, it is not included in the financial statements.
- The tax collector is an elected officer who collects taxes on behalf of the Borough, the Spring-Ford Area School District and Montgomery County. The Borough regards the tax collector's office as a separate entity and, therefore, does not account for its activity in the financial statements.

**Fund Accounting**

The Borough uses funds to maintain its financial records during the fiscal year. Fund accounting is designed to demonstrate legal compliance and to aid financial management by segregating transactions related to certain Borough functions or activities. A fund is defined as a fiscal and accounting entity with a self-balancing set of accounts that comprise its assets, liabilities, fund balance, revenues and expenditures or expenses. The various funds of the Borough are grouped into the categories governmental, proprietary and fiduciary.



**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2017

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

The Borough reports the following major Governmental Funds:

**General Fund** - The General Fund is the general operating fund of the Borough. It is used to account for all financial resources except those required to be accounted for in another fund. The principal activities accounted for in the General Fund are general government, public safety, public works and recreation. Those activities are funded principally by property taxes, state shared taxes and grants from other governmental units. The General Fund balance is available for any purpose provided it is expended or transferred according to the general laws of Pennsylvania.

**Special Revenue Fund** - The Special Revenue Fund is used to account for the proceeds of specific revenue sources (other than trusts or major capital projects) that are legally restricted expenditures for specified purposes. This fund accounts principally for the disposition of dedicated state liquid fuels highway aid funding.

The Borough reports the following major Proprietary Funds:

**Enterprise Funds**

**Sewer Fund** - The Sewer Fund accounts for the activities of the sewage treatment plant, sewage pumping stations and collection systems.

**Trash Collection Fund** - The Trash Collection Fund accounts for the operation of the Borough's trash collection system.

The Borough reports the following Fiduciary Funds:

**Pension Trust Funds** - The Pension Trust Funds are used to account for financial resources restricted solely for life insurance, disability and retirement benefits of the employees participating under the Borough's defined benefit pension plans.

**Basis of Presentation and Accounting**

**Government-Wide Financial Statements** - The statement of net position and the statement of activities display information about the Borough as a whole. These statements include the financial activities of the primary government, except for Fiduciary Funds. The statements distinguish between those activities of the Borough that are governmental and those that are considered business-type activities.

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2017

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

The government-wide statements are prepared using the economic resources measurement focus and the accrual basis of accounting. This is the same approach used in the preparation of the Proprietary Funds' financial statements but differs from the manner in which Governmental Funds' financial statements are prepared. Governmental Funds' financial statements therefore include a reconciliation with brief explanations to better identify the relationship between the government-wide statements and the statements for Governmental Funds. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows. Property taxes are recognized as revenues in the year for which they are levied. Grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the provider have been met.

The government-wide statement of activities presents a comparison between direct expenses and program revenues for each segment of the business-type activities of the Borough and for each function or program of the Borough's governmental activities. Direct expenses are those that are specifically associated with a service, program, or department and therefore clearly identifiable to a particular function. Program revenues include charges paid by the recipient of the goods or services offered by the program and grants and contributions that are restricted to meeting the operational or capital requirements of a particular program. Revenues, which are not classified as program revenues, are presented as general revenues of the Borough, with certain limited exceptions. The comparison of direct expenses with program revenues identifies the extent to which each business segment or governmental function is self-financing or draws from the general revenues of the Borough.

As a general rule, the effect of interfund activity has been eliminated from the government-wide financial statements.

**Fund Financial Statements** - Fund financial statements report detailed information about the Borough. The focus of Governmental and Proprietary Funds' financial statements is on major funds rather than reporting funds by type. Each major fund is presented in a separate column. Fiduciary Funds are reported by fund type.

The accounting and financial reporting treatment applied to a fund is determined by its measurement focus. All Governmental Funds are accounted for using the current financial resources measurement focus and the modified accrual basis of accounting. Revenues are recognized as soon as they are both measurable and available. Revenues are considered to be available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the Borough considers revenues to be available if they are collected within 60 days of the end of the fiscal period.

Expenditures generally are recorded when a liability is incurred, as under accrual accounting. However, debt service expenditures, as well as expenditures related to compensated absences, and claims and judgments are recorded only when payment is due. The financial statements for Governmental Funds are a balance sheet, which generally includes only current assets and current liabilities, and a statement of revenues, expenditures and changes in fund balances, which reports on the sources (i.e., revenues and other financing sources) and uses (i.e., expenditures and other financing uses) of current financial resources.

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2017

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

All Proprietary Funds are accounted for on a flow of economic resources measurement focus. With this measurement focus, all assets and all liabilities associated with the operation of these funds are included on the statement of net position. The statement of revenues, expenses and changes in net position presents increases (i.e., revenues) and decreases (i.e., expenses) in net total assets. The statement of cash flows provides information about how the Borough finances and meets the cash flow needs of its proprietary activities.

Proprietary Funds distinguish operating revenues and expenses from nonoperating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with the Proprietary Funds' ongoing operations. The principal operating revenues of the Borough's Enterprise Funds are sewer rents and trash collection fees. Operating expenses of the Borough's Enterprise Funds include supplies, administrative costs and depreciation on capital assets. All revenues or expenses not meeting this definition are reported as nonoperating revenues and expenses.

Fiduciary Funds are reported using the economic resources measurement focus.

When both restricted and unrestricted resources are available for use, it is the Borough's policy to use restricted resources first, then unrestricted resources as they are needed.

**Cash Equivalents**

For purposes of the statement of cash flows, the Proprietary Funds consider all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents.

**Investments**

Statutes authorize the Borough to invest in: 1) obligations, participations and other instruments of any Federal agency, 2) repurchase agreements with respect to U.S. Treasury bills or obligations, 3) negotiable certificates of deposit, 4) bankers' acceptances, 5) commercial paper, 6) shares of an investment company registered under the Investment Company Act of 1940 whose shares are registered under the Securities Act of 1933, and 7) savings or demand deposits. The specific conditions under which the Borough may invest in these categories are detailed in Pennsylvania Act No. 53 of 1973, as amended by Pennsylvania Act No. 10 of 2016. State law does not limit pension investments. Investments are stated at fair value.

Under Act No. 72, enacted by the General Assembly of the Commonwealth of Pennsylvania, the funds deposited with the various banks are permitted to be secured on a pooled basis with all other public funds which the banking institution has on deposit. These may be bonds of the United States, any state of the United States, or bonds of any political subdivision of Pennsylvania or the general state authority or their authorities created by the General Assembly of the Commonwealth of Pennsylvania, or insured with the Federal Deposit Insurance Corporation. The market value of such bonds pledged must equal 120% of the funds deposited. The security pledged by the various depositories utilized during the year and at December 31, 2017, was in excess of the minimum requirements just described.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

The Borough has adopted GASB Statement No. 72, *Fair Value Measurement and Application*. In accordance with this Statements, investments in marketable securities with readily determinable fair value and all investments in debt securities are reported at their fair values.

**Prepaid Expenditures/Expenses**

Certain payments to vendors reflect costs applicable to future accounting periods and are recorded as prepaid expenditures/expenses in both the government-wide and fund financial statements.

**Capital Assets**

Under GASB Statement No. 34, all capital assets, whether owned by governmental activities or business-type activities, are recorded and depreciated in the government-wide financial statements. No long-term capital assets or depreciation are shown in the Governmental Funds' financial statements.

Capital assets are defined as assets with an initial, individual cost of \$5,000 or more and an estimated useful life greater than one year. Capital assets are recorded at cost or estimated historical cost if purchased or constructed. Donated capital assets are recorded at the estimated fair market value at the date of donation.

The costs of normal maintenance and repairs that do not add to the value of the asset or materially extend the asset's life are not capitalized. Major improvements are capitalized and depreciated over the remaining useful lives of the related capital assets.

Capital assets are depreciated using the straight-line method over the following estimated useful lives:

	<u>Years</u>
Buildings and building improvements	5-40
Plant	5-40
Equipment	10-20
Vehicles	3-10
Infrastructure	25

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2017

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

**Deferred Outflows/Inflows of Resources**

In addition to assets, the statement of net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, deferred outflows of resources, represents a consumption of net position that applies to a future period(s) and so will not be recognized as an outflow of resources (expense/expenditure) until then. The Borough has one item that qualifies for reporting in this category. The deferred outflow of resources related to pensions is reported in the government-wide statement of net position and the proprietary fund statement of net position and is the result of changes in plan assumptions.

In addition to liabilities, the statement of net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, deferred inflows of resources, represents an acquisition of net position that applies to a future period(s) and so will not be recognized as an inflow of resources (revenue) until that time. The Borough has one item that qualifies for reporting in this category. The deferred inflow of resources related to pensions is reported in the government-wide statement of net position and is the result of changes in plan assumptions, the differences between expected and actual experience of the pension plan and the net difference between projected and actual earnings on pension plan investments. Additionally, the deferred inflow of resources related to pensions is reported in the proprietary fund statement of net position and is the result of differences between expected and actual experience of the pension plan and the net difference between projected and actual earnings on pension plan investments.

**Long-Term Obligations**

In the government-wide financial statements and Proprietary Funds in the fund financial statements, long-term debt and other long-term obligations are reported as liabilities in the applicable governmental activities, business-type activities, or Proprietary Funds' statement of net position.

In the fund financial statements, Governmental Funds recognize note premiums and discounts, as well as note issuance costs, during the current period. The face amount of debt issued is reported as other financing sources. Premiums received on debt issuances are reported as other financing sources while discounts on debt issuances are reported as other financing uses. Issuance costs, whether or not withheld from the actual debt proceeds received, are reported as debt service expenditures.

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2017

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

**Fund Balance**

Beginning with the year ended December 31, 2011, the Borough implemented GASB Statement No. 54, *Fund Balance Reporting and Governmental Fund Type Definitions*. This statement provides more clearly defined fund balance categories to make the nature and extent of the constraints placed on the Borough's fund balances more transparent.

The following classifications describe the relative strength of the spending constraints:

- ***Nonspendable Fund Balance*** - Amounts that are not in spendable form (such as prepaid expenses) or are required to be maintained intact.
- ***Restricted Fund Balance*** - Amounts constrained to specific purposes by their providers (such as grantors, bondholders and higher levels of government) through constitutional provisions or by enabling legislation.
- ***Committed Fund Balance*** - Amounts constrained to specific purposes by the Borough itself, using its highest level of decision-making authority (Borough Council). To be reported as committed, amounts cannot be used for any other purpose unless the Borough takes the same highest level action to remove or change the constraint.
- ***Assigned Fund Balance*** - Amounts the Borough intends to use for a specific purpose. Intent can be expressed by Borough Council or by an official or body to which Borough Council delegates the authority.
- ***Unassigned Fund Balance*** - Amounts available for any purpose. Positive amounts are reported only in the General Fund.

Borough Council establishes (and modifies or rescinds) fund balance commitments by passage of a resolution. This is typically done through adoption and amendment of the budget. A fund balance commitment is further indicated in the budget document as a commitment of the fund. Assigned fund balance is intended to be used by the government for specific purposes but does not meet the criteria to be classified as restricted or committed.

The Borough will typically use restricted fund balances first, followed by committed resources and then assigned resources, as appropriate opportunities arise, but reserves the right to selectively spend unassigned resources first to defer the use of these other classified funds.

**Use of Estimates**

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

**Real Estate Tax Calendar**

The original tax duplicate is received by the tax collector and mailed February 1. The discount period extends through March 31, followed by the flat period through May 31 and ends with the penalty period after June 1. The penalty is 10%. Any unpaid taxes at the end of the year are required to be liened by January 15 with the county.

**NOTE B - DEPOSITS AND INVESTMENTS**

**Deposits**

**Custodial Credit Risk** - Custodial credit risk is the risk that, in the event of a bank failure, the Borough's deposits may not be returned to it. The Borough follows state statute as it relates to custodial credit risk. As of December 31, 2017, \$739,573 of the Borough's bank balance of \$1,095,126 was exposed to custodial credit risk as follows:

Uninsured and collateralized with securities held by the pledging bank's trust department not in the Borough's name	\$ <u>627,165</u>
Held by PLGIT, which is uninsured and uncollateralized	\$ <u>112,408</u>

**Investments**

**Fair Value Measurement** - The Borough categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are those that lack significant observable inputs. The Borough had the following recurring fair value measurements as of December 31, 2017.

<u>Investment Type</u>	Fair Value (Level 1)	Investment Maturities	
		<u>1 Year or Less</u>	<u>2 to 5 Years</u>
Equity investments	\$ 2,813,930	\$ 2,813,930	\$ -
Mutual funds	2,339,965	2,339,965	-
Exchange traded products	<u>27,341</u>	<u>27,341</u>	<u>-</u>
	<u>\$ 5,181,236</u>	<u>\$ 5,181,236</u>	<u>\$ -</u>

**Interest Rate Risk** - The Borough's investment policy does limit investment maturities in accordance with state statutes as a means of managing its exposure to fair value losses arising from increasing interest rates.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

---

**NOTE C - ACCOUNTS RECEIVABLE**

Accounts receivable are comprised of the following:

	<u>General Fund</u>	<u>Proprietary Fund Type</u>	<u>Totals</u>
Sewer billings	\$ -	\$ 49,162	\$ 49,162
Refuse billings	-	33,135	33,135
Other	<u>2,948</u>	<u>-</u>	<u>2,948</u>
	<u>\$ 2,948</u>	<u>\$ 82,297</u>	<u>\$ 85,245</u>

The Borough believes that all receivables are collectible; therefore, an allowance for doubtful accounts is not needed.



**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

**NOTE D - CAPITAL ASSETS**

A summary of changes in capital assets is as follows:

	Balance January 1, 2017	Additions	Deletions	Balance December 31, 2017
<b>GOVERNMENTAL ACTIVITIES</b>				
Capital assets not being depreciated				
Land	\$ 216,461	\$ -	\$ -	\$ 216,461
Capital assets being depreciated				
Infrastructure	6,437,699	342,537	-	6,780,236
Buildings and building improvements	615,753	26,444	-	642,197
Equipment	413,235	-	-	413,235
Vehicles	442,343	31,235	(25,461)	448,117
TOTAL CAPITAL ASSETS BEING DEPRECIATED	<u>7,909,030</u>	<u>400,216</u>	<u>(25,461)</u>	<u>8,283,785</u>
Accumulated depreciation				
Infrastructure	(1,264,625)	(259,813)	-	(1,524,438)
Buildings and building improvements	(258,693)	(15,214)	-	(273,907)
Equipment	(286,974)	(23,356)	-	(310,330)
Vehicles	(297,761)	(24,275)	25,461	(296,575)
TOTAL ACCUMULATED DEPRECIATION	<u>(2,108,053)</u>	<u>(322,658)</u>	<u>25,461</u>	<u>(2,405,250)</u>
TOTAL CAPITAL ASSETS BEING DEPRECIATED, net	<u>5,800,977</u>	<u>77,558</u>	<u>-</u>	<u>5,878,535</u>
GOVERNMENTAL ACTIVITIES CAPITAL ASSETS, net	<u>6,017,438</u>	<u>77,558</u>	<u>-</u>	<u>6,094,996</u>
<b>BUSINESS-TYPE ACTIVITIES</b>				
Capital assets being depreciated				
Plant	6,791,842	10,952	-	6,802,794
Vehicles	29,268	-	-	29,268
TOTAL CAPITAL ASSETS BEING DEPRECIATED	<u>6,821,110</u>	<u>10,952</u>	<u>-</u>	<u>6,832,062</u>
Accumulated depreciation				
Plant	(1,990,153)	(163,541)	-	(2,153,694)
Vehicles	(14,147)	(2,927)	-	(17,074)
TOTAL ACCUMULATED DEPRECIATION	<u>(2,004,300)</u>	<u>(166,468)</u>	<u>-</u>	<u>(2,170,768)</u>
BUSINESS-TYPE ACTIVITIES CAPITAL ASSETS, net	<u>4,816,810</u>	<u>(155,516)</u>	<u>-</u>	<u>4,661,294</u>
CAPITAL ASSETS, net	<u>\$ 10,834,248</u>	<u>\$ (77,958)</u>	<u>\$ -</u>	<u>\$ 10,756,290</u>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

---

**NOTE D - CAPITAL ASSETS (Continued)**

The net book value of each capital asset category for governmental and business-type activities is as follows:

	Cost	Accumulated Depreciation	Net Book Value
<b>GOVERNMENTAL ACTIVITIES</b>			
Capital assets not being depreciated			
Land	\$ 216,461	\$ -	\$ 216,461
Capital assets being depreciated			
Infrastructure	6,780,236	(1,524,438)	5,255,798
Buildings and building improvements	642,197	(273,907)	368,290
Equipment	413,235	(310,330)	102,905
Vehicles	448,117	(296,575)	151,542
	8,500,246	(2,405,250)	6,094,996
<b>BUSINESS-TYPE ACTIVITIES</b>			
Capital assets being depreciated			
Plant	6,802,794	(2,153,694)	4,649,100
Vehicles	29,268	(17,074)	12,194
	6,832,062	(2,170,768)	4,661,294
<b>TOTAL CAPITAL ASSETS</b>	<b>\$ 15,332,308</b>	<b>\$ (4,576,018)</b>	<b>\$ 10,756,290</b>

Depreciation expense was charged to governmental functions as follows:

General government	\$ 15,329
Public safety	22,529
Highways and streets	238,871
Culture and recreation	45,929
	<b>\$ 322,658</b>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

---

**NOTE E - LONG-TERM LIABILITIES**

The following is a summary of long-term liability activity of the Borough for the year ended December 31, 2017:

	<u>Principal Outstanding January 1, 2017</u>	<u>Additions/ Refundings</u>
<b>GOVERNMENTAL ACTIVITIES</b>		
General Obligation Bonds and Notes		
Bonds, Series of 2011	\$ 375,465	\$ -
Capital leases	-	31,235
Net Pension Liability	443,785	-
Compensated absences (Note G)	104,972	-
<b>TOTAL GOVERNMENTAL ACTIVITIES</b>	<u>924,222</u>	<u>31,235</u>
<b>BUSINESS-TYPE ACTIVITIES</b>		
Notes		
General Obligation Note, Series of 1997	111,627	-
Guaranteed Sewer Revenue Note, Series of 2008	2,960,000	-
<b>TOTAL BUSINESS-TYPE ACTIVITIES</b>	<u>3,071,627</u>	<u>-</u>
<b>TOTAL LONG-TERM LIABILITIES</b>	<u>\$ 3,995,849</u>	<u>\$ 31,235</u>

The General Fund funds the payment of long-term debt and compensated absences in the governmental activities.

# APPENDIX A-5.1 (AUS)

<u>Deletions/ Maturities</u>	<u>Principal Outstanding December 31, 2017</u>	<u>Due Within One Year</u>
\$ (22,701) - (273,049) (4,504) <u>(300,254)</u>	\$ 352,764 31,235 170,736 100,468 <u>655,203</u>	\$ 23,178 9,984 - - <u>33,162</u>
(111,627) <u>(5,000)</u> <u>(116,627)</u>	- <u>2,955,000</u> <u>2,955,000</u>	- <u>172,000</u> <u>172,000</u>
<u>\$ (416,881)</u>	<u>\$ 3,610,203</u>	<u>\$ 205,162</u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

---

**NOTE E - LONG-TERM LIABILITIES (Continued)**

Bonds and notes payable at December 31, 2017, consisted of:

**Governmental Activities**

General Obligation Bonds, Series of 2011, used to currently refund the General Obligation Note, Series of 2008, which was originally used to finance the revitalization of Main Street, principal and interest payments were due monthly and began in April 2011 and continued through July 2016 at a fixed rate of 3.45%. In August 2016, the interest rate was set at a fixed rate of 2.08% continuing through April 2021. In April 2021 and continuing through April 2026 interest will be set at a variable rate of the prime rate plus an additional .25%, not to exceed 5.99%. In April 2026 the rate will change to a fixed rate of 5.99% through maturity in April 2031.

\$ 352,764

**Business-Type Activities**

Guaranteed Sewer Revenue Note, Series of 2008, used for renovations to the Royersford Waste Water Treatment Plant; principal payments began in June 2009 and continue through June 2032 ranging from \$5,000 to \$265,000 annually; interest payments began in July 2008 and are due monthly at a fixed rate of 1.84%

2,955,000

**TOTAL BONDS AND NOTES PAYABLE**

\$ 3,307,764

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

---

**NOTE E - LONG-TERM LIABILITIES (Continued)**

*Debt Service Requirements*

A summary of notes payable debt service requirements to maturity, including principal and interest, is as follows:

<u>Year Ending December 31,</u>	<u>Principal</u>	<u>Interest</u>	<u>Totals</u>
2018	\$ 195,178	\$ 61,482	\$ 256,660
2019	198,645	57,830	256,475
2020	203,144	54,131	257,275
2021	203,734	57,320	261,054
2022	206,424	56,318	262,742
2023 to 2027	1,110,563	207,670	1,318,233
2028 to 2032	1,190,076	71,959	1,262,035
	<u>\$ 3,307,764</u>	<u>\$ 566,710</u>	<u>\$ 3,874,474</u>

**NOTE F - CAPITAL LEASE**

The Borough has entered into a lease agreement as lessee for financing the acquisition of a vehicle for the Police Department. The lease agreement qualifies as a capital lease for accounting purposes and, therefore, has been recorded at the present value of the future minimum lease payments as of the inception date. The assets acquired through the capital lease have a cost of \$31,295 and accumulated depreciation of \$1,043 as of December 31, 2017.

The future minimum lease obligations and the net present value of these minimum lease payments as of December 31, 2017, were as follows:

<u>Year Ending December 31,</u>	<u>General Fund</u>
2018	\$ 11,299
2019	11,299
2020	11,299
Amount representing interest	<u>(2,662)</u>
	<u>\$ 31,235</u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

---

**NOTE G - SICK LEAVE**

The Borough does not accrue accumulated sick leave on its Governmental or Proprietary Funds but expenses these costs as paid in the fund financial statements. Sick leave is accrued on the government-wide financial statements. The amount of vested accumulated sick leave was \$100,468 as of December 31, 2017. Non-uniform employees earn 1 1/4 days of sick leave per month with a maximum accumulation of 75 days for hourly employees and 100 days for salaried employees. Uniform employees earn ten hours of sick leave per month with a maximum accumulation of 1040 hours. All employees are entitled to payment for 80% of accumulated sick leave upon retirement and 50% upon termination after three years of employment. Effective January 1, 2012, all uniform employees are eligible to receive payment of accumulated sick leave up to a maximum of \$9,000.

**NOTE H - INTERGOVERNMENTAL REVENUES**

Intergovernmental revenues by source are summarized as follows:

	<u>General Fund</u>	<u>Special Revenue Fund</u>
COMMONWEALTH OF PENNSYLVANIA		
Payment in lieu of taxes	\$ 5,561	\$ -
Public utility realty tax	2,281	-
Liquid fuels	-	123,035
Pension	110,118	-
Snow removal	3,831	-
Liquor Control Board	650	-
County of Montgomery		
Streetscape enhancement	<u>126,527</u>	<u>-</u>
	<u>\$ 275,533</u>	<u>\$ 123,035</u>

Approximately 8% of all Borough revenues represents federal, state and county grants.

**NOTE I - INTERFUND RECEIVABLES, PAYABLES AND TRANSFERS**

Interfund receivables and payables are summarized as follows:

	<u>Due from Other Funds</u>	<u>Due to Other Funds</u>
General Fund	\$ -	\$ 61,842
Sewer Fund	65,037	-
Trash Collection Fund	<u>-</u>	<u>3,195</u>
	<u>\$ 65,037</u>	<u>\$ 65,037</u>

There were no Interfund transfers that occurred for the year ended December 31, 2017.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN)**

*Summary of Significant Accounting Policies*

**Method Used to Value Investments** - Police Pension Plan investments are carried at fair value as reported by the investment managers. Short-term investments are reported at cost, which approximates fair value.

*Plan Description*

**Plan Administration** - The Borough administers the Police Pension Plan—a single-employer defined benefit pension plan that provides pensions for all regular, full-time sworn police officers.

Management of the plan is vested in the Pension Board, which consists of five members; two elected council members, the Borough Manager, one police department representative and one non-uniformed employees representative—all appointed by the Borough Council President. The Pension Board is responsible for managing, investing and monitoring the Borough's Police Pension Fund.

**Plan Membership** - At December 31, 2017, pension plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefits	2
Inactive plan members entitled to but not yet receiving benefits	-
Active plan members	<u>7</u>
	<u>9</u>

**Benefits Provided** - The plan provides retirement, disability and death benefits. A member is eligible for normal retirement after attainment of age 50 and completion of 25 years of vesting service. The normal retirement pension is payable monthly during the member's lifetime, with payments continuing after the member's death to the surviving spouse, or eligible child, equal to 50% of the amount payable to the member at the time of the member's death. The amount of monthly pension is equal to 50% of average monthly compensation, plus a service increment equal to \$100 per month per year of benefit service completed in excess of 25 years, up to a maximum of \$500 additional per month. Average compensation is based upon the last 36 months of employment. If a member continues working after his normal retirement date, his pension does not start until he actually retires. If an active member suffers a service related disability, they are eligible for disability retirement. The service related disability retirement is payable monthly equal to 80% of the member's monthly salary at the time of disability reducing to 50% of salary at normal retirement date less worker's compensation benefits. There is no benefit for non-service related disability.



**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2017

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

Benefit terms provide for an annual cost-of-living increase, based upon the increase in the Consumer Price Index for the preceding year, shall be granted to retired members equal to not more than the increase in the Consumer Price Index from the year in which the member last worked, with a maximum total cost-of-living increase of 30%.

The benefit provisions of the Borough's Police Pension Plan are established by Borough ordinances.

**Contributions** - The Borough's police employees are required to contribute a percentage of their monthly salaries to the plan. The Borough is required to contribute the remaining amounts necessary to fund the plan using the actuarial basis specified by state statute. The state also provides funds (distribution of foreign casualty insurance premium taxes) to the Borough, which are used by the Borough in making its regular contributions to the plan.

Pennsylvania Act 205 of 1984 (as amended) requires that annual contributions be based upon the minimum municipal obligation (MMO), which is based on the plan's biennial actuarial valuation. The MMO includes the normal cost, estimated administrative expenses and an amortization contribution of the unfunded actuarial accrued liability, less estimated member contributions, and a credit equal to 10% of the excess (if any) of the actuarial value of assets over the actuarial accrued liability. The state provides an allocation of funds, which must be used for pension funding. A financial requirement established by the MMO, which exceeds state and member contributions, must be funded by the employer. In accordance with Act 205, the Borough was required to contribute \$87,354 to the plan for the year 2017. The Borough's actual contributions for the plan year 2017 were \$87,354.

Per the collective bargaining agreement, employees are required to contribute 5% of covered payroll. This contribution is governed by the plan's governing ordinances and collective bargaining agreements. Administrative costs, which may include, but are not limited to, investment management fees and actuarial services are charged to the plan and funded through the MMO and/or plan earnings. On-behalf payments of fringe benefits and salaries for the Borough's employees were recognized as revenues and expenditures during the year.

**Investments**

**Investment Policy** - The plan's policy in regard to the allocation of invested assets is established and may be amended by the Pension Board by a majority vote of its members. It is the policy of the Pension Board to pursue an investment strategy that reduces risk through prudent diversification of the portfolio across a broad selection of distinct asset classes. The plan's investment policy discourages the use of cash equivalents, except for liquidity purposes, and aims to refrain from dramatically shifting asset class allocations over short time spans.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

The following was the Board's adopted asset allocation policy as of December 31, 2017:

<u>Asset Class</u>	<u>Target Allocation</u>
Dividend and income stocks	30%
Core equity	25%
International	15%
Fixed income	<u>30%</u>
	<u>100%</u>

**Concentrations** - More than 5% of the Borough's investments are in equity securities and mutual funds. These investments are 54% and 45% of the plan's total investments, respectively.

**Rate of Return** - For the year ended December 31, 2017, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 15.7%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

**Net Pension Liability of the Borough**

The components of the net pension liability of the Borough at December 31, 2017, were as follows:

Total pension liability	\$ 3,054,243
Plan fiduciary net position	<u>(2,792,339)</u>
<b>NET PENSION LIABILITY</b>	<b>\$ <u>261,904</u></b>
Plan fiduciary net position as a percentage of the total pension liability	<u>91.42%</u>

**Actuarial Assumptions** - The total pension liability was determined by an actuarial valuation as of January 1, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3%
Salary increases	4.25% average, including inflation
Investment rate of return	7.25%

Mortality rates were based on the RP-2000 Healthy Annuitant Mortality Table with Scale AA.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

Due to the size of the plan, there has been no experience studies used to determine plan assumptions.

The long-term expected rate of return on plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the plan's target asset allocation as of December 31, 2017 (see the plan's investment policy), are summarized in the following table:

<u>Asset Class</u>	<u>Long-Term Expected Real Rate of Return</u>
Dividend and income stocks	7.5%
Core equity	8.0%
International	10.0%
Fixed income	3.8%

**Discount Rate** - The discount rate is based on the long-term expected rate of return on plan investments that are expected to be used to finance the payments of benefits. The plan's fiduciary net position is projected to be sufficient to make projected benefit payments and the plan assets are expected to be invested using a strategy to achieve that return. The employer has always met the funding requirements of Pennsylvania Law Act 205 of 1984. Act 205 requires full funding of the entry age normal cost plus plan expenses, as well as amortization of the unfunded liability to ultimately achieve a 100% funded status.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

***Changes in the Net Pension Liability***

	Governmental Activities:		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a)-(b)
Balance at December 31, 2016	\$ 2,847,037	\$ 2,398,569	\$ 448,468
Changes for the year			
Service cost	103,774	-	103,774
Interest cost	210,375	-	210,375
Changes for experience	(82,990)	-	(82,990)
Changes of assumptions	74,230	-	74,230
Contributions			
Employer	-	87,354	(87,354)
Member	-	30,458	(30,458)
Net investment income	-	413,998	(413,998)
Benefit payments	(98,183)	(98,183)	-
Administrative expenses	-	(39,857)	39,857
Net Changes	<u>207,206</u>	<u>393,770</u>	<u>(186,564)</u>
Balance at December 31, 2017	<u>\$ 3,054,243</u>	<u>\$ 2,792,339</u>	<u>\$ 261,904</u>

***Changes in Assumptions***

In the 2017 actuarial valuation, the investment rate of return was changed to 7.25%, in prior years the investment rate of return was 7.5%.

***Sensitivity of the Net Pension Liability to Changes in the Discount Rate*** - The following presents the net pension liability of the Borough, calculated using the discount rate of 7.25%, as well as what the Borough's net pension would be if it were calculated using a discount rate that is one percentage point lower (6.25%) or one percentage point higher (8.25%) than the current rate:

	1% Decrease (6.25%)	Current Discount Rate (7.25%)	1% Increase (8.25%)
Net pension liability	\$ <u>722,690</u>	\$ <u>261,904</u>	\$ <u>(118,179)</u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

*Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions*

For the year ended December 31, 2017, the Borough recognized pension expense of \$100,296. At December 31, 2017, the Borough reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	<u>Governmental Activities</u>	
	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>
Difference between expected and actual experience	\$ -	\$ 93,222
Change of assumptions	67,578	145,974
Net difference between projected and actual earnings on pension plan investments	<u>-</u>	<u>166,582</u>
	<u>\$ 67,578</u>	<u>\$ 405,778</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

<u>Year Ending December 31,</u>	<u>Governmental Activities</u>
2018	\$ (50,090)
2019	(50,090)
2020	(79,251)
2021	(68,505)
2022	(20,338)
Thereafter	(69,926)

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2017

---

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN)**

*Summary of Significant Accounting Policies*

**Method Used to Value Investments** - Non-Uniformed Pension Plan investments are carried at fair value as reported by the investment managers. Short-term investments are reported at cost, which approximates fair value.

*Plan Description*

**Plan Administration** - The Borough administers the Non-Uniformed Pension Plan--a single-employer defined benefit pension plan that provides pensions for all regular, full-time non-uniformed Borough employees.

Management of the plan is vested in the Pension Board, which consists of five members; two elected council members, the borough manager, one police department representative and one non-uniformed employees representative--all appointed by the Borough Council President. The Pension Board is responsible for managing, investing and monitoring the Borough's Non-Uniformed Pension Fund.

**Plan Membership** - At December 31, 2017, plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefits	4
Inactive plan members entitled to but not yet receiving benefits	3
Active plan members	<u>10</u>
	<u>17</u>

**Benefits Provided** - The plan provides retirement, disability and death benefits. A member is eligible for normal retirement after attainment of age 62. The normal retirement pension is payable monthly during the member's lifetime, with payments continuing after the member's death to a designated beneficiary, equal to the present value of the accrued benefit at the time of the member's death. The amount of monthly pension is equal to 1.667% times average monthly compensation. Average compensation is based upon the last 36 months of employment. If a member continues working after his normal retirement date, his pension does not start until he actually retires. If an active member suffers a service related disability, they are eligible for disability retirement. The service related disability retirement is payable monthly equal to 50% of the member's monthly salary at the time of disability. If the disability is not service related, a benefit of 30% of salary is provided to a member who has at least ten years of service.

The benefit provisions of the Borough's plan are established by Borough ordinances.

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2017

---

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

**Contributions** - The Borough's non-uniformed employees are required to contribute a percentage of their monthly salaries to the plan. The Borough is required to contribute the remaining amounts necessary to fund the plan using the actuarial basis specified by state statute. The state also provides funds (distribution of foreign casualty insurance premium taxes) to the Borough, which are used by the Borough in making its regular contributions to the plan.

Pennsylvania Act 205 of 1984 (as amended) requires that annual contributions be based upon the minimum municipal obligation (MMO), which is based on the plan's biennial actuarial valuation. The MMO includes the normal cost, estimated administrative expenses and an amortization contribution of the unfunded actuarial accrued liability, less estimated member contributions, and a credit equal to 10% of the excess (if any) of the actuarial value of assets over the actuarial accrued liability. The state provides an allocation of funds, which must be used for pension funding. A financial requirement established by the MMO, which exceeds state and member contributions, must be funded by the employer. In accordance with Act 205, the Borough was required to contribute \$35,034 to the plan for the year 2017. The Borough's actual contributions for the plan year 2017 were \$35,034.

Per Borough ordinance, employees are required to contribute 2.25% of covered payroll. This contribution is governed by the plan's governing ordinances and collective bargaining agreements. Administrative costs, which may include, but are not limited to, investment management fees and actuarial services are charged to the plan and funded through the MMO and/or plan earnings. On-behalf payments of fringe benefits and salaries for the Borough's employees were recognized as revenues and expenditures during the year.

**Investments**

**Investment Policy** - The plan's policy in regard to the allocation of invested assets is established and may be amended by the Pension Board by a majority vote of its members. It is the policy of the Pension Board to pursue an investment strategy that reduces risk through prudent diversification of the portfolio across a broad selection of distinct asset classes. The plan's investment policy discourages the use of cash equivalents, except for liquidity purposes, and aims to refrain from dramatically shifting asset class allocations over short time spans. The following was the Board's adopted asset allocation policy as of December 31, 2017:

<u>Asset Class</u>	<u>Target Allocation</u>
Dividend and income stocks	28%
Core equity	26%
International	15%
Fixed income	30%
	<u>100%</u>

**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2017

---

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

**Concentrations** - More than 5% of the Borough's investments are in equity securities and mutual funds. These investments are 55% and 45% of the plan's total investments, respectively.

**Rate of Return** - For the year ended December 31, 2017, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 15.6%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

**Net Pension Liability of the Borough**

The components of the net pension liability of the Borough at December 31, 2017, were as follows:

Total pension liability	\$ 2,314,600
Plan fiduciary net position	<u>(2,494,453)</u>
<b>NET PENSION LIABILITY</b>	<b>\$ <u>(179,853)</u></b>
 Plan fiduciary net position as a percentage of the total pension liability	  <u>107.77%</u>

**Actuarial Assumptions** - The total pension liability was determined by an actuarial valuation as of January 1, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3%
Salary increases	4.75% average, including inflation
Investment rate of return	7.25%

Mortality rates were based on the RP-2000 Healthy Annuitant Mortality Table with Scale AA.

Due to the size of the plan, there has been no experience studies used to determine plan assumptions.

The long-term expected rate of return on plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.



**BOROUGH OF ROYERSFORD**  
 NOTES TO THE BASIC FINANCIAL STATEMENTS  
 DECEMBER 31, 2017

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

Best estimates of arithmetic real rates of return for each major asset class included in the plan's target asset allocation as of December 31, 2017 (see the plan's investment policy), are summarized in the following table:

Asset Class	Target Allocation
Dividend and income stocks	28%
Core equity	26%
International	15%
Fixed income	30%
	<u>100%</u>

**Discount Rate** - The discount rate is based on the long-term expected rate of return on plan investments that are expected to be used to finance the payments of benefits. The plan's fiduciary net position is projected to be sufficient to make projected benefit payments and the plan assets are expected to be invested using a strategy to achieve that return. The employer has always met the funding requirements of Pennsylvania Law Act 205 of 1984. Act 205 requires full funding of the entry age normal cost plus plan expenses, as well as amortization of the unfunded liability to ultimately achieve a 100% funded status.

**Changes in the Net Pension Liability**

	Governmental Activities:		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a)-(b)
Balance at December 31, 2016	\$ 1,112,229	\$ 1,116,911	\$ (4,682)
Changes for the year			
Service cost	24,180	-	24,180
Interest cost	80,681	-	80,681
Changes for experience	(17,359)	-	(17,359)
Changes of assumptions	20,732	-	20,732
Contributions			
Employer	-	17,759	(17,759)
Member	-	6,514	(6,514)
Net investment income	-	189,026	(189,026)
Benefit payments	(47,243)	(47,243)	-
Administrative expenses	-	(18,579)	18,579
Net changes	<u>60,991</u>	<u>147,476</u>	<u>(86,486)</u>
Balance at December 31, 2017	<u>\$ 1,173,220</u>	<u>\$ 1,264,387</u>	<u>\$ (91,167)</u>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

	Business-type Activities		
	Total	Plan	Net
	Pension Liability (a)	Fiduciary Net Position (b)	Pension Liability (a)-(b)
Balance at December 31, 2016	\$ 1,082,050	\$ 1,086,606	\$ (4,556)
Changes for the year			
Service cost	23,521	-	23,521
Interest cost	78,484	-	78,484
Changes for experience	(16,886)	-	(16,886)
Changes of assumptions	20,168	-	20,168
Contributions			
Employer	-	17,275	(17,275)
Member	-	6,337	(6,337)
Net investment income	-	183,878	(183,878)
Benefit payments	(45,957)	(45,957)	-
Administrative expenses	-	(18,074)	18,074
Net changes	59,330	143,460	(84,129)
Balance at December 31, 2017	\$ 1,141,380	\$ 1,230,066	\$ (88,686)

***Changes in Assumptions***

In the 2017 actuarial valuation, the investment rate of return was changed to 7.25%, in prior years the investment rate of return was 7.5%.

***Sensitivity of the Net Pension Liability to Changes in the Discount Rate*** - The following presents the net pension liability of the Borough, calculated using the discount rate of 7.25%, as well as what the Borough's net pension would be if it were calculated using a discount rate that is one percentage point lower (6.25%) or one percentage point higher (8.25%) than the current rate:

	1% Decrease (6.25%)	Current Discount Rate (7.25%)	1% Increase (8.25%)
Net pension liability	\$ 34,233	\$ (179,853)	\$ (365,190)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2017**

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

***Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions***

For the year ended December 31, 2017, the Borough recognized pension expense of \$31,227. At December 31, 2017, the Borough reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Governmental Activities		Business-Type Activities	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	\$ -	\$ 38,069	\$ -	\$ 37,032
Change of assumptions	16,150	-	15,710	-
Net difference between projected and actual earnings on pension plan investments	-	79,322	-	77,164
	<u>\$ 16,150</u>	<u>\$ 117,391</u>	<u>\$ 15,710</u>	<u>\$ 114,196</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

December 31,	Governmental Activities	Business-Type Activities
2018	\$ (21,623)	\$ (21,035)
2019	(21,623)	(21,035)
2020	(34,422)	(33,484)
2021	(23,573)	(22,932)

**NOTE L - RISK MANAGEMENT**

The Borough is exposed to various risks of loss related to torts; theft of, damage to and destruction of assets; errors and omissions; injuries to employees; and natural disasters. It is the policy of the Borough to purchase commercial insurance for the risks of loss to which it is exposed, including workers' compensation and employee health and accident insurance. Settled claims resulting from these risks have not exceeded commercial insurance coverage in any of the past three years.

**REQUIRED SUPPLEMENTARY INFORMATION**

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**BUDGETARY COMPARISON SCHEDULE**  
**GENERAL FUND**  
**YEAR ENDED DECEMBER 31, 2017**

	Budgeted Amounts	
	Original	Final
<b>REVENUES</b>		
Taxes	\$ 2,403,830	\$ 2,403,830
Intergovernmental revenues	133,750	133,750
Investment income	1,200	1,200
Licenses and permits	121,500	121,500
Fines	26,000	26,000
Charges for services	67,700	67,700
Miscellaneous revenues	30,000	30,000
TOTAL REVENUES	2,783,980	2,783,980
<b>EXPENDITURES</b>		
General government	478,521	478,521
Public safety	1,527,280	1,527,280
Highways and streets	555,624	555,624
Health	-	-
Recreation	100,155	100,155
Retirement expenses	122,400	122,400
Debt service		
Principal	-	-
Interest and other charges	-	-
TOTAL EXPENDITURES	2,783,980	2,783,980
EXCESS OF REVENUES OVER EXPENDITURES	-	-
<b>OTHER FINANCING SOURCES</b>		
Proceeds from capital lease	-	-
Insurance recoveries	-	-
TOTAL OTHER FINANCING SOURCES	-	-
NET CHANGE IN FUND BALANCE	\$ -	\$ -

*See accompanying notes to the budgetary comparison schedule.*

# APPENDIX A-5.1 (AUS)

Budgetary Basis	Actual Amounts		Variance With Final Budget Favorable (Unfavorable)
	Budget to GAAP Differences	GAAP Basis	
\$ 2,419,524	\$ (1,180)	\$ 2,418,344	\$ 15,694
275,533	-	275,533	141,783
8,012	-	8,012	6,812
115,313	-	115,313	(6,187)
25,185	963	26,148	(815)
122,567	860	123,427	54,867
15,397	(4,857)	10,540	(14,603)
<u>2,981,531</u>	<u>(4,214)</u>	<u>2,977,317</u>	<u>197,551</u>
433,015	(2,500)	430,515	45,506
1,670,145	(54,162)	1,615,983	(142,865)
533,049	53,226	586,275	22,575
1,345	(1,345)	-	(1,345)
98,795	(3,398)	95,397	1,360
122,388	-	122,388	12
22,701	-	22,701	(22,701)
7,587	-	7,587	(7,587)
<u>2,889,025</u>	<u>(8,179)</u>	<u>2,880,846</u>	<u>(105,045)</u>
<u>92,506</u>	<u>3,965</u>	<u>96,471</u>	<u>92,506</u>
31,235	-	31,235	31,235
54,324	-	54,324	54,324
85,559	-	85,559	85,559
<u>\$ 178,065</u>	<u>\$ 3,965</u>	<u>\$ 182,030</u>	<u>\$ 178,065</u>

**BOROUGH OF ROYERSFORD**

NOTES TO THE BUDGETARY COMPARISON SCHEDULE  
 YEAR ENDED DECEMBER 31, 2017

---

**NOTE A - BUDGETARY INFORMATION**

The Borough's process for establishing its annual operating budget involves submission of the budget by the Borough Manager to Borough Council for its approval and adoption.

The Borough prepares the General Fund budget on the cash basis of accounting, which is not consistent with accounting principles generally accepted in the United States of America.

**NOTE B - EXCESS OF EXPENDITURES OVER APPROPRIATIONS**

For the year ended December 31, 2017, expenditures exceeded appropriations in the following General Fund object levels (the legal level of budgetary control):

Public safety	\$ (142,865)
Health	(1,345)
Debt service	(30,288)

These excess expenditures were funded by cash reserves and increased charges for services.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD SCHEDULE OF CHANGES IN THE NET POLICE PENSION PLAN LIABILITY AND RELATED RATIOS LAST FOUR FISCAL YEARS

	2017	2016	2015	2014
<b>TOTAL PENSION LIABILITY</b>				
Service cost	\$ 103,774	\$ 84,558	\$ 82,517	\$ 87,111
Interest	210,375	202,448	204,204	181,670
Differences between expected and actual experience	(82,990)	(6,320)	(17,032)	41,156
Changes of assumptions	74,230	-	(198,360)	-
Benefit payments	(98,183)	(96,785)	(96,785)	(95,228)
<b>NET CHANGE IN TOTAL PENSION LIABILITY</b>	<b>207,206</b>	<b>183,901</b>	<b>(25,456)</b>	<b>214,709</b>
Total pension liability, beginning	2,847,037	2,663,136	2,688,592	2,473,883
<b>TOTAL PENSION LIABILITY, ENDING (a)</b>	<b>\$ 3,054,243</b>	<b>\$ 2,847,037</b>	<b>\$ 2,663,136</b>	<b>\$ 2,688,592</b>
<b>PLAN FIDUCIARY NET POSITION</b>				
Contributions				
Employer	\$ 87,354	\$ 84,837	\$ 75,396	\$ 54,795
Member	30,458	28,541	24,350	23,616
Net investment income	413,998	218,177	19,273	185,226
Benefit payments, including refunds of member contributions	(98,183)	(96,785)	(96,785)	(95,228)
Administrative expense	(39,857)	(41,095)	(33,862)	(35,637)
<b>NET CHANGE IN PLAN FIDUCIARY NET POSITION</b>	<b>393,770</b>	<b>193,675</b>	<b>(11,628)</b>	<b>132,772</b>
Plan fiduciary net position, beginning	2,398,569	2,204,894	2,216,522	2,083,750
<b>PLAN FIDUCIARY NET POSITION, ENDING (b)</b>	<b>\$ 2,792,339</b>	<b>\$ 2,398,569</b>	<b>\$ 2,204,894</b>	<b>\$ 2,216,522</b>
<b>NET PENSION LIABILITY, ENDING (a)-(b)</b>	<b>\$ 261,904</b>	<b>\$ 448,468</b>	<b>\$ 458,242</b>	<b>\$ 472,070</b>
<b>PLAN FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL PENSION LIABILITY</b>	<b>91%</b>	<b>84%</b>	<b>83%</b>	<b>82%</b>
<b>COVERED-EMPLOYEE PAYROLL</b>	<b>\$ 637,431</b>	<b>\$ 557,623</b>	<b>\$ 523,032</b>	<b>\$ 464,976</b>
<b>NET PENSION LIABILITY AS A PERCENTAGE OF COVERED-EMPLOYEE PAYROLL</b>	<b>41%</b>	<b>80%</b>	<b>88%</b>	<b>102%</b>

### NOTE TO SCHEDULE

#### *Changes of Assumptions:*

In 2017 amounts reported as changes of assumptions resulted from adjustment to the investment rate of return, decreasing the rate from 7.5% to 7.25%.

In 2015 amounts reported as changes of assumptions resulted from adjustment to the assumed average annual salary increase, decreasing the rate from 5.0% to 4.5%.

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.



# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD SCHEDULE OF POLICE PENSION PLAN CONTRIBUTIONS LAST FOUR FISCAL YEARS

	2017	2016	2015	2014
ACTUARIALLY DETERMINED CONTRIBUTION	\$ 87,354	\$ 84,837	\$ 75,396	\$ 54,795
CONTRIBUTIONS IN RELATION TO THE ACTUARIALLY DETERMINED CONTRIBUTION	87,354	84,837	75,396	54,795
CONTRIBUTION DEFICIENCY (EXCESS)	\$ -	\$ -	\$ -	\$ -
COVERED-EMPLOYEE PAYROLL	\$ 637,431	\$ 557,623	\$ 523,032	\$ 464,976
CONTRIBUTION AS A PERCENTAGE OF COVERED-EMPLOYEE PAYROLL	14%	15%	14%	12%

### NOTES TO SCHEDULE

Valuation date January 1, 2015 January 1, 2013

Actuarially determined contribution rates are calculated by September 30 of each year for the upcoming calendar year.

#### Methods and assumptions used to determine contribution rates:

Actuarial cost method	Entry age normal	Entry age normal
Amortization method	Level dollar, closed	Level dollar, closed
Remaining amortization period	11 years	13 years
Asset valuation method	PMRS asset method	PMRS asset method
Inflation	3.0%	3.0%
Salary increases	4.25% annual increase	5% annual increase
Investment rate of return	7.50%	7.50%
Retirement age	Normal retirement age	Normal retirement age
Mortality	Assumed life expectancies are based on the RP-2000 Healthy Annuitant Mortality Table	Assumed life expectancies are based on the RP-2000 Healthy Annuitant Mortality Table

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

**BOROUGH OF ROYERSFORD**  
**SCHEDULE OF POLICE PENSION PLAN**  
**INVESTMENT RETURNS**  
**LAST FOUR FISCAL YEARS**

	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
ANNUAL MONEY-WEIGHTED RATE OF RETURN, NET OF INVESTMENT EXPENSE	<u>15.70%</u>	<u>8.50%</u>	<u>0.02%</u>	<u>7.20%</u>

**NOTE TO SCHEDULE**

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD SCHEDULE OF CHANGES IN THE NET NON-UNIFORMED PENSION PLAN LIABILITY AND RELATED RATIOS LAST FOUR FISCAL YEARS

	2017	2016	2015	2014
<b>TOTAL PENSION LIABILITY</b>				
Service cost	\$ 47,701	\$ 55,458	\$ 54,051	\$ 46,392
Interest	159,165	158,932	152,820	137,776
Differences between expected and actual experience	(34,245)	(42,091)	(43,982)	50,099
Changes of assumptions	40,900	-	-	-
Benefit payments	(93,200)	(83,298)	(82,313)	(101,635)
<b>NET CHANGE IN TOTAL PENSION LIABILITY</b>	<b>120,321</b>	<b>89,001</b>	<b>80,576</b>	<b>132,632</b>
Total pension liability, beginning	2,194,279	2,105,278	2,024,702	1,892,070
<b>TOTAL PENSION LIABILITY, ENDING (a)</b>	<b>\$ 2,314,600</b>	<b>\$ 2,194,279</b>	<b>\$ 2,105,278</b>	<b>\$ 2,024,702</b>
<b>PLAN FIDUCIARY NET POSITION</b>				
Contributions				
Employer	\$ 35,034	\$ 51,650	\$ 47,508	\$ 42,475
Member	12,851	13,419	12,375	10,730
Net investment income	372,904	211,303	23,312	191,181
Benefit payments, including refunds of member contributions	(93,200)	(83,298)	(82,313)	(101,635)
Administrative expense	(36,653)	(38,702)	(31,585)	(33,668)
<b>NET CHANGE IN PLAN FIDUCIARY NET POSITION</b>	<b>290,936</b>	<b>154,372</b>	<b>(30,703)</b>	<b>109,083</b>
Plan fiduciary net position, beginning	2,203,517	2,049,145	2,079,848	1,970,765
<b>PLAN FIDUCIARY NET POSITION, ENDING (b)</b>	<b>\$ 2,494,453</b>	<b>\$ 2,203,517</b>	<b>\$ 2,049,145</b>	<b>\$ 2,079,848</b>
<b>NET PENSION LIABILITY, ENDING (a)-(b)</b>	<b>\$ (179,853)</b>	<b>\$ (9,238)</b>	<b>\$ 56,133</b>	<b>\$ (55,146)</b>
<b>PLAN FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL PENSION LIABILITY</b>	<b>108%</b>	<b>100%</b>	<b>97%</b>	<b>103%</b>
<b>COVERED-EMPLOYEE PAYROLL</b>	<b>\$ 577,111</b>	<b>\$ 582,264</b>	<b>\$ 617,654</b>	<b>\$ 502,883</b>
<b>NET PENSION LIABILITY AS A PERCENTAGE OF COVERED-EMPLOYEE PAYROLL</b>	<b>-31%</b>	<b>-2%</b>	<b>9%</b>	<b>-11%</b>

### NOTE TO SCHEDULE

#### *Changes of Assumptions:*

In 2017 amounts reported as changes of assumptions resulted from adjustment to the investment rate of return, decreasing the rate from 7.5% to 7.25%.

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD SCHEDULE OF NON-UNIFORMED PENSION PLAN CONTRIBUTIONS LAST FOUR FISCAL YEARS

	2017	2016	2015	2014
ACTUARIALLY DETERMINED CONTRIBUTION	\$ 35,034	\$ 51,650	\$ 47,508	\$ 42,475
CONTRIBUTIONS IN RELATION TO THE ACTUARIALLY DETERMINED CONTRIBUTION	35,034	51,650	47,508	42,475
CONTRIBUTION DEFICIENCY (EXCESS)	\$ -	\$ -	\$ -	\$ -
COVERED-EMPLOYEE PAYROLL	\$ 577,111	\$ 582,264	\$ 462,914	\$ 502,883
CONTRIBUTION AS A PERCENTAGE OF COVERED-EMPLOYEE PAYROLL	6%	9%	10%	8%

### NOTES TO SCHEDULE

Valuation date January 1, 2015 January 1, 2013

Actuarially determined contribution rates are calculated by September 30 of each year for the upcoming calendar year.

#### Methods and assumptions used to determine contribution rates:

Actuarial cost method	Entry age normal	Entry age normal
Amortization method	Level dollar, closed	Level dollar, closed
Remaining amortization period	0 years	0 years
Asset valuation method	PMRS asset method	PMRS asset method
Inflation	3.0%	3.0%
Salary increases	4.75% annual increase	5% annual increase
Investment rate of return	7.50%	7.50%
Retirement age	Normal retirement age	Normal retirement age
Mortality	Assumed life expectancies are based on the RP-2000 Healthy Annuitant Mortality Table	Assumed life expectancies are based on the RP-2000 Healthy Annuitant Mortality Table

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

**BOROUGH OF ROYERSFORD**  
**SCHEDULE OF NON-UNIFORMED PENSION PLAN**  
**INVESTMENT RETURNS**  
**LAST FOUR FISCAL YEARS**

---

	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
ANNUAL MONEY-WEIGHTED RATE OF RETURN, NET OF INVESTMENT EXPENSE	<u>15.60%</u>	<u>9.00%</u>	<u>0.02%</u>	<u>8.00%</u>

**NOTE TO SCHEDULE**

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

**BOROUGH OF ROYERSFORD**  
**ANNUAL FINANCIAL REPORT**  
*Year Ended December 31, 2018*



*Certified Public Accountants and Business Consultants*

**INTRODUCTORY SECTION**

**BOROUGH OF ROYERSFORD**  
**TABLE OF CONTENTS**  
**YEAR ENDED DECEMBER 31, 2018**

---

	Page
<b>Introductory Section</b>	
Table of Contents	1
<b>Financial Section</b>	
Independent Auditors' Report	3
Management's Discussion and Analysis (Unaudited)	5
Basic Financial Statements	
<b><i>Government-Wide Financial Statements</i></b>	
Statement of Net Position	11
Statement of Activities	12
<b><i>Fund Financial Statements</i></b>	
<b><i>Governmental Funds</i></b>	
Balance Sheet	13
Reconciliation of Total Governmental Funds Balances to Net Position of Governmental Activities	14
Statement of Revenues, Expenditures and Changes in Fund Balances	15
Reconciliation of the Governmental Funds Statement of Revenues, Expenditures and Changes in Fund Balances to the Statement of Activities	16
<b><i>Proprietary Funds</i></b>	
Statement of Net Position	17
Statement of Revenues, Expenses and Changes in Net Position	18
Statement of Cash Flows	19
<b><i>Fiduciary Funds</i></b>	
Statement of Fiduciary Net Position	21
Statement of Changes in Fiduciary Net Position	22
Notes to the Basic Financial Statements	23



**BOROUGH OF ROYERSFORD**  
**TABLE OF CONTENTS**  
**YEAR ENDED DECEMBER 31, 2018**

---

	<b>Page</b>
<b>Required Supplementary Information</b>	
Budgetary Comparison Schedule	50
Notes to the Budgetary Comparison Schedule	51
Police Pension Plan	
Schedules of Changes in the Net Police Pension Plan Liability and Related Ratios	52
Schedules of Police Pension Plan Contributions	53
Schedules of Police Pension Plan Investment Returns	54
Non-Uniformed Pension Plan	
Schedules of Changes in the Net Non-Uniformed Pension Plan Liability and Related Ratios	55
Schedules of Non-Uniformed Pension Plan Contributions	56
Schedules of Non-Uniformed Pension Plan Investment Returns	57

**FINANCIAL SECTION**



Maillie LLP | maillie.com  
PO Box 680, Oaks, PA 19456-0680  
600 Willowbrook Lane, Suite 624, West Chester, PA 19382  
PO Box 11847, Wilmington, DE 19850-1847

## ***Independent Auditors' Report***

To the Borough Council  
Borough of Royersford  
Royersford, Pennsylvania

We have audited the accompanying financial statements of the governmental activities, the business-type activities, each major fund and the aggregate remaining fund information of the Borough of Royersford as of and for the year ended December 31, 2018, and the related notes to the financial statements, which collectively comprise the Borough of Royersford's basic financial statements as listed in the table of contents.

### ***Management's Responsibility for the Financial Statements***

The Borough of Royersford's management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

### ***Auditors' Responsibility***

Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

# APPENDIX A-5.1 (AUS)

To the Borough Council  
Borough of Royersford  
Royersford, Pennsylvania

## ***Opinion***

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities, the business-type activities, each major fund and the aggregate remaining fund information of the Borough of Royersford as of December 31, 2018, and the respective changes in financial position and, where applicable, cash flows thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America (GAAP).

## ***Other Matters***

### ***Required Supplementary Information***

Accounting principles generally accepted in the United States of America require that management's discussion and analysis on pages 5 through 10, budgetary comparison information on pages 50 and 51, and schedules of changes in the net police pension plan liability and related ratios on page 52, schedules of police pension plan contributions on page 53, schedules of police pension plan investment returns on page 54, schedules of changes in the net non-uniformed pension plan liability and related ratios on page 55, schedules of non-uniformed pension plan contributions on page 56 and schedules of non-uniformed pension plan investment returns on page 57 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

*Maille LLP*

Oaks, Pennsylvania  
July 9, 2019

**BOROUGH OF ROYERSFORD**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)**  
**YEAR ENDED DECEMBER 31, 2018**

---

Our discussion and analysis of the Borough of Royersford's financial performance provides an overview of the Borough's financial activities for the fiscal year ended December 31, 2018. Please read it in conjunction with the Borough's financial statements, which begin with the statement of net position.

**FINANCIAL HIGHLIGHTS**

The assets of the Borough exceeded its liabilities by \$8 million.

**OVERVIEW OF FINANCIAL STATEMENTS**

The Borough's annual financial report consists of several sections. Taken together, they provide a comprehensive financial look at the Borough. The components of the report include the independent auditors' report, management's discussion and analysis, government-wide financial statements, fund financial statements and notes to the basic financial statements. This report also contains other required supplementary information in addition to the basic financial statements.

The independent auditors' report briefly describes the audit engagement and also renders an opinion as to the material components of the Borough's financial position.

**STATEMENT OF NET POSITION AND STATEMENT OF ACTIVITIES**

Our analysis of the Borough as a whole begins with the statement of net position. One of the most important questions asked about the Borough's finances is, "What is the Borough's overall financial condition?" The statement of net position and the statement of activities report information about the Borough as a whole and about its activities in a way that helps answer this question.

**Governmental Activities**

Most of the Borough's basic services are reported here, including police, public works, planning and zoning, parks and recreation and administration. The Borough also contributes to the fire departments, library and historical society.

**Business-Type Activities**

The Borough charges a fee to customers to cover the cost of the operation of the Waste Water Treatment Plant and the collection of solid waste, including recyclables.

**BOROUGH OF ROYERSFORD**  
MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)  
YEAR ENDED DECEMBER 31, 2018

---

**ANALYSIS OF THE OVERALL FINANCIAL POSITION AND RESULTS OF OPERATIONS**

**General Fund**

The Borough realizes two major sources of income for the operation of the general government (excluding the trash collection service and the operations of the waste water treatment facility). The two major income sources are real estate taxes and earned income taxes (EIT). The tax millage rate increased for general purposes for 2018; the rate increased from 6.95 mills to 7.70 mills per \$1 of assessed value for general purposes and 1.25 mills per \$1 of assessed valuation for fire tax for a total assessment of 8.95 mills per \$1 of assessed valuation. A property assessed at \$100,000 would have paid \$895 including fire tax for Borough taxes in 2018.

EIT tax revenue has remained steady. Continued monitoring of collections reflects the proper amount being received by the Borough.

General Real Estate Taxes increased in 2018 due to the millage increase. Real estate transfer tax decreased due to lack of high value property sales in 2018.

Increasing costs will be experienced with the ongoing Storm Water Management related to compliance with the Department of Environmental Protection requirements of permitting and inspecting storm water systems.

A number of minor projects were completed and are reflected in the General Fund.

**Sewer Fund**

The Sewer Fund operates as a business-type activity. All income and expenses are accounted for in this fund. The income sources are connection fees for new construction and user fees based on water consumption.

The Borough has started its Infiltration Inflow Project required by the Department of Environmental Protection. The Borough's engineer has recommended completing the project within five years. In 2012, the Borough implemented the Root Control Program and Sewer Lining Project. The project was completed by the Borough in 2018. The Borough is waiting for a letter from DEP releasing the Borough from the program, the letter is expected early 2019.

**Trash Collection Fund**

The Trash Collection Fund operates as a business-type activity. All income and expenses are accounted for in this fund. The income source is the user fees.

A contract with the landfill which accepts the Borough's solid waste showed a slight increase in the volume of trash collected. The recycling collector's contract is a fixed cost for five years (through 2018). The Borough went through the bidding process for a new trash collection contract in 2015. The recycling contract runs from 2014 to 2018. The trash contract for dumping portion of trash collection runs from 2015 to 2019. Long term contracts of trash and recycling will enable the Borough to budget for future years with some certainty.

**BOROUGH OF ROYERSFORD**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)**  
**YEAR ENDED DECEMBER 31, 2018**

The analysis which follows focuses on the net position (Table 1) and changes in net position (Table 2) of the Borough's governmental and business-type activities. Comparative data from fiscal year 2017 is included.

**Table 1**  
**Condensed Statements of Net Position**  
**December 31, 2018 and 2017**

	Governmental Activities		Business-Type Activities		Totals	
	2018	2017	2018	2017	2018	2017
<b>ASSETS</b>						
Cash and cash equivalents	\$ 366,799	\$ 587,627	\$ 340,398	\$ 381,725	\$ 707,197	\$ 969,352
Other assets	264,198	114,918	151,159	256,835	415,357	371,753
Capital assets	6,132,583	6,094,996	4,545,699	4,661,294	10,678,282	10,756,290
<b>TOTAL ASSETS</b>	<b>6,763,580</b>	<b>6,797,541</b>	<b>5,037,256</b>	<b>5,299,854</b>	<b>11,800,835</b>	<b>12,097,395</b>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>						
Deferred outflows related to pensions	302,828	83,728	77,842	15,710	380,670	98,438
<b>LIABILITIES</b>						
Other liabilities	110,192	214,803	53,858	37,731	164,050	252,534
Long-term	1,191,077	655,203	2,851,086	2,955,000	4,042,163	3,610,203
<b>TOTAL LIABILITIES</b>	<b>1,301,269</b>	<b>870,006</b>	<b>2,904,944</b>	<b>2,992,731</b>	<b>4,206,213</b>	<b>3,862,737</b>
<b>DEFERRED INFLOWS OF RESOURCES</b>						
Deferred inflows related to pensions	266,977	523,169	40,093	114,196	297,070	637,365
<b>NET POSITION</b>						
Net investment in capital assets	5,781,746	5,710,997	1,762,699	1,706,294	7,544,445	7,417,291
Restricted	245,110	112,408	-	-	245,110	112,408
Unrestricted	(518,694)	(335,311)	407,362	502,343	(111,332)	167,032
<b>TOTAL NET POSITION</b>	<b>\$ 5,508,162</b>	<b>\$ 5,488,094</b>	<b>\$ 2,170,061</b>	<b>\$ 2,208,637</b>	<b>\$ 7,678,223</b>	<b>\$ 7,696,731</b>

Cash and cash equivalents represent 6% and 8% of the Borough's total assets for the years ended December 31, 2018 and 2017, respectively.

By far, the largest portion of the Borough's assets, 90% (2018) and 89% (2017), reflects its investment in capital assets (e.g., land, buildings, waste water treatment plant, vehicles and recreation equipment). Because the Borough uses these capital assets to provide services to residents, these assets are not available for future spending.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited) YEAR ENDED DECEMBER 31, 2018

**Table 2**  
**Changes in Net Position**  
**Years Ended December 31, 2018 and 2017**

	Governmental Activities		Business-Type Activities		Totals	
	2018	2017	2018	2017	2018	2017
<b>REVENUES</b>						
Program revenues						
Charges for services	\$ 145,182	\$ 148,800	\$ 1,179,710	\$ 1,177,215	\$ 1,324,892	\$ 1,326,015
Operating grants and contributions	297,985	266,074	7,931	-	305,896	266,074
Capital grants and contributions	188,183	126,527	-	-	188,183	126,527
General revenues						
Property taxes	1,666,165	1,563,972	-	-	1,666,165	1,563,972
Earned income taxes	669,270	676,205	-	-	669,270	676,205
Real estate transfer taxes	91,003	106,065	-	-	91,003	106,065
Per capita taxes and local services tax	68,970	71,803	-	-	68,970	71,803
Public utility taxes	2,187	2,281	-	-	2,187	2,281
Franchise taxes	103,581	114,213	-	-	103,581	114,213
Amusement taxes	10,152	11,790	-	-	10,152	11,790
Investment earnings	20,634	9,020	3,838	2,821	24,472	11,841
Miscellaneous	99,353	64,864	-	-	99,353	64,864
<b>TOTAL REVENUES</b>	<b>3,362,645</b>	<b>3,161,614</b>	<b>1,191,479</b>	<b>1,180,036</b>	<b>4,564,124</b>	<b>4,341,650</b>
<b>EXPENSES</b>						
General government	794,330	655,305	-	-	794,330	655,305
Public safety	1,605,933	1,463,325	-	-	1,605,933	1,463,325
Highway/streets	756,374	588,540	-	-	756,374	588,540
Culture and recreation	159,404	141,326	-	-	159,404	141,326
Health and public welfare	-	-	-	-	-	-
Interest on long-term debt	8,425	7,587	-	-	8,425	7,587
Sewer	-	-	805,099	758,768	805,099	758,768
Trash collection	-	-	424,956	384,517	424,956	384,517
Loss on sale of capital assets	18,111	-	-	-	18,111	-
<b>TOTAL EXPENSES</b>	<b>3,342,577</b>	<b>2,856,083</b>	<b>1,230,055</b>	<b>1,143,285</b>	<b>4,572,632</b>	<b>3,999,368</b>
<b>EXCESS (DEFICIENCY) OF REVENUES OVER EXPENSES BEFORE TRANSFERS</b>	<b>20,068</b>	<b>305,531</b>	<b>(38,576)</b>	<b>36,751</b>	<b>(18,508)</b>	<b>342,282</b>
<b>NET POSITION AT BEGINNING OF YEAR</b>	<b>5,488,094</b>	<b>5,182,563</b>	<b>2,208,637</b>	<b>2,171,886</b>	<b>7,696,731</b>	<b>7,354,449</b>
<b>NET POSITION AT END OF YEAR</b>	<b>\$ 5,508,162</b>	<b>\$ 5,488,094</b>	<b>\$ 2,170,061</b>	<b>\$ 2,208,637</b>	<b>\$ 7,678,223</b>	<b>\$ 7,696,731</b>



**BOROUGH OF ROYERSFORD**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)**  
**YEAR ENDED DECEMBER 31, 2018**

---

**ANALYSIS OF BALANCES AND TRANSACTIONS OF INDIVIDUAL FUNDS**

The uncollected real estate taxes increased from 2017 to 2018, while the earned sick leave of Borough employees decreased. The uncollected fees for the Trash Collection Fund and the Sewer Fund decreased from 2017 to 2018.

**VARIATIONS BETWEEN ORIGINAL AND FINAL BUDGET AMOUNTS**

The Borough has not made it a practice to change the budget amounts between the original adoption of the budget and year-end. Where actual expenses are in excess of budget amounts, or less than budget amounts, the department heads are expected to adjust spending in other areas to offset the differences. The total for the department is the driving force, and each department head is accountable for his department. Certain circumstances which are beyond the control of the department head are brought to Borough Council and appropriate actions taken. A review of the operations of all departments is undertaken at the end of June. Reviews are also conducted at the end of September (or more often if necessary) and monthly thereafter through December 31. The Finance Committee within Borough Council and the Borough Manager conduct the reviews. Necessary adjustments in spending are instituted as needed.

**VARIATIONS BETWEEN BUDGET AND ACTUAL AMOUNTS**

**Taxes**

Real Estate Transfer Taxes saw a decrease of \$15,062 over the prior year amount and Earned Income Tax saw a \$19,270 increase over the budgeted amount.

**Intergovernmental Revenue**

The Borough received liquid fuels money for 2018 and it will be used for 2019 road projects.

**CAPITAL ASSETS AND DEBT ADMINISTRATION**

**Capital Assets**

The Borough of Royersford's investment in capital assets for its governmental and business-type activities as of December 31, 2018, totals \$10,678,282 in all funds (net of accumulated depreciation). The Borough's investment in capital assets includes building and building improvements, equipment, vehicles, recreational equipment, land and the Waste Water Treatment Plant.

**Long-Term Debt**

The 1997 General Obligation Note (utilized to finance the renovations to the Waste Water Treatment Plant) was paid off in 2017.

The Borough has a 2008 series sewer bond in the amount of \$2,960,000. Interest on this fixed loan is 1.840% and payment is until the year 2032.

**BOROUGH OF ROYERSFORD**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)**  
**YEAR ENDED DECEMBER 31, 2018**

---

**ECONOMIC FACTORS, NEXT YEAR'S BUDGET AND RATES**

The Borough Main Street stores are beginning to be occupied and the possible development in the future on North 1<sup>st</sup> Avenue by The Riverfront at Royersford Development will be prosperous for the Borough's economic future.

**CONTACTING THE BOROUGH'S MANAGEMENT**

This financial report is designed to provide our citizens, taxpayers, customers, investors and creditors with a general overview of the Borough's finances and to demonstrate the accountability for the money that the Borough receives and disburses. If you have any questions about this report or need additional information, contact Michael Leonard, Borough Manager.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD STATEMENT OF NET POSITION DECEMBER 31, 2018

	Governmental Activities	Business-Type Activities	Totals
<b>ASSETS</b>			
Cash and cash equivalents	\$ 366,799	\$ 340,398	\$ 707,197
Accounts receivable	138,692	63,546	202,238
Taxes receivable	38,026	-	38,026
Internal balances	(61,842)	61,842	-
Prepaid expenses	149,322	25,771	175,093
Net pension asset	-	-	-
Capital assets			
Land	216,461	-	216,461
Infrastructure	7,168,464	-	7,168,464
Plant	-	6,802,794	6,802,794
Buildings and building improvements	642,197	-	642,197
Equipment	413,235	51,054	464,289
Vehicles	408,601	29,268	437,869
Accumulated depreciation	(2,716,375)	(2,337,417)	(5,053,792)
TOTAL ASSETS	6,763,580	5,037,256	11,800,836
<b>DEFERRED OUTFLOWS OF RESOURCES</b>			
Deferred outflows related to pensions	302,828	77,842	380,670
<b>LIABILITIES</b>			
Accounts payable	35,034	48,004	83,038
Escrows payable	15,225	-	15,225
Payroll and payroll taxes payable	59,933	5,854	65,787
Long-term liabilities			
Portion due or payable within one year			
Capital lease	10,407	-	10,407
Bonds and notes payable	23,645	175,000	198,645
Portion due or payable after one year			
Capital lease	10,844	-	10,844
Bonds and notes payable	305,941	2,608,000	2,913,941
Net pension liability	742,256	68,086	810,342
Compensated absences	97,984	-	97,984
TOTAL LIABILITIES	1,301,269	2,904,944	4,206,213
<b>DEFERRED INFLOWS OF RESOURCES</b>			
Deferred inflows related to pensions	256,977	40,093	297,070
<b>NET POSITION</b>			
Net investment in capital assets	5,781,746	1,762,699	7,544,445
Restricted	245,110	-	245,110
Unrestricted	(518,694)	407,362	(111,332)
TOTAL NET POSITION	\$ 5,508,162	\$ 2,170,061	\$ 7,678,223

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF ACTIVITIES**  
**YEAR ENDED DECEMBER 31, 2018**

Functions/Programs	Expenses	Program Revenues		
		Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions
<b>GOVERNMENTAL ACTIVITIES</b>				
General government	\$ 794,330	\$ -	\$ 8,406	\$ 93,106
Public safety	1,605,933	93,879	124,352	-
Highways and streets	756,374	50,050	133,257	25,633
Culture and recreation	159,404	1,253	31,950	69,444
Interest on long-term debt	8,425	-	-	-
Loss on sale of capital assets	18,111	-	-	-
TOTAL GOVERNMENTAL ACTIVITIES	<u>3,342,577</u>	<u>145,182</u>	<u>297,965</u>	<u>188,183</u>
<b>BUSINESS-TYPE ACTIVITIES</b>				
Sewer	805,099	778,908	-	-
Trash collection	424,956	400,802	7,931	-
TOTAL BUSINESS-TYPE ACTIVITIES	<u>1,230,055</u>	<u>1,179,710</u>	<u>7,931</u>	<u>-</u>
TOTAL BOROUGH ACTIVITIES	<u>\$ 4,572,632</u>	<u>\$ 1,324,892</u>	<u>\$ 305,896</u>	<u>\$ 188,183</u>
<b>GENERAL REVENUES</b>				
Property taxes, levied for general purposes				
Earned income taxes				
Transfer taxes				
Per capita taxes and local services tax				
Public utility taxes				
Franchise taxes				
Amusement taxes				
Investment earnings				
Miscellaneous				
<b>TOTAL GENERAL REVENUES</b>				
<b>CHANGE IN NET POSITION</b>				
<b>NET POSITION AT BEGINNING OF YEAR</b>				
<b>NET POSITION AT END OF YEAR</b>				

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

---

Net (Expense) Revenue and Changes in Net Position

<u>Governmental Activities</u>	<u>Business-Type Activities</u>	<u>Totals</u>
\$ (692,818)	\$ -	\$ (692,818)
(1,387,702)	-	(1,387,702)
(547,434)	-	(547,434)
(56,757)	-	(56,757)
(8,425)	-	(8,425)
(18,111)	-	(18,111)
<u>(2,711,247)</u>	<u>-</u>	<u>(2,711,247)</u>
-	(26,191)	(26,191)
-	(16,223)	(16,223)
-	(42,414)	(42,414)
<u>(2,711,247)</u>	<u>(42,414)</u>	<u>(2,753,661)</u>
1,666,165	-	1,666,165
669,270	-	669,270
91,003	-	91,003
68,970	-	68,970
2,187	-	2,187
103,581	-	103,581
10,152	-	10,152
20,634	3,838	24,472
99,353	-	99,353
<u>2,731,315</u>	<u>3,838</u>	<u>2,735,153</u>
20,068	(38,576)	(18,508)
<u>5,488,094</u>	<u>2,208,637</u>	<u>7,696,731</u>
<u>\$ 5,508,162</u>	<u>\$ 2,170,061</u>	<u>\$ 7,678,223</u>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**BALANCE SHEET**  
**GOVERNMENTAL FUNDS**  
**DECEMBER 31, 2018**

	<u>General Fund</u>	<u>Special Revenue Fund</u>	<u>Total Governmental Funds</u>
<b>ASSETS</b>			
Cash	\$ 121,689	\$ 245,110	\$ 366,799
Accounts receivable	138,692	-	138,692
Taxes receivable	6,726	-	6,726
Prepaid expenditures	<u>149,322</u>	<u>-</u>	<u>149,322</u>
TOTAL ASSETS	<u>\$ 416,429</u>	<u>\$ 245,110</u>	<u>\$ 661,539</u>
<b>LIABILITIES AND FUND BALANCES</b>			
<b>LIABILITIES</b>			
Accounts payable	\$ 35,034	\$ -	\$ 35,034
Escrows payable	15,226	-	15,226
Due to other funds	61,842	-	61,842
Payroll and payroll taxes payable	<u>59,933</u>	<u>-</u>	<u>59,933</u>
TOTAL LIABILITIES	<u>172,034</u>	<u>-</u>	<u>172,034</u>
<b>FUND BALANCES</b>			
Nonspendable, prepaid expenses	149,322	-	149,322
Restricted, highway and street projects	-	245,110	245,110
Unassigned	<u>95,073</u>	<u>-</u>	<u>95,073</u>
TOTAL FUND BALANCES	<u>244,395</u>	<u>245,110</u>	<u>489,505</u>
TOTAL LIABILITIES AND FUND BALANCES	<u>\$ 416,429</u>	<u>\$ 245,110</u>	<u>\$ 661,539</u>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**RECONCILIATION OF TOTAL GOVERNMENTAL FUNDS BALANCES**  
**TO NET POSITION OF GOVERNMENTAL ACTIVITIES**  
**DECEMBER 31, 2018**

---

TOTAL GOVERNMENTAL FUNDS BALANCES \$ 489,505

Capital assets used in governmental activities are not current financial resources and therefore are not reported in the funds. These assets consist of:

Land	216,481
Infrastructure	7,168,464
Buildings and building improvements	642,197
Equipment	413,235
Vehicles	408,601
Accumulated depreciation	(2,716,375)

Deferred charges used in governmental activities are not financial resources and therefore are not reported in the funds. These assets consist of:

Deferred inflows and outflows related to pension activities	45,851
---	--------

Some liabilities are not due and payable in the current period and therefore are not reported in the funds. Those liabilities consist of:

Bonds and notes payable and capital lease	(350,837)
Compensated absences	(97,984)
Net pension liability	(742,256)

Some of the Borough's revenues will be collected after year-end but are not available soon enough to pay for the current period's expenditures and therefore are not recorded in the funds.

31,300

NET POSITION OF GOVERNMENTAL ACTIVITIES \$ 5,508,162

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF REVENUES, EXPENDITURES AND**  
**CHANGES IN FUND BALANCES**  
**GOVERNMENTAL FUNDS**  
**YEAR ENDED DECEMBER 31, 2018**

	General Fund	Special Revenue Fund	Total Governmental Funds
<b>REVENUES</b>			
Taxes	\$ 2,490,325	\$ -	\$ 2,490,325
Intergovernmental revenues	333,574	129,018	462,592
Investment income	16,950	3,684	20,634
Licenses and permits	104,631	-	104,631
Fines	25,362	-	25,362
Charges for services	150,720	-	150,720
Miscellaneous revenues	17,406	-	17,406
<b>TOTAL REVENUES</b>	<b>3,138,968</b>	<b>132,702</b>	<b>3,271,670</b>
<b>EXPENDITURES</b>			
General government	533,717	-	533,717
Public safety	1,774,527	-	1,774,527
Highways and streets	655,622	-	655,622
Recreation	208,945	-	208,945
Retirement expenses	126,483	-	126,483
Debt service			
Principal	23,178	-	23,178
Interest and other charges	7,110	-	7,110
<b>TOTAL EXPENDITURES</b>	<b>3,329,582</b>	<b>-</b>	<b>3,329,582</b>
<b>DEFICIENCY OF REVENUES OVER EXPENDITURES</b>	<b>(190,614)</b>	<b>132,702</b>	<b>(57,912)</b>
<b>OTHER FINANCING SOURCES</b>			
Insurance recoveries	81,947	-	81,947
<b>NET CHANGE IN FUND BALANCES</b>	<b>(108,667)</b>	<b>132,702</b>	<b>24,035</b>
<b>FUND BALANCES AT BEGINNING OF YEAR</b>	<b>353,062</b>	<b>112,408</b>	<b>465,470</b>
<b>FUND BALANCES AT END OF YEAR</b>	<b>\$ 244,395</b>	<b>\$ 245,110</b>	<b>\$ 489,505</b>

*See accompanying notes to the basic financial statements.*



**BOROUGH OF ROYERSFORD**
**RECONCILIATION OF THE GOVERNMENTAL FUNDS STATEMENT OF  
 REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES  
 TO THE STATEMENT OF ACTIVITIES  
 YEAR ENDED DECEMBER 31, 2018**


---

NET CHANGE IN FUND BALANCES - TOTAL GOVERNMENTAL FUNDS	\$ 24,035
Capital outlays are reported in Governmental Funds as expenditures. However, in the statement of activities, the cost of those assets is allocated over their estimated useful lives as depreciation expense. This is the amount by which capital outlays exceed depreciation in the period.	55,698
The net effect of various miscellaneous transactions involving capital assets (i.e., sales and donations) is to increase net assets.	(18,111)
The issuance of long-term debt (e.g., notes, leases) provides current financial resources to Governmental Funds, but issuing debt increases long-term liabilities in the statement of net position. Repayment of long-term debt principal is an expenditure in the Governmental Funds, but the repayment reduces long-term liabilities in the statement of net position. This is the net effect of these differences in the treatment of long-term debt.	33,162
Pension plan expenses are reported in the statement of activities and do not require the use of current financial resources and are not reported as expenditures in Governmental Funds.	(86,228)
Because some property taxes will not be collected for several months after the Borough's fiscal year ends, they are not considered as "available" revenues in the Governmental Funds. This is the amount of the change in real estate taxes outstanding during the year.	9,028
In the statement of activities, certain operating expenses—compensated absences (sick leave)—are measured by the amounts earned during the year. In the Governmental Funds, however, expenditures for these items are measured by the amount of financial resources used (essentially, the amounts actually paid).	<u>2,484</u>
CHANGE IN NET POSITION OF GOVERNMENTAL ACTIVITIES	<u>\$ 20,068</u>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD STATEMENT OF NET POSITION PROPRIETARY FUNDS DECEMBER 31, 2018

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>			
<b>CURRENT ASSETS</b>			
Cash and cash equivalents	\$ 87,011	\$ 253,387	\$ 340,398
Accounts receivable	36,893	26,653	63,546
Due from other funds	65,037	-	65,037
Prepaid expenses	20,486	5,285	25,771
<b>TOTAL CURRENT ASSETS</b>	<b>209,427</b>	<b>285,325</b>	<b>494,752</b>
<b>NON CURRENT ASSETS</b>			
<b>CAPITAL ASSETS</b>			
Plant	6,802,794	-	6,802,794
Vehicles	29,268	-	29,268
Equipment	51,054	-	51,054
Accumulated depreciation	(2,337,417)	-	(2,337,417)
<b>TOTAL NON CURRENT ASSETS</b>	<b>4,545,699</b>	<b>-</b>	<b>4,545,699</b>
<b>TOTAL ASSETS</b>	<b>4,755,126</b>	<b>285,325</b>	<b>5,040,451</b>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>			
Deferred outflows related to pensions	58,074	19,768	77,842
<b>TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>	<b>\$ 4,813,200</b>	<b>\$ 305,093</b>	<b>\$ 5,118,293</b>
<b>LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>			
<b>CURRENT LIABILITIES</b>			
Current portion of long-term debt	\$ 175,000	\$ -	\$ 175,000
Accounts payable	23,688	24,336	48,004
Due to other funds	-	3,195	3,195
Payroll and payroll taxes payable	5,854	-	5,854
<b>TOTAL CURRENT LIABILITIES</b>	<b>204,522</b>	<b>27,531</b>	<b>232,053</b>
<b>NONCURRENT LIABILITIES</b>			
Long-term debt	2,608,000	-	2,608,000
Net pension liability	50,799	17,287	68,086
<b>TOTAL NONCURRENT LIABILITIES</b>	<b>2,658,799</b>	<b>17,287</b>	<b>2,676,086</b>
<b>TOTAL LIABILITIES</b>	<b>2,863,321</b>	<b>44,818</b>	<b>2,908,139</b>
<b>DEFERRED INFLOWS OF RESOURCES</b>			
Deferred inflows related to pensions	29,907	10,186	40,093
<b>NET POSITION</b>			
Net investment in capital assets	1,762,699	-	1,762,699
Unrestricted	157,273	250,089	407,362
<b>TOTAL NET POSITION</b>	<b>1,919,972</b>	<b>250,089</b>	<b>2,170,061</b>
<b>TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>	<b>\$ 4,813,200</b>	<b>\$ 305,093</b>	<b>\$ 5,118,293</b>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF REVENUES, EXPENSES AND**  
**CHANGES IN NET POSITION**  
**PROPRIETARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2018**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>OPERATING REVENUES</b>			
Sewer rents and installation	\$ 778,908	\$ -	\$ 778,908
Trash collection	-	400,802	400,802
<b>TOTAL OPERATING REVENUES</b>	<u>778,908</u>	<u>400,802</u>	<u>1,179,710</u>
<b>OPERATING EXPENSES</b>			
Expenses	585,661	424,956	1,010,617
Depreciation	166,649	-	166,649
<b>TOTAL OPERATING EXPENSES</b>	<u>752,310</u>	<u>424,956</u>	<u>1,177,266</u>
<b>OPERATING INCOME (LOSS)</b>	<u>26,598</u>	<u>(24,154)</u>	<u>2,444</u>
<b>NONOPERATING REVENUES (EXPENSES)</b>			
Grants	-	7,931	7,931
Investment income	3,838	-	3,838
Interest expense	(52,789)	-	(52,789)
<b>TOTAL NONOPERATING REVENUES (EXPENSES)</b>	<u>(48,951)</u>	<u>7,931</u>	<u>(41,020)</u>
<b>CHANGE IN NET POSITION</b>	<u>(22,353)</u>	<u>(16,223)</u>	<u>(38,576)</u>
<b>NET POSITION AT BEGINNING OF YEAR</b>	<u>1,942,325</u>	<u>266,312</u>	<u>2,208,637</u>
<b>NET POSITION AT END OF YEAR</b>	<u>\$ 1,919,972</u>	<u>\$ 250,089</u>	<u>\$ 2,170,061</u>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF CASH FLOWS**  
**PROPRIETARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2018**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>			
Cash received from customers	\$ 791,177	\$ 407,284	\$ 1,198,461
Payments to suppliers	(369,553)	(360,926)	(730,479)
Payments to employees	(192,447)	(52,788)	(245,235)
<b>NET CASH PROVIDED (USED) BY     OPERATING ACTIVITIES</b>	<u>229,177</u>	<u>(6,430)</u>	<u>222,747</u>
<b>CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES</b>			
Grants received	-	7,931	7,931
<b>CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES</b>			
Purchase of equipment	(51,054)	-	(51,054)
Principal paid on long-term debt	(172,000)	-	(172,000)
Interest paid on long-term debt	(52,789)	-	(52,789)
<b>NET CASH USED BY CAPITAL AND     RELATED FINANCING ACTIVITIES</b>	<u>(275,843)</u>	<u>-</u>	<u>(275,843)</u>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>			
Earnings from investments	3,838	-	3,838
<b>NET INCREASE (DECREASE) IN     CASH AND CASH EQUIVALENTS</b>	(42,828)	1,501	(41,327)
<b>CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR</b>	<u>129,839</u>	<u>251,886</u>	<u>381,725</u>
<b>CASH AND CASH EQUIVALENTS AT     END OF YEAR</b>	<u>\$ 87,011</u>	<u>\$ 253,387</u>	<u>\$ 340,398</u>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF CASH FLOWS**  
**PROPRIETARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2018**

	Enterprise Funds		Total Proprietary Funds
	Sewer Fund	Trash Collection Fund	
<b>RECONCILIATION OF OPERATING INCOME TO NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES</b>			
Operating income (loss)	\$ 26,598	\$ (24,154)	\$ 2,444
Adjustments to reconcile operating income (loss) to net cash provided (used) by operating activities			
Depreciation	166,649	-	166,649
Pension expense	15,320	5,217	20,537
Change in assets and liabilities			
Accounts receivable	12,269	6,482	18,751
Prepaid expenses	(1,247)	(514)	(1,761)
Accounts payable	9,373	6,539	15,912
Payroll and payroll taxes payable	215	-	215
	<u>\$ 229,177</u>	<u>\$ (6,430)</u>	<u>\$ 222,747</u>
<b>NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES</b>	<b>\$ 229,177</b>	<b>\$ (6,430)</b>	<b>\$ 222,747</b>

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF FIDUCIARY NET POSITION**  
**FIDUCIARY FUNDS**  
**DECEMBER 31, 2018**

---

	Pension Trust Funds		Total
	Police Pension	Non-Uniformed Pension	Fiduciary Funds
<b>ASSETS</b>			
Cash and cash equivalents	\$ 21,923	\$ 9,823	\$ 31,746
Investments	2,585,472	2,244,163	4,829,635
<b>NET POSITION</b>			
Held in trust for pension benefits	\$ 2,607,395	\$ 2,253,986	\$ 4,861,381

*See accompanying notes to the basic financial statements.*

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**STATEMENT OF CHANGES IN FIDUCIARY NET POSITION**  
**FIDUCIARY FUNDS**  
**YEAR ENDED DECEMBER 31, 2018**

	Pension Trust Funds		Total Fiduciary Funds
	Police Pension	Non-Uniformed Pension	
<b>ADDITIONS</b>			
Contributions			
Employees	\$ 32,200	\$ 12,175	\$ 44,375
Employer	18,742	-	18,742
State aid	78,586	29,155	107,741
Investment loss	(168,587)	(143,895)	(312,482)
<b>TOTAL ADDITIONS</b>	<u>(39,059)</u>	<u>(102,565)</u>	<u>(141,624)</u>
<b>DEDUCTIONS</b>			
Benefits	102,345	99,814	202,159
Administrative	43,540	38,088	81,628
<b>TOTAL DEDUCTIONS</b>	<u>145,885</u>	<u>137,902</u>	<u>283,787</u>
<b>CHANGE IN NET POSITION</b>	(184,944)	(240,467)	(425,411)
<b>NET POSITION HELD IN TRUST FOR PENSION BENEFITS</b>			
<b>BEGINNING OF YEAR</b>	<u>2,792,339</u>	<u>2,494,453</u>	<u>5,286,792</u>
<b>END OF YEAR</b>	<u>\$ 2,607,395</u>	<u>\$ 2,253,986</u>	<u>\$ 4,861,381</u>

*See accompanying notes to the basic financial statements.*

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

The basic financial statements of the Borough of Royersford (the "Borough") have been prepared in conformity with accounting principles generally accepted in the United States of America as applied to government units. The Governmental Accounting Standards Board (GASB) is the accepted standard setting body for establishing governmental accounting and financial reporting principles.

The more significant of the Borough's accounting policies are described below.

**Reporting Entity**

The financial statements of the Borough include the departments and other organizational units over which Borough Council exercises oversight responsibility, including general government, police protection, parks and recreation, public works and sanitation.

In evaluating the Borough as a reporting entity, management has addressed all potential component units for which the Borough may or may not be financially accountable and, as such, be includable within the Borough's financial statements. Additionally, the primary government is required to consider other organizations for which the nature and significance of their relationship with the primary government are such that exclusion would cause the Borough's financial statements to be misleading or incomplete.

Management has evaluated the following potential component units and determined they did not meet the criteria for inclusion as component units in the December 31, 2018 annual financial report:

- The fire department receives a contribution from the Borough and uses the personal property of the Borough. However, the majority of revenues generated is through private fund-raisers under the direction of a separate independent board not appointed by Borough Council. The department is organized under a separate charter, and, therefore, it is not included in the financial statements.
- The tax collector is an elected officer who collects taxes on behalf of the Borough, the Spring-Ford Area School District and Montgomery County. The Borough regards the tax collector's office as a separate entity and, therefore, does not account for its activity in the financial statements.

**Fund Accounting**

The Borough uses funds to maintain its financial records during the fiscal year. Fund accounting is designed to demonstrate legal compliance and to aid financial management by segregating transactions related to certain Borough functions or activities. A fund is defined as a fiscal and accounting entity with a self-balancing set of accounts that comprise its assets, liabilities, fund balance, revenues and expenditures or expenses. The various funds of the Borough are grouped into the categories governmental, proprietary and fiduciary.



**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

The Borough reports the following major Governmental Funds:

**General Fund** - The General Fund is the general operating fund of the Borough. It is used to account for all financial resources except those required to be accounted for in another fund. The principal activities accounted for in the General Fund are general government, public safety, public works and recreation. Those activities are funded principally by property taxes, state shared taxes and grants from other governmental units. The General Fund balance is available for any purpose provided it is expended or transferred according to the general laws of Pennsylvania.

**Special Revenue Fund** - The Special Revenue Fund is used to account for the proceeds of specific revenue sources (other than trusts or major capital projects) that are legally restricted expenditures for specified purposes. This fund accounts principally for the disposition of dedicated state liquid fuels highway aid funding.

The Borough reports the following major Proprietary Funds:

**Enterprise Funds**

**Sewer Fund** - The Sewer Fund accounts for the activities of the sewage treatment plant, sewage pumping stations and collection systems.

**Trash Collection Fund** - The Trash Collection Fund accounts for the operation of the Borough's trash collection system.

The Borough reports the following Fiduciary Funds:

**Pension Trust Funds** - The Pension Trust Funds are used to account for financial resources restricted solely for life insurance, disability and retirement benefits of the employees participating under the Borough's defined benefit pension plans.

**Basis of Presentation and Accounting**

**Government-Wide Financial Statements** - The statement of net position and the statement of activities display information about the Borough as a whole. These statements include the financial activities of the primary government, except for Fiduciary Funds. The statements distinguish between those activities of the Borough that are governmental and those that are considered business-type activities.

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2018

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

The government-wide statements are prepared using the economic resources measurement focus and the accrual basis of accounting. This is the same approach used in the preparation of the Proprietary Funds' financial statements but differs from the manner in which Governmental Funds' financial statements are prepared. Governmental Funds' financial statements therefore include a reconciliation with brief explanations to better identify the relationship between the government-wide statements and the statements for Governmental Funds. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows. Property taxes are recognized as revenues in the year for which they are levied. Grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the provider have been met.

The government-wide statement of activities presents a comparison between direct expenses and program revenues for each segment of the business-type activities of the Borough and for each function or program of the Borough's governmental activities. Direct expenses are those that are specifically associated with a service, program, or department and therefore clearly identifiable to a particular function. Program revenues include charges paid by the recipient of the goods or services offered by the program and grants and contributions that are restricted to meeting the operational or capital requirements of a particular program. Revenues, which are not classified as program revenues, are presented as general revenues of the Borough, with certain limited exceptions. The comparison of direct expenses with program revenues identifies the extent to which each business segment or governmental function is self-financing or draws from the general revenues of the Borough.

As a general rule, the effect of interfund activity has been eliminated from the government-wide financial statements.

**Fund Financial Statements** - Fund financial statements report detailed information about the Borough. The focus of Governmental and Proprietary Funds' financial statements is on major funds rather than reporting funds by type. Each major fund is presented in a separate column. Fiduciary Funds are reported by fund type.

The accounting and financial reporting treatment applied to a fund is determined by its measurement focus. All Governmental Funds are accounted for using the current financial resources measurement focus and the modified accrual basis of accounting. Revenues are recognized as soon as they are both measurable and available. Revenues are considered to be available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the Borough considers revenues to be available if they are collected within 60 days of the end of the fiscal period.

Expenditures generally are recorded when a liability is incurred, as under accrual accounting. However, debt service expenditures, as well as expenditures related to compensated absences, and claims and judgments are recorded only when payment is due. The financial statements for Governmental Funds are a balance sheet, which generally includes only current assets and current liabilities, and a statement of revenues, expenditures and changes in fund balances, which reports on the sources (i.e., revenues and other financing sources) and uses (i.e., expenditures and other financing uses) of current financial resources.

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2018

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

All Proprietary Funds are accounted for on a flow of economic resources measurement focus. With this measurement focus, all assets and all liabilities associated with the operation of these funds are included on the statement of net position. The statement of revenues, expenses and changes in net position presents increases (i.e., revenues) and decreases (i.e., expenses) in net total assets. The statement of cash flows provides information about how the Borough finances and meets the cash flow needs of its proprietary activities.

Proprietary Funds distinguish operating revenues and expenses from nonoperating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with the Proprietary Funds' ongoing operations. The principal operating revenues of the Borough's Enterprise Funds are sewer rents and trash collection fees. Operating expenses of the Borough's Enterprise Funds include supplies, administrative costs and depreciation on capital assets. All revenues or expenses not meeting this definition are reported as nonoperating revenues and expenses.

Fiduciary Funds are reported using the economic resources measurement focus.

When both restricted and unrestricted resources are available for use, it is the Borough's policy to use restricted resources first, then unrestricted resources as they are needed.

**Cash Equivalents**

For purposes of the statement of cash flows, the Proprietary Funds consider all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents.

**Investments**

Statutes authorize the Borough to invest in: 1) obligations, participations and other instruments of any Federal agency, 2) repurchase agreements with respect to U.S. Treasury bills or obligations, 3) negotiable certificates of deposit, 4) bankers' acceptances, 5) commercial paper, 6) shares of an investment company registered under the Investment Company Act of 1940 whose shares are registered under the Securities Act of 1933, and 7) savings or demand deposits. The specific conditions under which the Borough may invest in these categories are detailed in Pennsylvania Act No. 53 of 1973, as amended by Pennsylvania Act No. 10 of 2016. State law does not limit pension investments. Investments are stated at fair value.

Under Act No. 72, enacted by the General Assembly of the Commonwealth of Pennsylvania, the funds deposited with the various banks are permitted to be secured on a pooled basis with all other public funds which the banking institution has on deposit. These may be bonds of the United States, any state of the United States, or bonds of any political subdivision of Pennsylvania or the general state authority or their authorities created by the General Assembly of the Commonwealth of Pennsylvania, or insured with the Federal Deposit Insurance Corporation. The market value of such bonds pledged must equal 120% of the funds deposited. The security pledged by the various depositories utilized during the year and at December 31, 2018, was in excess of the minimum requirements just described.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

The Borough has adopted GASB Statement No. 72, *Fair Value Measurement and Application*. In accordance with this Statements, investments in marketable securities with readily determinable fair value and all investments in debt securities are reported at their fair values.

**Prepaid Expenditures/Expenses**

Certain payments to vendors reflect costs applicable to future accounting periods and are recorded as prepaid expenditures/expenses in both the government-wide and fund financial statements.

**Capital Assets**

Under GASB Statement No. 34, all capital assets, whether owned by governmental activities or business-type activities, are recorded and depreciated in the government-wide financial statements. No long-term capital assets or depreciation are shown in the Governmental Funds' financial statements.

Capital assets are defined as assets with an initial, individual cost of \$5,000 or more and an estimated useful life greater than one year. Capital assets are recorded at cost or estimated historical cost if purchased or constructed. Donated capital assets are recorded at the estimated fair market value at the date of donation.

The costs of normal maintenance and repairs that do not add to the value of the asset or materially extend the asset's life are not capitalized. Major improvements are capitalized and depreciated over the remaining useful lives of the related capital assets.

Capital assets are depreciated using the straight-line method over the following estimated useful lives:

	<u>Years</u>
Buildings and building improvements	5-40
Plant	5-40
Equipment	10-20
Vehicles	3-10
Infrastructure	25

**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2018

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

**Deferred Outflows/Inflows of Resources**

In addition to assets, the statement of net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, deferred outflows of resources, represents a consumption of net position that applies to a future period(s) and so will not be recognized as an outflow of resources (expense/expenditure) until then. The Borough has one item that qualifies for reporting in this category. The deferred outflow of resources related to pensions is reported in the government-wide statement of net position and the proprietary fund statement of net position and is the result of changes in plan assumptions and the net difference between projected and actual earnings on pension plan investments.

In addition to liabilities, the statement of net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, deferred inflows of resources, represents an acquisition of net position that applies to a future period(s) and so will not be recognized as an inflow of resources (revenue) until that time. The Borough has one item that qualifies for reporting in this category. The deferred inflow of resources related to pensions is reported in the government-wide statement of net position and the proprietary fund statement of net position and is the result of changes in plan assumptions and the differences between expected and actual experience of the pension plan.

**Long-Term Obligations**

In the government-wide financial statements and Proprietary Funds in the fund financial statements, long-term debt and other long-term obligations are reported as liabilities in the applicable governmental activities, business-type activities, or Proprietary Funds' statement of net position.

In the fund financial statements, Governmental Funds recognize note premiums and discounts, as well as note issuance costs, during the current period. The face amount of debt issued is reported as other financing sources. Premiums received on debt issuances are reported as other financing sources while discounts on debt issuances are reported as other financing uses. Issuance costs, whether or not withheld from the actual debt proceeds received, are reported as debt service expenditures.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

**Fund Balance**

Beginning with the year ended December 31, 2011, the Borough implemented GASB Statement No. 54, *Fund Balance Reporting and Governmental Fund Type Definitions*. This statement provides more clearly defined fund balance categories to make the nature and extent of the constraints placed on the Borough's fund balances more transparent.

The following classifications describe the relative strength of the spending constraints:

- ***Nonspendable Fund Balance*** - Amounts that are not in spendable form (such as prepaid expenses) or are required to be maintained intact.
- ***Restricted Fund Balance*** - Amounts constrained to specific purposes by their providers (such as grantors, bondholders and higher levels of government) through constitutional provisions or by enabling legislation.
- ***Committed Fund Balance*** - Amounts constrained to specific purposes by the Borough itself, using its highest level of decision-making authority (Borough Council). To be reported as committed, amounts cannot be used for any other purpose unless the Borough takes the same highest level action to remove or change the constraint.
- ***Assigned Fund Balance*** - Amounts the Borough intends to use for a specific purpose. Intent can be expressed by Borough Council or by an official or body to which Borough Council delegates the authority.
- ***Unassigned Fund Balance*** - Amounts available for any purpose. Positive amounts are reported only in the General Fund.

Borough Council establishes (and modifies or rescinds) fund balance commitments by passage of a resolution. This is typically done through adoption and amendment of the budget. A fund balance commitment is further indicated in the budget document as a commitment of the fund. Assigned fund balance is intended to be used by the government for specific purposes but does not meet the criteria to be classified as restricted or committed.

The Borough will typically use restricted fund balances first, followed by committed resources and then assigned resources, as appropriate opportunities arise, but reserves the right to selectively spend unassigned resources first to defer the use of these other classified funds.

**Use of Estimates**

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE A - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

*Real Estate Tax Calendar*

The original tax duplicate is received by the tax collector and mailed February 1. The discount period extends through March 31, followed by the flat period through May 31 and ends with the penalty period after June 1. The penalty is 10%. Any unpaid taxes at the end of the year are required to be liened by January 15 with the county.

**NOTE B - DEPOSITS AND INVESTMENTS**

*Deposits*

**Custodial Credit Risk** - Custodial credit risk is the risk that, in the event of a bank failure, the Borough's deposits may not be returned to it. The Borough follows state statute as it relates to custodial credit risk. As of December 31, 2018, \$441,282 of the Borough's bank balance of \$723,028 was exposed to custodial credit risk as follows:

Uninsured and collateralized with securities held by the pledging bank's trust department not in the Borough's name	\$ <u>196,172</u>
Held by PLGIT, which is uninsured and uncollateralized	\$ <u>245,110</u>

*Investments*

**Fair Value Measurement** - The Borough categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are those that lack significant observable inputs. The Borough had the following recurring fair value measurements as of December 31, 2018.

Investment Type	Fair Value (Level 1)	Investment Maturities	
		1 Year or Less	2 to 5 Years
Equity investments	\$ 2,557,697	\$ 2,557,697	\$ -
Mutual funds	2,243,381	2,243,381	-
Exchange traded products	<u>28,557</u>	<u>28,557</u>	-
	<u>\$ 4,829,635</u>	<u>\$ 4,829,635</u>	<u>\$ -</u>

**Interest Rate Risk** - The Borough's investment policy does limit investment maturities in accordance with state statutes as a means of managing its exposure to fair value losses arising from increasing interest rates.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE C - ACCOUNTS RECEIVABLE**

Accounts receivable are comprised of the following:

	<u>General Fund</u>	<u>Proprietary Fund Type</u>	<u>Totals</u>
Sewer billings	\$ -	\$ 36,893	\$ 36,893
Refuse billings	-	26,653	26,653
Other	<u>138,692</u>	<u>-</u>	<u>138,692</u>
	<u>\$ 138,692</u>	<u>\$ 63,546</u>	<u>\$ 202,238</u>

The Borough believes that all receivables are collectible; therefore, an allowance for doubtful accounts is not needed.



**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

**NOTE D - CAPITAL ASSETS**

A summary of changes in capital assets is as follows:

	Balance January 1, 2018	Additions	Deletions	Balance December 31, 2018
<b>GOVERNMENTAL ACTIVITIES</b>				
Capital assets not being depreciated				
Land	\$ 216,461	\$ -	\$ -	\$ 216,461
Capital assets being depreciated				
Infrastructure	6,780,236	388,228	-	7,168,464
Buildings and building improvements	642,197	-	-	642,197
Equipment	413,235	-	-	413,235
Vehicles	448,117	-	(39,516)	408,601
<b>TOTAL CAPITAL ASSETS BEING DEPRECIATED</b>	<b>8,283,785</b>	<b>388,228</b>	<b>(39,516)</b>	<b>8,632,497</b>
Accumulated depreciation				
Infrastructure	(1,524,438)	(275,298)	-	(1,799,736)
Buildings and building improvements	(273,907)	(15,855)	-	(289,562)
Equipment	(310,330)	(19,805)	-	(330,135)
Vehicles	(296,575)	(21,772)	21,405	(296,942)
<b>TOTAL ACCUMULATED DEPRECIATION</b>	<b>(2,405,250)</b>	<b>(332,530)</b>	<b>21,405</b>	<b>(2,716,375)</b>
<b>TOTAL CAPITAL ASSETS BEING DEPRECIATED, net</b>	<b>5,878,535</b>	<b>55,698</b>	<b>(18,111)</b>	<b>5,916,122</b>
<b>GOVERNMENTAL ACTIVITIES CAPITAL ASSETS, net</b>	<b>6,094,996</b>	<b>55,698</b>	<b>(18,111)</b>	<b>6,132,583</b>
<b>BUSINESS-TYPE ACTIVITIES</b>				
Capital assets being depreciated				
Plant	6,802,794	-	-	6,802,794
Vehicles	29,268	-	-	29,268
Equipment	-	51,054	-	51,054
<b>TOTAL CAPITAL ASSETS BEING DEPRECIATED</b>	<b>6,832,062</b>	<b>51,054</b>	<b>-</b>	<b>6,883,116</b>
Accumulated depreciation				
Plant	(2,153,694)	(163,722)	-	(2,317,416)
Vehicles	(17,074)	(2,927)	-	(20,001)
Equipment	-	-	-	-
<b>TOTAL ACCUMULATED DEPRECIATION</b>	<b>(2,170,768)</b>	<b>(166,649)</b>	<b>-</b>	<b>(2,337,417)</b>
<b>TOTAL CAPITAL ASSETS BEING DEPRECIATED, net</b>	<b>4,661,294</b>	<b>(115,595)</b>	<b>-</b>	<b>4,545,699</b>
<b>CAPITAL ASSETS, net</b>	<b>\$ 10,756,290</b>	<b>\$ (59,897)</b>	<b>\$ (18,111)</b>	<b>\$ 10,678,282</b>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

**NOTE D - CAPITAL ASSETS (Continued)**

The net book value of each capital asset category for governmental and business-type activities is as follows:

	<u>Cost</u>	<u>Accumulated Depreciation</u>	<u>Net Book Value</u>
<b>GOVERNMENTAL ACTIVITIES</b>			
Capital assets not being depreciated			
Land	\$ 216,461	\$ -	\$ 216,461
Capital assets being depreciated			
Infrastructure	7,168,464	(1,799,736)	5,368,728
Buildings and building improvements	642,197	(289,562)	352,635
Equipment	413,235	(330,135)	83,100
Vehicles	408,601	(296,942)	111,659
	<u>8,848,958</u>	<u>(2,716,375)</u>	<u>6,132,583</u>
<b>BUSINESS-TYPE ACTIVITIES</b>			
Capital assets being depreciated			
Plant	6,802,794	(2,317,416)	4,485,378
Vehicles	29,268	(20,001)	9,267
Equipment	51,054	-	51,054
	<u>6,883,116</u>	<u>(2,337,417)</u>	<u>4,545,699</u>
<b>TOTAL CAPITAL ASSETS</b>	<b>\$ <u>15,732,074</u></b>	<b>\$ <u>(5,053,792)</u></b>	<b>\$ <u>10,678,282</u></b>

Depreciation expense was charged to governmental functions as follows:

General government	\$ 12,219
Public safety	20,027
Highways and streets	254,233
Culture and recreation	46,051
	<u>332,530</u>
	<b>\$ <u>332,530</u></b>

# APPENDIX A-5.1 (AUS)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE E - LONG-TERM LIABILITIES**

The following is a summary of long-term liability activity of the Borough for the year ended December 31, 2018:

	<u>Balance January 1, 2018</u>	<u>Additions/ Refundings</u>
<b>GOVERNMENTAL ACTIVITIES</b>		
General Obligation Bonds and Notes		
Bonds, Series of 2011	\$ 352,764	\$ -
Capital leases	31,235	-
Net Pension Liability	170,736	-
Compensated absences (Note G)	<u>100,468</u>	<u>-</u>
<b>TOTAL GOVERNMENTAL ACTIVITIES</b>	<u>655,203</u>	<u>-</u>
 <b>BUSINESS-TYPE ACTIVITIES</b>		
Notes		
Guaranteed Sewer Revenue Note, Series of 2008	2,955,000	-
Net Pension Liability	<u>-</u>	<u>-</u>
<b>TOTAL BUSINESS-TYPE ACTIVITIES</b>	<u>2,955,000</u>	<u>-</u>
<b>TOTAL LONG-TERM LIABILITIES</b>	<u>\$ 3,610,203</u>	<u>\$ -</u>

The General Fund funds the payment of long-term debt and compensated absences in the governmental activities.

# APPENDIX A-5.1 (AUS)

---

<u>Deletions/ Maturities</u>	<u>Balance December 31, 2018</u>	<u>Due Within One Year</u>
\$ (23,178) (9,984) 571,520 (2,484) <hr style="width: 100%;"/> 535,874	\$ 329,586 21,251 742,256 97,984 <hr style="width: 100%;"/> 1,191,077	\$ 23,645 10,407 - - <hr style="width: 100%;"/> 34,052
(172,000) 68,086 <hr style="width: 100%;"/> (103,914)	2,783,000 68,086 <hr style="width: 100%;"/> 2,851,086	175,000 - <hr style="width: 100%;"/> 175,000
\$ <u>431,960</u>	\$ <u>4,042,163</u>	\$ <u>209,052</u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE E - LONG-TERM LIABILITIES (Continued)**

Bonds and notes payable at December 31, 2018, consisted of:

**Governmental Activities**

General Obligation Bonds, Series of 2011, used to currently refund the General Obligation Note, Series of 2008, which was originally used to finance the revitalization of Main Street, principal and interest payments were due monthly and began in April 2011 and continued through July 2016 at a fixed rate of 3.45%. In August 2016, the interest rate was set at a fixed rate of 2.08% continuing through April 2021. In April 2021 and continuing through April 2026 interest will be set at a variable rate of the prime rate plus an additional .25%, not to exceed 5.99%. In April 2026 the rate will change to a fixed rate of 5.99% through maturity in April 2031.

\$ 329,586

**Business-Type Activities**

Guaranteed Sewer Revenue Note, Series of 2008, used for renovations to the Royersford Waste Water Treatment Plant; principal payments began in June 2009 and continue through June 2032 ranging from \$5,000 to \$265,000 annually; interest payments began in July 2008 and are due monthly at a fixed rate of 1.84%

2,783,000

**TOTAL BONDS AND NOTES PAYABLE**

\$ 3,112,586

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE E - LONG-TERM LIABILITIES (Continued)**

*Debt Service Requirements*

A summary of notes payable debt service requirements to maturity, including principal and interest, is as follows:

<u>Year Ending December 31,</u>	<u>Principal</u>	<u>Interest</u>	<u>Totals</u>
2019	\$ 198,645	\$ 57,830	\$ 256,475
2020	203,144	54,131	257,275
2021	203,734	57,320	261,054
2022	206,424	56,318	262,742
2023	211,743	51,595	263,338
2024 to 2028	1,137,461	181,703	1,319,164
2029 to 2033	951,435	46,331	997,766
	<u>\$ 3,112,586</u>	<u>\$ 505,228</u>	<u>\$ 3,617,814</u>

**NOTE F - CAPITAL LEASE**

The Borough has entered into a lease agreement as lessee for financing the acquisition of a vehicle for the Police Department. The lease agreement qualifies as a capital lease for accounting purposes and, therefore, has been recorded at the present value of the future minimum lease payments as of the inception date. The assets acquired through the capital lease have a cost of \$31,295 and accumulated depreciation of \$4,173 as of December 31, 2018.

The future minimum lease obligations and the net present value of these minimum lease payments as of December 31, 2018, were as follows:

<u>Year Ending December, 31</u>	<u>General Fund</u>
2019	11,299
2020	11,299
Amount representing interest	<u>(1,347)</u>
	<u>\$ 21,251</u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

**NOTE G - SICK LEAVE**

The Borough does not accrue accumulated sick leave on its Governmental or Proprietary Funds but expenses these costs as paid in the fund financial statements. Sick leave is accrued on the government-wide financial statements. The amount of vested accumulated sick leave was \$97,984 as of December 31, 2018. Non-uniform employees earn 1 1/4 days of sick leave per month with a maximum accumulation of 75 days for hourly employees and 100 days for salaried employees. Uniform employees earn ten hours of sick leave per month with a maximum accumulation of 1040 hours. All employees are entitled to payment for 80% of accumulated sick leave upon retirement and 50% upon termination after three years of employment. Effective January 1, 2012, all uniform employees are eligible to receive payment of accumulated sick leave up to a maximum of \$9,000.

**NOTE H - INTERGOVERNMENTAL REVENUES**

Intergovernmental revenues by source are summarized as follows:

	General Fund	Special Revenue Fund
COMMONWEALTH OF PENNSYLVANIA		
Payment in lieu of taxes	\$ 6,207	\$ -
Public utility realty tax	2,187	-
Liquid fuels	-	129,018
Pension	107,741	-
Snow removal	4,239	-
Liquor Control Board	850	-
Volunteer Fire Fighter	24,167	-
DCNR grants	69,444	-
County of Montgomery		
Conservation District	25,633	-
Streetscape enhancement	93,108	-
	<u>\$ 333,574</u>	<u>\$ 129,018</u>

Approximately 14% of all Borough revenues represents federal, state and county grants.

**NOTE I - INTERFUND RECEIVABLES, PAYABLES AND TRANSFERS**

Interfund receivables and payables are summarized as follows:

	Due from Other Funds	Due to Other Funds
General Fund	\$ -	\$ 61,842
Sewer Fund	65,037	-
Trash Collection Fund	-	3,195
	<u>\$ 65,037</u>	<u>\$ 65,037</u>

There were no Interfund transfers that occurred for the year ended December 31, 2018.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN)**

*Summary of Significant Accounting Policies*

*Method Used to Value Investments* - Police Pension Plan investments are carried at fair value as reported by the investment managers. Short-term investments are reported at cost, which approximates fair value.

*Plan Description*

*Plan Administration* - The Borough administers the Police Pension Plan—a single-employer defined benefit pension plan that provides pensions for all regular, full-time sworn police officers.

Management of the plan is vested in the Pension Board, which consists of five members; two elected council members, the Borough Manager, one police department representative and one non-uniformed employees representative—all appointed by the Borough Council President. The Pension Board is responsible for managing, investing and monitoring the Borough's Police Pension Fund.

*Plan Membership* - At December 31, 2018, pension plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefits	3
Inactive plan members entitled to but not yet receiving benefits	-
Active plan members	<u>7</u>
	<u>10</u>

*Benefits Provided* - The plan provides retirement, disability and death benefits. A member is eligible for normal retirement after attainment of age 50 and completion of 25 years of vesting service. The normal retirement pension is payable monthly during the member's lifetime, with payments continuing after the member's death to the surviving spouse, or eligible child, equal to 50% of the amount payable to the member at the time of the member's death. The amount of monthly pension is equal to 50% of average monthly compensation, plus a service increment equal to \$100 per month per year of benefit service completed in excess of 25 years, up to a maximum of \$500 additional per month. Average compensation is based upon the last 36 months of employment. If a member continues working after his normal retirement date, his pension does not start until he actually retires. If an active member suffers a service related disability, they are eligible for disability retirement. The service related disability retirement is payable monthly equal to 80% of the member's monthly salary at the time of disability reducing to 50% of salary at normal retirement date less worker's compensation benefits. There is no benefit for non-service related disability.



**BOROUGH OF ROYERSFORD**  
NOTES TO THE BASIC FINANCIAL STATEMENTS  
DECEMBER 31, 2018

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

Benefit terms provide for an annual cost-of-living increase, based upon the increase in the Consumer Price Index for the preceding year, shall be granted to retired members equal to not more than the increase in the Consumer Price Index from the year in which the member last worked, with a maximum total cost-of-living increase of 30%.

The benefit provisions of the Borough's Police Pension Plan are established by Borough ordinances.

**Contributions** - The Borough's police employees are required to contribute a percentage of their monthly salaries to the plan. The Borough is required to contribute the remaining amounts necessary to fund the plan using the actuarial basis specified by state statute. The state also provides funds (distribution of foreign casualty insurance premium taxes) to the Borough, which are used by the Borough in making its regular contributions to the plan.

Pennsylvania Act 205 of 1984 (as amended) requires that annual contributions be based upon the minimum municipal obligation (MMO), which is based on the plan's biennial actuarial valuation. The MMO includes the normal cost, estimated administrative expenses and an amortization contribution of the unfunded actuarial accrued liability, less estimated member contributions, and a credit equal to 10% of the excess (if any) of the actuarial value of assets over the actuarial accrued liability. The state provides an allocation of funds, which must be used for pension funding. A financial requirement established by the MMO, which exceeds state and member contributions, must be funded by the employer. In accordance with Act 205, the Borough was required to contribute \$97,328 to the plan for the year 2018. The Borough's actual contributions for the plan year 2018 were \$97,328.

Per the collective bargaining agreement, employees are required to contribute 5% of covered payroll. This contribution is governed by the plan's governing ordinances and collective bargaining agreements. Administrative costs, which may include, but are not limited to, investment management fees and actuarial services are charged to the plan and funded through the MMO and/or plan earnings. On-behalf payments of fringe benefits and salaries for the Borough's employees were recognized as revenues and expenditures during the year.

**Investments**

**Investment Policy** - The plan's policy in regard to the allocation of invested assets is established and may be amended by the Pension Board by a majority vote of its members. It is the policy of the Pension Board to pursue an investment strategy that reduces risk through prudent diversification of the portfolio across a broad selection of distinct asset classes. The plan's investment policy discourages the use of cash equivalents, except for liquidity purposes, and aims to refrain from dramatically shifting asset class allocations over short time spans.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

The following was the Board's adopted asset allocation policy as of December 31, 2018:

<u>Asset Class</u>	<u>Target Allocation</u>
Dividend and income stocks	30%
Core equity	25%
International	15%
Fixed income	30%
	<u>100%</u>

**Concentrations** - More than 5% of the Borough's investments are in equity securities and mutual funds. These investments are 53% and 46% of the plan's total investments, respectively.

**Rate of Return** - For the year ended December 31, 2018, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was -7.6%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

**Net Pension Liability of the Borough**

The components of the net pension liability of the Borough at December 31, 2018, were as follows:

Total pension liability	\$ 3,279,660
Plan fiduciary net position	<u>(2,607,395)</u>
<b>NET PENSION LIABILITY</b>	<b>\$ <u>672,265</u></b>

Plan fiduciary net position as a percentage of the total pension liability	<u>79.50%</u>
--	---------------

**Actuarial Assumptions** - The total pension liability was determined by an actuarial valuation as of January 1, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3%
Salary increases	4.25% average, including inflation
Investment rate of return	7.25%

Mortality rates were based on the RP-2000 Blue Collar Mortality Table with Scale AA.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

Due to the size of the plan, there has been no experience studies used to determine plan assumptions.

The long-term expected rate of return on plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the plan's target asset allocation as of December 31, 2018 (see the plan's investment policy), are summarized in the following table:

<u>Asset Class</u>	<u>Long-Term Expected Real Rate of Return</u>
Dividend and income stocks	7.5%
Core equity	8.0%
International	10.0%
Fixed income	3.8%

**Discount Rate** - The discount rate is based on the long-term expected rate of return on plan investments that are expected to be used to finance the payments of benefits. The plan's fiduciary net position is projected to be sufficient to make projected benefit payments and the plan assets are expected to be invested using a strategy to achieve that return. The employer has always met the funding requirements of Pennsylvania Law Act 205 of 1984. Act 205 requires full funding of the entry age normal cost plus plan expenses, as well as amortization of the unfunded liability to ultimately achieve a 100% funded status.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

***Changes in the Net Pension Liability***

	Governmental Activities:		
	Total	Plan	Net
	Pension Liability (a)	Fiduciary Net Position (b)	Pension Liability (a)-(b)
Balance at December 31, 2017	\$ 3,054,243	\$ 2,792,339	\$ 261,904
Changes for the year			
Service cost	106,285	-	106,285
Interest cost	225,428	-	225,428
Changes for experience	(3,951)	-	(3,951)
Changes of assumptions	-	-	-
Contributions			
Employer	-	97,328	(97,328)
Member	-	32,200	(32,200)
Net investment income	-	(168,587)	168,587
Benefit payments	(102,345)	(102,345)	-
Administrative expenses	-	(43,540)	43,540
Net Changes	<u>225,417</u>	<u>(184,944)</u>	<u>410,361</u>
Balance at December 31, 2018	\$ <u>3,279,660</u>	\$ <u>2,607,395</u>	\$ <u>672,265</u>

***Changes in Assumptions***

In the 2017 actuarial valuation, the investment rate of return was changed to 7.25%, in prior years the investment rate of return was 7.5%.

***Sensitivity of the Net Pension Liability to Changes in the Discount Rate*** - The following presents the net pension liability of the Borough, calculated using the discount rate of 7.25%, as well as what the Borough's net pension would be if it were calculated using a discount rate that is one percentage point lower (6.25%) or one percentage point higher (8.25%) than the current rate:

	1% Decrease (6.25%)	Current Discount Rate (7.25%)	1% Increase (8.25%)
Net pension liability	\$ <u>1,159,553</u>	\$ <u>672,265</u>	\$ <u>269,408</u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE J - DEFINED BENEFIT PENSION PLAN (POLICE PENSION PLAN) (Continued)**

*Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions*

For the year ended December 31, 2018, the Borough recognized pension expense of \$163,615. At December 31, 2018, the Borough reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	<u>Governmental Activities</u>	
	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>
Difference between expected and actual experience	\$ -	\$ 87,247
Change of assumptions	60,930	128,510
Net difference between projected and actual earnings on pension plan investments	<u>161,876</u>	<u>-</u>
	<u>\$ 222,806</u>	<u>\$ 215,757</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

<u>Year Ending December 31,</u>	<u>Governmental Activities</u>
2019	\$ 24,185
2020	(4,976)
2021	5,770
2022	53,937
2023	(20,740)
Thereafter	(51,127)

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN)**

*Summary of Significant Accounting Policies*

**Method Used to Value Investments** - Non-Uniformed Pension Plan investments are carried at fair value as reported by the investment managers. Short-term investments are reported at cost, which approximates fair value.

*Plan Description*

**Plan Administration** - The Borough administers the Non-Uniformed Pension Plan—a single-employer defined benefit pension plan that provides pensions for all regular, full-time non-uniformed Borough employees.

Management of the plan is vested in the Pension Board, which consists of five members; two elected council members, the borough manager, one police department representative and one non-uniformed employees representative—all appointed by the Borough Council President. The Pension Board is responsible for managing, investing and monitoring the Borough's Non-Uniformed Pension Fund.

**Plan Membership** - At December 31, 2018, plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefits	6
Inactive plan members entitled to but not yet receiving benefits	1
Active plan members	11
	<hr/>
	18
	<hr/>

**Benefits Provided** - The plan provides retirement, disability and death benefits. A member is eligible for normal retirement after attainment of age 62. The normal retirement pension is payable monthly during the member's lifetime, with payments continuing after the member's death to a designated beneficiary, equal to the present value of the accrued benefit at the time of the member's death. The amount of monthly pension is equal to 1.667% times average monthly compensation. Average compensation is based upon the last 36 months of employment. If a member continues working after his normal retirement date, his pension does not start until he actually retires. If an active member suffers a service related disability, they are eligible for disability retirement. The service related disability retirement is payable monthly equal to 50% of the member's monthly salary at the time of disability. If the disability is not service related, a benefit of 30% of salary is provided to a member who has at least ten years of service.

The benefit provisions of the Borough's plan are established by Borough ordinances.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

**Contributions** - The Borough's non-uniformed employees are required to contribute a percentage of their monthly salaries to the plan. The Borough is required to contribute the remaining amounts necessary to fund the plan using the actuarial basis specified by state statute. The state also provides funds (distribution of foreign casualty insurance premium taxes) to the Borough, which are used by the Borough in making its regular contributions to the plan.

Pennsylvania Act 205 of 1984 (as amended) requires that annual contributions be based upon the minimum municipal obligation (MMO), which is based on the plan's biennial actuarial valuation. The MMO includes the normal cost, estimated administrative expenses and an amortization contribution of the unfunded actuarial accrued liability, less estimated member contributions, and a credit equal to 10% of the excess (if any) of the actuarial value of assets over the actuarial accrued liability. The state provides an allocation of funds, which must be used for pension funding. A financial requirement established by the MMO, which exceeds state and member contributions, must be funded by the employer. In accordance with Act 205, the Borough was required to contribute \$29,155 to the plan for the year 2018. The Borough's actual contributions for the plan year 2018 were \$29,155.

Per Borough ordinance, employees are required to contribute 2.25% of covered payroll. This contribution is governed by the plan's governing ordinances and collective bargaining agreements. Administrative costs, which may include, but are not limited to, investment management fees and actuarial services are charged to the plan and funded through the MMO and/or plan earnings. On-behalf payments of fringe benefits and salaries for the Borough's employees were recognized as revenues and expenditures during the year.

**Investments**

**Investment Policy** - The plan's policy in regard to the allocation of invested assets is established and may be amended by the Pension Board by a majority vote of its members. It is the policy of the Pension Board to pursue an investment strategy that reduces risk through prudent diversification of the portfolio across a broad selection of distinct asset classes. The plan's investment policy discourages the use of cash equivalents, except for liquidity purposes, and aims to refrain from dramatically shifting asset class allocations over short time spans. The following was the Board's adopted asset allocation policy as of December 31, 2018:

<u>Asset Class</u>	<u>Target Allocation</u>
Dividend and income stocks	28%
Core equity	26%
International	16%
Fixed income	30%
	<u>100%</u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

---

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

**Concentrations** - More than 5% of the Borough's investments are in equity securities and mutual funds. These investments are 55% and 45% of the plan's total investments, respectively.

**Rate of Return** - For the year ended December 31, 2018, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was -7.6%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

**Net Pension Liability of the Borough**

The components of the net pension liability of the Borough at December 31, 2018, were as follows:

Total pension liability	\$ 2,392,064
Plan fiduciary net position	<u>(2,253,986)</u>
<b>NET PENSION LIABILITY</b>	<b>\$ <u>138,078</u></b>
 Plan fiduciary net position as a percentage of the total pension liability	  <u>94.23%</u>

**Actuarial Assumptions** - The total pension liability was determined by an actuarial valuation as of January 1, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3%
Salary increases	4.75% average, including inflation
Investment rate of return	7.25%

Mortality rates were based on the RP-2000 Blue Collar Mortality Table with Scale AA.

Due to the size of the plan, there has been no experience studies used to determine plan assumptions.

The long-term expected rate of return on plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.



**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

Best estimates of arithmetic real rates of return for each major asset class included in the plan's target asset allocation as of December 31, 2018 (see the plan's investment policy), are summarized in the following table:

<u>Asset Class</u>	<u>Long-Term Expected Real Rate of Return</u>
Dividend and income stocks	7.5%
Core equity	8.0%
International	10.0%
Fixed income	3.8%

**Discount Rate** - The discount rate is based on the long-term expected rate of return on plan investments that are expected to be used to finance the payments of benefits. The plan's fiduciary net position is projected to be sufficient to make projected benefit payments and the plan assets are expected to be invested using a strategy to achieve that return. The employer has always met the funding requirements of Pennsylvania Law Act 205 of 1984. Act 205 requires full funding of the entry age normal cost plus plan expenses, as well as amortization of the unfunded liability to ultimately achieve a 100% funded status.

**Changes In the Net Pension Liability**

	<u>Governmental Activities:</u>		
	<u>Total Pension Liability (a)</u>	<u>Plan Fiduciary Net Position (b)</u>	<u>Net Pension Liability (a)-(b)</u>
Balance at December 31, 2017	\$ 1,173,220	\$ 1,264,387	\$ (91,167)
Changes for the year			
Service cost	24,633	-	24,633
Interest cost	85,012	-	85,012
Changes for experience	(19,784)	-	(19,784)
Contributions			
Employer	-	14,779	(14,779)
Member	-	6,172	(6,172)
Net investment income	-	(72,940)	72,940
Benefit payments	(50,596)	(50,596)	-
Administrative expenses	-	(19,307)	19,307
Net changes	<u>39,265</u>	<u>(121,892)</u>	<u>161,157</u>
Balance at December 31, 2018	\$ <u>1,212,485</u>	\$ <u>1,142,495</u>	\$ <u>69,990</u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

	Business-type Activities		
	Total	Plan	Net
	Pension Liability (a)	Fiduciary Net Position (b)	Pension Liability (a)-(b)
Balance at December 31, 2017	\$ 1,141,380	\$ 1,230,066	\$ (88,686)
Changes for the year			
Service cost	23,962	-	23,962
Interest cost	82,701	-	82,701
Changes for experience	(19,246)	-	(19,246)
Contributions			
Employer	-	14,376	(14,376)
Member	-	6,003	(6,003)
Net investment income	-	(70,955)	70,955
Benefit payments	(49,218)	(49,218)	-
Administrative expenses	-	(18,781)	18,781
Net changes	<u>38,199</u>	<u>(118,575)</u>	<u>156,774</u>
Balance at December 31, 2018	<u>\$ 1,179,579</u>	<u>\$ 1,111,491</u>	<u>\$ 68,088</u>

***Changes in Assumptions***

In the 2017 actuarial valuation, the investment rate of return was changed to 7.25%, in prior years the investment rate of return was 7.5%.

***Sensitivity of the Net Pension Liability to Changes in the Discount Rate*** - The following presents the net pension liability of the Borough, calculated using the discount rate of 7.25%, as well as what the Borough's net pension would be if it were calculated using a discount rate that is one percentage point lower (6.25%) or one percentage point higher (8.25%) than the current rate:

	1% Decrease (6.25%)	Current Discount Rate (7.25%)	1% Increase (8.25%)
Net pension liability	<u>\$ 355,584</u>	<u>\$ 138,078</u>	<u>\$ (46,466)</u>

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BASIC FINANCIAL STATEMENTS**  
**DECEMBER 31, 2018**

**NOTE K - DEFINED BENEFIT PENSION PLAN (NON-UNIFORMED PLAN) (Continued)**

***Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions***

For the year ended December 31, 2018, the Borough recognized pension expense of \$75,794. At December 31, 2018, the Borough reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Governmental Activities		Business-Type Activities	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	\$ -	\$ 41,220	\$ -	\$ 40,093
Change of assumptions	11,567	-	11,251	-
Net difference between projected and actual earnings on pension plan investments	68,455	-	66,591	-
	<u>\$ 80,022</u>	<u>\$ 41,220</u>	<u>\$ 77,842</u>	<u>\$ 40,093</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

<u>December 31,</u>	Governmental Activities	Business-Type Activities
2019	\$ 6,488	\$ 6,312
2020	(6,310)	(6,138)
2021	5,361	5,215
2022	33,263	32,360

**NOTE L - RISK MANAGEMENT**

The Borough is exposed to various risks of loss related to torts; theft of, damage to and destruction of assets; errors and omissions; injuries to employees; and natural disasters. It is the policy of the Borough to purchase commercial insurance for the risks of loss to which it is exposed, including workers' compensation and employee health and accident insurance. Settled claims resulting from these risks have not exceeded commercial insurance coverage in any of the past three years.

**REQUIRED SUPPLEMENTARY INFORMATION**

**BOROUGH OF ROYERSFORD**  
**BUDGETARY COMPARISON SCHEDULE**  
**GENERAL FUND**  
**YEAR ENDED DECEMBER 31, 2018**

	Budgeted Amounts		Actual Amounts		Variance With Final Budget Favorable (Unfavorable)
	Original	Final	Budgetary Basis	Budget to GAAP Differences	
<b>REVENUES</b>					
Taxes	\$ 2,741,980	\$ 2,741,980	\$ 2,486,385	\$ 3,940	\$ (255,595)
Intergovernmental revenues	137,975	137,975	245,206	98,368	107,231
Investment income	5,500	5,500	16,950	-	11,450
Licenses and permits	116,500	116,500	104,331	300	(12,169)
Fines	26,000	26,000	25,357	5	(643)
Charges for services	58,100	58,100	150,949	(229)	92,849
Miscellaneous revenues	50,000	50,000	17,162	244	(32,838)
<b>TOTAL REVENUES</b>	<b>3,136,055</b>	<b>3,136,055</b>	<b>3,046,340</b>	<b>92,628</b>	<b>(89,715)</b>
<b>EXPENDITURES</b>					
General government	459,665	459,665	525,790	7,927	(66,125)
Public safety	1,673,695	1,673,695	1,772,256	2,269	(98,563)
Highways and streets	557,420	557,420	663,225	(7,603)	(105,805)
Recreation	288,475	288,475	208,586	358	79,889
Retirement expenses	126,500	126,500	126,483	-	17
Debt service					
Principal	23,178	23,178	23,178	-	-
Interest and other charges	7,122	7,122	7,110	-	12
<b>TOTAL EXPENDITURES</b>	<b>3,136,055</b>	<b>3,136,055</b>	<b>3,328,630</b>	<b>2,952</b>	<b>(190,575)</b>
<b>EXCESS OF REVENUES OVER EXPENDITURES</b>			<b>(280,290)</b>	<b>89,676</b>	<b>(280,290)</b>
<b>OTHER FINANCING SOURCES</b>					
Insurance recoveries	-	-	35,630	46,317	35,630
<b>NET CHANGE IN FUND BALANCE</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ (244,660)</b>	<b>\$ 135,993</b>	<b>\$ (244,660)</b>

See accompanying notes to the budgetary comparison schedule.

**BOROUGH OF ROYERSFORD**  
**NOTES TO THE BUDGETARY COMPARISON SCHEDULE**  
**YEAR ENDED DECEMBER 31, 2018**

---

**NOTE A - BUDGETARY INFORMATION**

The Borough's process for establishing its annual operating budget involves submission of the budget by the Borough Manager to Borough Council for its approval and adoption.

The Borough prepares the General Fund budget on the cash basis of accounting, which is not consistent with accounting principles generally accepted in the United States of America.

**NOTE B - EXCESS OF EXPENDITURES OVER APPROPRIATIONS**

For the year ended December 31, 2018, expenditures exceeded appropriations in the following General Fund object levels (the legal level of budgetary control):

General government	\$ 66,125
Public safety	98,563
Highways and streets	105,805

These excess expenditures were funded by cash reserves.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD SCHEDULES OF CHANGES IN THE NET POLICE PENSION PLAN LIABILITY AND RELATED RATIOS LAST FIVE FISCAL YEARS

	2018	2017	2016	2015	2014
<b>TOTAL PENSION LIABILITY</b>					
Service cost	\$ 106,285	\$ 103,774	\$ 84,658	\$ 82,517	\$ 87,111
Interest	225,428	210,375	202,448	204,204	181,670
Differences between expected and actual experience	(3,951)	(82,990)	(6,320)	(17,032)	41,166
Changes of assumptions	-	74,230	-	(198,360)	-
Benefit payments	(102,345)	(98,183)	(96,785)	(96,785)	(95,228)
<b>NET CHANGE IN TOTAL PENSION LIABILITY</b>	<b>225,417</b>	<b>207,206</b>	<b>183,901</b>	<b>(25,456)</b>	<b>214,709</b>
Total pension liability, beginning	<u>3,054,243</u>	<u>2,847,037</u>	<u>2,663,136</u>	<u>2,688,592</u>	<u>2,473,883</u>
<b>TOTAL PENSION LIABILITY, ENDING (a)</b>	<b><u>\$ 3,279,660</u></b>	<b><u>\$ 3,054,243</u></b>	<b><u>\$ 2,847,037</u></b>	<b><u>\$ 2,663,136</u></b>	<b><u>\$ 2,688,592</u></b>
<b>PLAN FIDUCIARY NET POSITION</b>					
Contributions					
Employer	\$ 97,328	\$ 87,354	\$ 84,837	\$ 76,396	\$ 54,795
Member	32,200	30,458	28,541	24,350	23,616
Net investment income	(168,587)	413,998	218,177	19,273	185,226
Benefit payments, including refunds of member contributions	(102,345)	(98,183)	(96,785)	(96,785)	(95,228)
Administrative expense	(43,540)	(39,857)	(41,095)	(33,862)	(35,637)
<b>NET CHANGE IN PLAN FIDUCIARY NET POSITION</b>	<b>(184,844)</b>	<b>393,770</b>	<b>193,675</b>	<b>(11,628)</b>	<b>132,772</b>
Plan fiduciary net position, beginning	<u>2,792,339</u>	<u>2,398,569</u>	<u>2,204,894</u>	<u>2,216,522</u>	<u>2,083,750</u>
<b>PLAN FIDUCIARY NET POSITION, ENDING (b)</b>	<b><u>\$ 2,607,395</u></b>	<b><u>\$ 2,792,339</u></b>	<b><u>\$ 2,398,569</u></b>	<b><u>\$ 2,204,894</u></b>	<b><u>\$ 2,216,522</u></b>
<b>NET PENSION LIABILITY, ENDING (a)-(b)</b>	<b><u>\$ 672,265</u></b>	<b><u>\$ 281,904</u></b>	<b><u>\$ 448,468</u></b>	<b><u>\$ 458,242</u></b>	<b><u>\$ 472,070</u></b>
<b>PLAN FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL PENSION LIABILITY</b>	<u>80%</u>	<u>91%</u>	<u>84%</u>	<u>83%</u>	<u>82%</u>
<b>COVERED PAYROLL</b>	<u>\$ 662,977</u>	<u>\$ 637,431</u>	<u>\$ 557,623</u>	<u>\$ 523,032</u>	<u>\$ 464,976</u>
<b>NET PENSION LIABILITY AS A PERCENTAGE OF COVERED PAYROLL</b>	<u>101%</u>	<u>41%</u>	<u>80%</u>	<u>88%</u>	<u>102%</u>

### NOTES TO SCHEDULES

#### *Changes of Assumptions:*

In 2017 amounts reported as changes of assumptions resulted from adjustment to the investment rate of return, decreasing the rate from 7.5% to 7.25%.

In 2015 amounts reported as changes of assumptions resulted from adjustment to the assumed average annual salary increase, decreasing the rate from 5.0% to 4.5%.

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

**BOROUGH OF ROYERSFORD**  
**SCHEDULES OF POLICE PENSION PLAN CONTRIBUTIONS**  
**LAST FIVE FISCAL YEARS**

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
ACTUARIALLY DETERMINED CONTRIBUTION	\$ 97,328	\$ 87,354	\$ 84,837	\$ 75,396	\$ 54,795
CONTRIBUTIONS IN RELATION TO THE ACTUARIALLY DETERMINED CONTRIBUTION	<u>97,328</u>	<u>87,354</u>	<u>84,837</u>	<u>75,396</u>	<u>54,795</u>
CONTRIBUTION DEFICIENCY (EXCESS)	\$ <u>-</u>	\$ <u>-</u>	\$ <u>-</u>	\$ <u>-</u>	\$ <u>-</u>
COVERED PAYROLL	\$ <u>662,977</u>	\$ <u>637,431</u>	\$ <u>557,623</u>	\$ <u>523,032</u>	\$ <u>464,976</u>
CONTRIBUTION AS A PERCENTAGE OF COVERED PAYROLL	<u>15%</u>	<u>14%</u>	<u>15%</u>	<u>14%</u>	<u>12%</u>

**NOTES TO SCHEDULES**

Valuation date

January 1, 2017

Actuarially determined contribution rates are calculated by September 30 of each year for the upcoming calendar year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Entry age normal
Amortization method	Level dollar, closed
Remaining amortization period	9 years
Asset valuation method	PMRS asset method
Inflation	3.0%
Salary increases	4.25% annual increase
Investment rate of return	7.25%
Retirement age	Normal retirement age
Mortality	Assumed life expectancies are based on the RP-2000 Blue Collar Mortality Table

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.



**BOROUGH OF ROYERSFORD**  
**SCHEDULES OF POLICE PENSION PLAN**  
**INVESTMENT RETURNS**  
**LAST FIVE FISCAL YEARS**

---

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
ANNUAL MONEY-WEIGHTED RATE OF RETURN, NET OF INVESTMENT EXPENSE	<u>-7.60%</u>	<u>15.70%</u>	<u>8.50%</u>	<u>0.02%</u>	<u>7.20%</u>

**NOTE TO SCHEDULES**

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

**BOROUGH OF ROYERSFORD  
SCHEDULES OF CHANGES IN THE NET NON-UNIFORMED  
PENSION PLAN LIABILITY AND RELATED RATIOS  
LAST FIVE FISCAL YEARS**

	2018	2017	2016	2015	2014
<b>TOTAL PENSION LIABILITY</b>					
Service cost	\$ 48,595	\$ 47,701	\$ 55,458	\$ 54,051	\$ 46,392
Interest	167,713	159,165	168,932	152,820	137,776
Differences between expected and actual experience	(39,030)	(34,245)	(42,091)	(43,982)	50,099
Changes of assumptions	-	40,800	-	-	-
Benefit payments	(99,814)	(93,200)	(83,298)	(82,313)	(101,635)
<b>NET CHANGE IN TOTAL PENSION LIABILITY</b>	<b>77,464</b>	<b>120,321</b>	<b>89,001</b>	<b>80,576</b>	<b>132,632</b>
Total pension liability, beginning	2,314,800	2,194,279	2,105,278	2,024,702	1,882,070
<b>TOTAL PENSION LIABILITY, ENDING (a)</b>	<b>\$ 2,392,064</b>	<b>\$ 2,314,600</b>	<b>\$ 2,194,279</b>	<b>\$ 2,105,278</b>	<b>\$ 2,024,702</b>
<b>PLAN FIDUCIARY NET POSITION</b>					
Contributions					
Employer	\$ 29,165	\$ 36,034	\$ 51,650	\$ 47,508	\$ 42,475
Member	12,175	12,851	13,419	12,375	10,730
Net investment income	(143,895)	372,904	211,303	23,312	191,181
Benefit payments, including refunds of member contributions	(99,814)	(93,200)	(83,298)	(82,313)	(101,635)
Administrative expense	(38,088)	(36,653)	(38,702)	(31,585)	(33,668)
<b>NET CHANGE IN PLAN FIDUCIARY NET POSITION</b>	<b>(240,467)</b>	<b>290,936</b>	<b>154,372</b>	<b>(30,703)</b>	<b>109,083</b>
Plan fiduciary net position, beginning	2,494,453	2,203,517	2,049,146	2,079,848	1,970,765
<b>PLAN FIDUCIARY NET POSITION, ENDING (b)</b>	<b>\$ 2,253,986</b>	<b>\$ 2,494,453</b>	<b>\$ 2,203,517</b>	<b>\$ 2,049,145</b>	<b>\$ 2,079,848</b>
<b>NET PENSION LIABILITY (ASSET), ENDING (a)-(b)</b>	<b>\$ 138,078</b>	<b>\$ (179,853)</b>	<b>\$ (9,238)</b>	<b>\$ 56,133</b>	<b>\$ (55,146)</b>
<b>PLAN FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL PENSION LIABILITY</b>	<b>94%</b>	<b>108%</b>	<b>100%</b>	<b>97%</b>	<b>103%</b>
<b>COVERED PAYROLL</b>	<b>\$ 582,359</b>	<b>\$ 577,111</b>	<b>\$ 582,264</b>	<b>\$ 617,654</b>	<b>\$ 602,883</b>
<b>NET PENSION LIABILITY AS A PERCENTAGE OF COVERED PAYROLL</b>	<b>24%</b>	<b>-31%</b>	<b>-2%</b>	<b>9%</b>	<b>-11%</b>

**NOTES TO SCHEDULES**

*Changes of Assumptions:*

In 2017 amounts reported as changes of assumptions resulted from adjustment to the investment rate of return, decreasing the rate from 7.5% to 7.25%.

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD SCHEDULES OF NON-UNIFORMED PENSION PLAN CONTRIBUTIONS LAST FIVE FISCAL YEARS

	2018	2017	2016	2015	2014
ACTUARIALLY DETERMINED CONTRIBUTION	\$ 29,155	\$ 35,034	\$ 51,650	\$ 47,508	\$ 42,475
CONTRIBUTIONS IN RELATION TO THE ACTUARIALLY DETERMINED CONTRIBUTION	29,155	35,034	51,650	47,508	42,475
CONTRIBUTION DEFICIENCY (EXCESS)	\$ -	\$ -	\$ -	\$ -	\$ -
COVERED PAYROLL	\$ 582,359	\$ 577,111	\$ 582,264	\$ 462,914	\$ 502,883
CONTRIBUTION AS A PERCENTAGE OF COVERED PAYROLL	5%	6%	8%	10%	8%

### NOTES TO SCHEDULES

Valuation date

January 1, 2017

Actuarially determined contribution rates are calculated by September 30 of each year for the upcoming calendar year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Entry age normal
Amortization method	Level dollar, closed
Remaining amortization period	0 years
Asset valuation method	PMRS asset method
Inflation	3.0%
Salary increases	4.75% annual increase
Investment rate of return	7.26%
Retirement age	Normal retirement age
Mortality	Assumed life expectancies are based on the RP-2000 Blue Collar Mortality Table

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

**BOROUGH OF ROYERSFORD**  
**SCHEDULES OF NON-UNIFORMED PENSION PLAN**  
**INVESTMENT RETURNS**  
**LAST FIVE FISCAL YEARS**

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
ANNUAL MONEY-WEIGHTED RATE OF RETURN, NET OF INVESTMENT EXPENSE	<u>-7.60%</u>	<u>15.60%</u>	<u>9.00%</u>	<u>0.02%</u>	<u>8.00%</u>

**NOTE TO SCHEDULES**

This schedule is intended to show information for ten years, all available information is displayed. Additional information will be displayed as it becomes available.

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD BUDGET 2019

<b>SEWER FUND INCOME:</b>				
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	<b>INC/DEC</b>
364.110	SEWER CONNECTION FEES	17,200	17,200	-
364.120	SEWER USE CHARGE	787,745	841,800	54,055
364.310	SEWER CERTIFICATION	3,000	3,000	-
364.341	INTEREST WWTP SINKING FUND	1,500	2,500	1,000
364.400	MISC SEWAGE CHARGES	1,000	1,000	-
	<b>TOTAL</b>	<b>810,445</b>	<b>865,500</b>	<b>55,055</b>

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD BUDGET 2019

<b>SEWER FUND EXPENDITURES:</b>				
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	<b>INC/DEC</b>
429.122	SUPERINTENDENT SALARY	72,600	74,750	2,150
429.130	ASS'T SUPT. SALARY	52,500	50,400	(2,100)
429.131	PART TIME HELP(PUBLIC WKS)	26,000	31,600	5,600
429.140	CLERICAL SALARY	37,500	38,650	1,150
429.141	ADMINISTRATIVE EXP.	21,490	22,135	645
429.156	HEALTH, DENTAL, LIFE INSURANCE	61,800	65,000	3,200
429.161	SOCIAL SECURITY	16,100	16,650	550
429.162	UNEMP. COMP. INS.	1,490	1,000	(490)
429.163	WORKMEN'S COMP INS.	15,500	16,000	500
429.191	CLOTHING & BOOTS	600	600	-
429.210	OFFICE SUPPLIES	400	400	-
429.211	BILLING EXPENSE	4,500	4,500	-
429.222	CHEMICALS	35,000	37,000	2,000
429.225	LAB SUPPLIES	14,000	15,000	1,000
429.230	FUEL OIL	10,000	-	(10,000)
429.231	GASOLINE	2,000	2,500	500
429.244	OPERATING SUPPLIES	3,700	3,700	-
429.250	VEHICLE MAINTENANCE	750	750	-
429.251	MAINTENANCE (PLANT)	30,000	30,000	-
429.252	COLLECTION SYS. MAINT.	30,000	25,000	(5,000)
429.260	MINOR EQUIP. PURCHASES	1,500	1,500	-
429.313	ENGINEERING EXPENSE	30,000	30,000	-
429.321	COMMUNICATION EXPENSE	3,500	4,000	500
429.326	MONTHLY MONITORING FEES	1,000	1,000	-
429.352	LIABILITY INSURANCE	17,500	14,800	(2,700)
429.353	FLOOD INSURANCE	6,750	8,100	1,350
429.354	VEHICLE INSURANCE	5,000	1,800	(3,200)
429.361	ELECTRIC	32,000	30,000	(2,000)
429.366	WATER	6,500	6,500	-
429.404	LEGAL EXPENSE	2,500	2,500	-
429.421	DUES, TRAINING, SEMINARS	1,500	1,500	-
429.450	SLUDGE REMOVAL EXPENSE	35,000	45,000	10,000
429.451	EQUIPMENT RENTAL	300	300	-
429.700	MAJOR EQUIPMENT PURCHASES	21,500	21,500	-
429.800	CAPITAL RESERVE	149,965	26,365	(123,600)
429.900	DEBT REDUCTION	-	-	-
429.910	DEBT REDUCTION (Bond)	60,000	235,000	175,000
	<b>TOTAL</b>	<b>810,445</b>	<b>865,500</b>	<b>55,055</b>

# APPENDIX A-5.1 (AUS)

**Royersford Borough**  
**Statement of Revenues and Expenditures - Compared to Budget**  
**Year ( 2019 ) Period ( 12 )**

Page 1 of 3

03/10/2020

1:51 PM

Account	Account Description	Budget	MTD Actual	YTD Actual	% Used	Remaining
<b>08 SEWER FUND</b>						
<b>Revenue</b>						
<b>Dept 341</b>						
08-341-010	Interest Income	\$0.00	\$0.00	\$0.00	0.00%	\$0.00
	<b>Subtotal</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>0.00%</b>	<b>\$0.00</b>
<b>Dept 364</b>						
08-364-110	Sewage Connection/Tapping Fee	\$17,200.00	\$0.00	\$25,800.00	150.00%	(\$8,600.00)
08-364-120	Sewer Use Charge	\$841,800.00	(\$753.99)	\$830,190.16	98.62%	\$11,609.84
08-364-310	Sewer Certifications	\$3,000.00	\$125.00	\$3,100.00	103.33%	(\$100.00)
08-364-341	Interest	\$2,500.00	\$220.32	\$3,060.34	122.41%	(\$560.34)
08-364-400	Misc. Sewage Use Charges	\$1,000.00	\$0.00	\$0.00	0.00%	\$1,000.00
	<b>Subtotal</b>	<b>\$865,500.00</b>	<b>(\$408.67)</b>	<b>\$862,150.50</b>	<b>99.61%</b>	<b>\$3,349.50</b>
<b>Dept 392</b>						
08-392-001	Transfers In	\$0.00	\$0.00	\$0.00	0.00%	\$0.00
	<b>Subtotal</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>0.00%</b>	<b>\$0.00</b>
<b>Dept 399</b>						
08-399-100	Fund Balance Forwarded	\$0.00	\$0.00	\$0.00	0.00%	\$0.00
	<b>Subtotal</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>0.00%</b>	<b>\$0.00</b>
<b>Total SEWER FUND Revenues:</b>		<b>\$865,500.00</b>	<b>(\$408.67)</b>	<b>\$862,150.50</b>	<b>99.61%</b>	<b>\$3,349.50</b>
<b>Total SEWER FUND Revenues:</b>		<b>\$865,500.00</b>	<b>(\$408.67)</b>	<b>\$862,150.50</b>		<b>\$3,349.50</b>
<b>Total SEWER FUND Expenditures:</b>		<b>\$630,500.00</b>	<b>\$43,135.03</b>	<b>\$682,218.03</b>		<b>(\$51,718.03)</b>
<b>Total SEWER FUND Fund Balance:</b>		<b>\$235,000.00</b>	<b>(\$43,543.70)</b>	<b>\$179,932.47</b>		<b>\$55,067.53</b>

# APPENDIX A-5.1 (AUS)

**Royersford Borough**  
**Statement of Revenues and Expenditures - Compared to Budget**  
**Year ( 2019 ) Period ( 12 )**

Page 2 of 3

03/10/2020

1:51 PM

Account	Account Description	Budget	MTD Actual	YTD Actual	% Used	Remaining
<b>Expenditure</b>						
<b>Dept 400</b>						
08-400-217	Bank Fees/Payroll Service	\$0.00	\$0.00	\$0.00	0.00%	\$0.00
	<b>Subtotal</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>0.00%</b>	<b>\$0.00</b>
<b>Sewer</b>						
08-429-122	Superintendent Salary	\$74,750.00	\$6,851.55	\$79,212.35	105.97%	(\$4,462.35)
08-429-130	Asst. Superintendent Salary	\$50,400.00	\$3,832.16	\$54,363.20	107.86%	(\$3,963.20)
08-429-131	Part- time Help	\$31,600.00	\$2,632.00	\$34,216.00	108.28%	(\$2,616.00)
08-429-135	WWTP Asst Overtime/Part-time	\$0.00	\$0.00	\$0.00	0.00%	\$0.00
08-429-140	Clerical Salaries	\$38,650.00	\$3,390.00	\$44,070.00	114.02%	(\$5,420.00)
08-429-141	Administrative Expense	\$22,135.00	\$1,845.00	\$23,985.00	108.36%	(\$1,850.00)
08-429-156	Aetna - Disability Life Ins.	\$65,000.00	\$5,275.61	\$64,922.52	99.88%	\$77.48
08-429-161	FICA	\$16,650.00	\$1,409.08	\$17,911.79	107.58%	(\$1,261.79)
08-429-162	Unemp. Comp. Ins. & Work Comp	\$1,000.00	\$0.00	\$1,000.00	100.00%	\$0.00
08-429-163	Workmens Compensation	\$16,000.00	\$1,236.33	\$16,598.70	103.74%	(\$598.70)
08-429-191	Clothing & Boots	\$600.00	\$0.00	\$400.00	66.67%	\$200.00
08-429-210	Office Supplies	\$400.00	\$0.00	\$227.72	56.93%	\$172.28
08-429-211	Billing Expense	\$4,500.00	\$100.00	\$3,029.73	67.33%	\$1,470.27
08-429-222	Chemicals	\$37,000.00	\$7,609.54	\$43,250.35	116.89%	(\$6,250.35)
08-429-225	Lab Supplies	\$15,000.00	\$0.00	\$11,988.63	79.92%	\$3,011.37
08-429-230	Heating Oil	\$0.00	\$0.00	\$7,646.28	0.00%	(\$7,646.28)
08-429-231	Gasoline	\$2,500.00	\$170.49	\$2,106.81	84.27%	\$393.19
08-429-244	Operating Supplies	\$3,700.00	\$50.10	\$1,429.03	38.62%	\$2,270.97
08-429-250	Vehicle Maintenance	\$750.00	\$0.00	\$730.19	97.36%	\$19.81
08-429-251	Maintenance (Plant)	\$30,000.00	\$63.00	\$35,043.97	116.81%	(\$5,043.97)
08-429-252	Collection System Maintenance	\$25,000.00	\$0.00	\$13,788.13	55.15%	\$11,211.87
08-429-260	Minor Equipment Purchase	\$1,500.00	\$0.00	\$800.92	53.39%	\$699.08
08-429-283	Pension Expense	\$0.00	\$0.00	\$0.00	0.00%	\$0.00
08-429-313	Engineering Expense	\$30,000.00	\$0.00	\$72,480.49	241.60%	(\$42,480.49)
08-429-321	Communication Expense	\$4,000.00	\$0.00	\$4,563.24	114.08%	(\$563.24)
08-429-326	Monthly Monitoring Fees	\$1,000.00	\$0.00	\$702.00	70.20%	\$298.00
08-429-352	Property & Liability Insurance	\$14,800.00	\$0.00	\$14,972.72	101.17%	(\$172.72)
08-429-353	Flood Insurance	\$8,100.00	\$0.00	\$9,855.00	121.67%	(\$1,755.00)
08-429-354	Vehicle Insurance	\$1,800.00	\$0.00	\$2,691.21	149.51%	(\$891.21)
08-429-361	Electric	\$30,000.00	\$2,676.18	\$26,165.38	87.22%	\$3,834.62
08-429-366	Water	\$6,500.00	\$1,070.80	\$9,415.18	144.85%	(\$2,915.18)
08-429-404	Legal Expense	\$2,500.00	\$4,923.19	\$25,432.19	1017.29%	(\$22,932.19)
08-429-421	Dues/Training & Seminars	\$1,500.00	\$0.00	\$1,596.00	106.40%	(\$96.00)
08-429-450	Sludge Removal Expense	\$45,000.00	\$0.00	\$46,475.00	103.28%	(\$1,475.00)
08-429-451	Equipment Rental	\$300.00	\$0.00	\$0.00	0.00%	\$300.00
08-429-600	Capital Reserve Projects	\$0.00	\$0.00	\$0.00	0.00%	\$0.00
08-429-700	Capital Purchases	\$21,500.00	\$0.00	\$7,500.00	34.88%	\$14,000.00
08-429-800	Capital Reserves	\$26,365.00	\$0.00	\$3,648.30	13.84%	\$22,716.70
08-429-900	Debt Reduction	\$0.00	\$0.00	\$0.00	0.00%	\$0.00
	<b>Subtotal</b>	<b>\$630,500.00</b>	<b>\$43,135.03</b>	<b>\$682,218.03</b>	<b>108.20%</b>	<b>(\$51,718.03)</b>



# APPENDIX A-5.1 (AUS)

**Royersford Borough**  
**Statement of Revenues and Expenditures - Compared to Budget**  
**Year ( 2019 ) Period ( 12 )**

Page 3 of 3  
 03/10/2020  
 1:51 PM

Account	Account Description	Budget	MTD Actual	YTD Actual	% Used	Remaining
<b>Total SEWER FUND Expenditures:</b>		\$630,500.00	\$43,135.03	\$682,218.03	108.20%	(\$51,718.03)
<b>Total SEWER FUND Revenues:</b>		\$865,500.00	(\$408.67)	\$862,150.50		\$3,349.50
<b>Total SEWER FUND Expenditures:</b>		\$630,500.00	\$43,135.03	\$682,218.03		(\$51,718.03)
<b>Total SEWER FUND Fund Balance:</b>		\$235,000.00	(\$43,543.70)	\$179,932.47		\$55,067.53

BOROUGH OF ROYERSFORD  
BUDGET 2020

APPENDIX A-5.1 (AUS)

<b>SEWER FUND INCOME:</b>		
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
364.110	SEWER CONNECTION FEES	8,600
364.120	SEWER USE CHARGE	841,800
364.310	SEWER CERTIFICATION	3,000
364.341	INTEREST WWTP SINKING FUND	2,500
364.400	MISC SEWAGE CHARGES	1,000
	<b>TOTAL</b>	<b>856,900</b>

BOROUGH OF ROYERSFORD **APPENDIX A-5.1 (AUS)**  
BUDGET 2020

<b>SEWER FUND EXPENDITURES:</b>		
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
429.122	SUPERINTENDENT SALARY	76,900
429.130	ASS'T SUPT. SALARY	51,740
429.131	PART TIME HELP(PUBLIC WKS)	23,425
429.140	CLERICAL SALARY	47,950
429.141	ADMINISTRATIVE EXP.	22,796
429.156	HEALTH, DENTAL, LIFE INSURANCE	67,500
429.161	SOCIAL SECURITY	17,100
429.162	UNEMP. COMP. INS.	570
429.163	WORKMEN'S COMP INS.	14,000
429.191	CLOTHING & BOOTS	600
429.210	OFFICE SUPPLIES	400
429.211	BILLING EXPENSE	4,000
429.222	CHEMICALS	37,000
429.225	LAB SUPPLIES	15,000
429.231	GASOLINE	2,500
429.244	OPERATING SUPPLIES	3,700
429.250	VEHICLE MAINTENANCE	750
429.251	MAINTENANCE (PLANT)	30,000
429.252	COLLECTION SYS. MAINT.	25,000
429.260	MINOR EQUIP. PURCHASES	1,500
429.313	ENGINEERING EXPENSE	31,400
429.321	COMMUNICATION EXPENSE	4,200
429.326	MONTHLY MONITORING FEES	1,000
429.352	LIABILITY INSURANCE	15,000
429.353	FLOOD INSURANCE	9,900
429.354	VEHICLE INSURANCE	2,700
429.361	ELECTRIC	27,000
429.366	WATER	8,000
429.404	LEGAL EXPENSE	20,000
429.421	DUES, TRAINING,SEMINARS	1,500
429.450	SLUDGE REMOVAL EXPENSE	45,000
429.451	EQUIPMENT RENTAL	300
429.700	MAJOR EQUIPMENT PURCHASE	21,469
429.800	CAPITAL RESERVE	0
429.900	DEBT REDUCTION	-
429.910	DEBT REDUCTION (Bond)	227,000
	<b>TOTAL</b>	<b>856,900</b>

# ROYERSFORD BOROUGH SEWERAGE FACILITIES ENGINEERING ASSESSMENT AND ORIGINAL COST

---

*Royersford Borough  
Montgomery County, PA*



---

***Prepared for:***

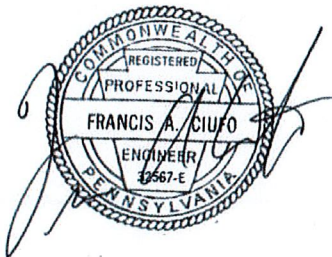
Royersford Borough  
300 Main Street  
Royersford, PA 19468

Pennsylvania American Water Company  
852 Wesley Drive  
Mechanicsburg, PA 17055

---

***Submitted By:***

Pennoni Associates Inc.  
3100 Horizon Drive, Suite 200  
King of Prussia, PA 19406



---

Frank A. Ciuffo, PE  
Senior Engineer

ROYRX20001



---

Khaled R. Hassan, PE  
Associate Vice President

CONTENTS

**EXECUTIVE SUMMARY.....1**

**1. PURPOSE OF REPORT .....2**

**2. SYSTEM DESCRIPTION.....4**

**3. INVENTORY OF ASSETS .....5**

**3.1 WASTEWATER TREATMENT PLANT .....5**

**3.2 PUMP STATIONS .....14**

**3.3 CONVEYANCE SYSTEM .....20**

**4. OWNED PROPERTY AND EASEMENTS OF VALUE.....21**

**5. REGULATORY REQUIREMENTS.....22**

    5.1 WWTP NPDES PERMIT

**6. OPERATING EXPENSES .....23**

**7. FUTURE CAPITAL PROJECTS.....24**

    GRANT REPORT

**8. LIST OF ASSETS AND COSTS .....25**

    ASSET COST SUMMARY SPREADSHEET

    ASSETS BY CODE

**APPENDICES**

**APPENDIX A – BOROUGH MAP**

- ASSET FACILITIES MAP

**APPENDIX B – Uniform System of Accounts - Section 300  
PA Act 12 of 2016**

## EXECUTIVE SUMMARY

As required by PA Act 12 of 2016 and following the guidelines of the “Uniform System of Accounts for Class A Wastewater Utilities”, an assessment of the tangible assets of facilities and equipment of the Royersford Borough wastewater utility was prepared. Each facility and class of equipment was coded based on Section 300 of the “Wastewater Utility Plant Accounts” of the Guidelines. The Asset Survey included the Wastewater Treatment Plant (WWTP), 2 active pump stations and approximately 13 miles of gravity sewers and force mains. Information was derived from various sources including Tapping Fee calculations, Borough accounting records and contractors’ certificates of payment. Site visits were conducted to each of the facilities to inventory the equipment and assess their condition.

Site inventories and facility condition were documented on facility information sheets and facility description summaries.

The overall assessment of the Wastewater Treatment Plant is good, the Pump Stations are in good to very good condition.

With the improvements made with the CIPP lining projects, gravity sewers and force mains are in good condition.

A complete list of the assets and original costs is provided in Section 8 of this report.

## 1. PURPOSE OF REPORT

The purpose of this report is to “conduct an assessment of the tangible assets of the selling utility” per the requirements of PA Act 12 of 2016.

This engineering assessment will be used by the Utility Valuation Experts (UVEs) retained by both the seller (Royersford) and buyer (PA American Wastewater). The engineering assessment followed the practices and procedures of the Public Utility Commission (PUC) and National Association of Regulatory Utility Commissioners (NARUC) Systems of Accounts. The engineering assessment report documents the conditions and original costs of Royersford’s assets that will be used as the common list for the UVEs to develop their appraisal of the system.

The report preparation process included meeting with key Royersford and PA American Wastewater representatives to identify and confirm specific information needed to support the assessment and to prepare the report, providing a mutually agreed upon scope of work with Royersford and PA American Wastewater. The inventory is a compilation of data gathered by Pennoni developed from institutional knowledge, available records, maps, work orders, payment records from construction projects, site evaluations, and other sources to provide an inventory and listing.

This report contains the following:

- An inventory of the used and useful assets to be transferred, compiled by year and account (codes).
- Identification of facilities being held for future use (if any).
- A list of non-depreciable property such as land and rights-of-way.
- A review of system components, plans, and reports of key facilities. This includes:
  - Permitted discharges, including regulatory requirements
  - Treatment Facility
  - Pumping Stations (2 each), including force mains
  - Gravity collection system
- Summary of the operation and maintenance expenses based upon review of Royersford operating records.
- An assessment of the identified assets.
- Determination and/or establishment of an original cost of construction for each asset.

Assets were identified through various sources. The WWTP assets were field inventoried and evaluated; and, supplemented with information obtained from drawings, where available. Force main sizes and quantities were taken from system maps and project drawings. Pump Stations were field inventoried, evaluated; and, supplemented with information obtained from drawings, where



available. Gravity piping, of which a majority was installed in 1935 and 1936, is based on the original cost determined in the 2005 Tapping Fees. Any piping installed after the original installation is based on actual costs or calculated.

A coding system as described in Section 300 of the Uniform System of Accounts for Class A Wastewater Utilities was used for classifying various assets. Section 300 as well as the listing of codes can be found in Appendix B.

## 2. SYSTEM DESCRIPTION

### SYSTEM SUMMARY

The Borough of Royersford, Montgomery County, PA (Borough) borders Limerick Township to the north; Upper Providence to the east and Chester County to the south and west. The Borough is primarily residential homes; however, the township zoning ordinance allows for a number of other land uses including institutional, office-resident, central business, highway business, industrial, and adaptive reuse. The size of the entire Borough is approximately 0.8 square miles. Sixteen (16) Upper Providence residents tie directly into the existing sewer main along the Upper Providence - Royersford boundary. There are a 103 Limerick residential accounts that tie into the system adjacent to the northwest corner of the borough.

The wastewater system in the Borough consists of approximately 69,990 LF of sewage gravity conveyance piping, 4,180 LF of force mains, two (2) pump stations (10th Avenue and Green Street), and the Royersford Wastewater Treatment Plant which the Borough owns and operates. The WWTP is permitted for 0.7 MGD. The conveyance system consists of mostly 8-inch, 10-inch, 12-inch and 15-inch vitrified clay sewer mains. The two pump stations are owned and operated by the Borough. The 10<sup>th</sup> Avenue pump station is rated for 450 GPM and Green Street pump station is rated for 350 GPM.

### 3. INVENTORY OF ASSETS

#### 3.1 WASTEWATER TREATMENT PLANT

##### Facility Description

The Royersford Wastewater Treatment plant is hydraulically rated for 1.0 million gallons per day (MGD), with a loading rating of 0.7 MGD. The 2018 Chapter 94 Report year average influent flow was 0.430 MGD.

The treatment plant receives sewage from either the First Avenue interceptor or the Second Avenue interceptor. The First Avenue sewage flows into the Raw Sewage Pump Station through a grinder. The Raw Sewage Pumps transfer the sewage to the influent screen channel where it combines with the Second Avenue sewage. The combine sewage enters the plant through a rotary drum screen.

The remainder of the sewer plant consists of primary clarification, a primary trickling filter, primary recirculation pumps, secondary trickling filter, secondary recirculation pumps, final clarification, sodium hypochlorite disinfection, anaerobic solids digestion, and sludge holding and thickening. The liquid biosolids are hauled by an outside contractor to the Pottstown Sewage Treatment Plant for disposal.

##### Treatment Plant

###### 1. Office/Control Building

The Office/Control building houses the WWTP operator office, electrical room, chlorine storage tanks and dosing system, flow metering equipment and chart recorder. The building is integrated with the raw sewage pump chamber and chlorine contact tanks. The building is concrete block with a poured concrete base and walls. The building office space and electrical room is approximately 800 SF.

###### 2. Primary and Secondary Settling Tanks

The original treatment plant had one structure with two primary and two secondary settling tanks. In the 2009 upgrade, one of the secondary settling tanks was converted to a primary settling tank and two new secondary settling tanks were constructed. Today there are three Primary Settling Tanks and three Secondary Settling Tanks.

The Primary Settling Tanks #1 and #2 sludge collection mechanisms, scum troughs, and overflow weirs were installed in 1996. Primary settling tank #3 was retrofitted in 2009 with a new Polychem chain and scrapper mechanism and new overflow weirs. The scrapper mechanisms are driven by SEW-Eurodrive, Inc. 2 HP drive units. All of the tanks are approximately 16 feet wide by 72 feet long.

The existing secondary settling Tank #2 (now secondary settling tank #1) was reconfigured with new overflow weirs and new Polychem chain & scrapper mechanisms. The scrapper mechanism is driven by a SEW-Eurodrive, Inc. 2 HP drive unit. Secondary Settling Tanks #2 and #3 were constructed in 2009. The chain and scrapper mechanisms are manufactured by Polychem. The scraper mechanisms are driven by SEW-Eurodrive, Inc. 0.75 HP drive units. All Secondary Settling Tanks are approximately 16 feet wide and 72 feet long.

- Trickling Filters

The primary and secondary trickling filters were installed 1950. The filters are 55 feet in diameter and are filled with plastic media.

- Primary Recirculation Pumps

There are two dry pit Fairbanks Morse centrifugal pumps located in the lower level of the lab building. The 30 HP pumps were installed in 2009 and are rated at 1,944 GPM @ 38' TDH, 230V, 3 ph. The pumps are controlled by Yaskawa P1000 VFDs located on the first floor of the Lab Building.

- Secondary Recirculation Pump Station

There are two Fairbanks Morse centrifugal submersible pumps in a poured concrete pump station located adjacent Final Settling Tanks No. 2 & 3. The 30 HP pumps were installed in 2009 and are rated at 1,944 GPM @ 33' TDH, 230V, 3 ph. The pumps are controlled by Yaskawa P1000 VFDs located on the deck of the pump station.

- Raw Sewage Pumps

There are two Fairbanks Morse centrifugal submersible pumps located in the influent structure integral to the Office/Control Building. The 20 HP pumps were installed in 2009 and are rated at 1,250 GPM @ 38' TDH, 230V, 3 ph.

- Influent Grinder

Influent Grinder is a 5 HP Muffin Monster installed in 2009. The unit was refurbished in 2015.

- Influent Screen Unit (Upper Grinder Station)

This unit takes flow from the raw water pump station and gravity flow from the east side of the Borough. The Screen Unit is a 2.0 HP Lakeside Raptor Model 31FS installed in 2009. The unit is rated for 3.0 MGD

- Poly Aluminum Chloride System

This system is used to treat phosphorus and was installed in 2011. A 3000-gallon double walled HDPE storage tank with dosing pump. The daily consumption is approximately 25 gallons. Dosing is via a Flexflo A1 N10F pump rated for 65.8 GPD.

- Flow Meter

The discharge flow meter is an Eastech Vantage 2220 Ultrasonic flow meter with a Chessel Chart recorder.

- Anaerobic Digester

The anaerobic digester was installed in 1950. The digester receives sludge directly from the primary and secondary clarifiers. The unit utilizes fuel oil is a small hot water boiler to heat a recirculation hot water loop that heats the tank to a temperature of 105 degrees. The sludge is heated through heating coils attached to the interior tank walls. The digester has a capacity of 45,000 gallons. The unit is currently being upgraded with a new Propane heating system.

- Sludge Holding Tanks

There are two sludge holding tanks (Nos. 1 and 2) that receive digested sludge primarily from the Anaerobic Sludge Digester and at times from the clarifiers. The tanks are the former Imhoff tanks that were used for primary treatment, when the original treatment plant was built. The tanks are over 20 feet deep. Total storage capacity is approximately 400,000 gallons.

- Disinfection

The plant uses liquid sodium hypochlorite. The chemical tanks and metering are located in the WWTP office/control building. There are two 150 gallon polypropylene holding tanks. A

Pulsatron LB6 Series dosing pump injects the solution to the Chlorine Contact Tanks located adjacent to the Office/Control building.

- De-chlorination System

The De-chlorination system, located outside and west of the office/control building, consists of a 350-gallon polyethylene storage tank which is heat traced and insulated. A polyethylene containment tank provides secondary protection. The system is located adjacent to manhole prior to discharge to the Schuylkill River. The metering pump and ISCO 3710 sampler are located in a prefabricated 8' x 8' fiberglass building.

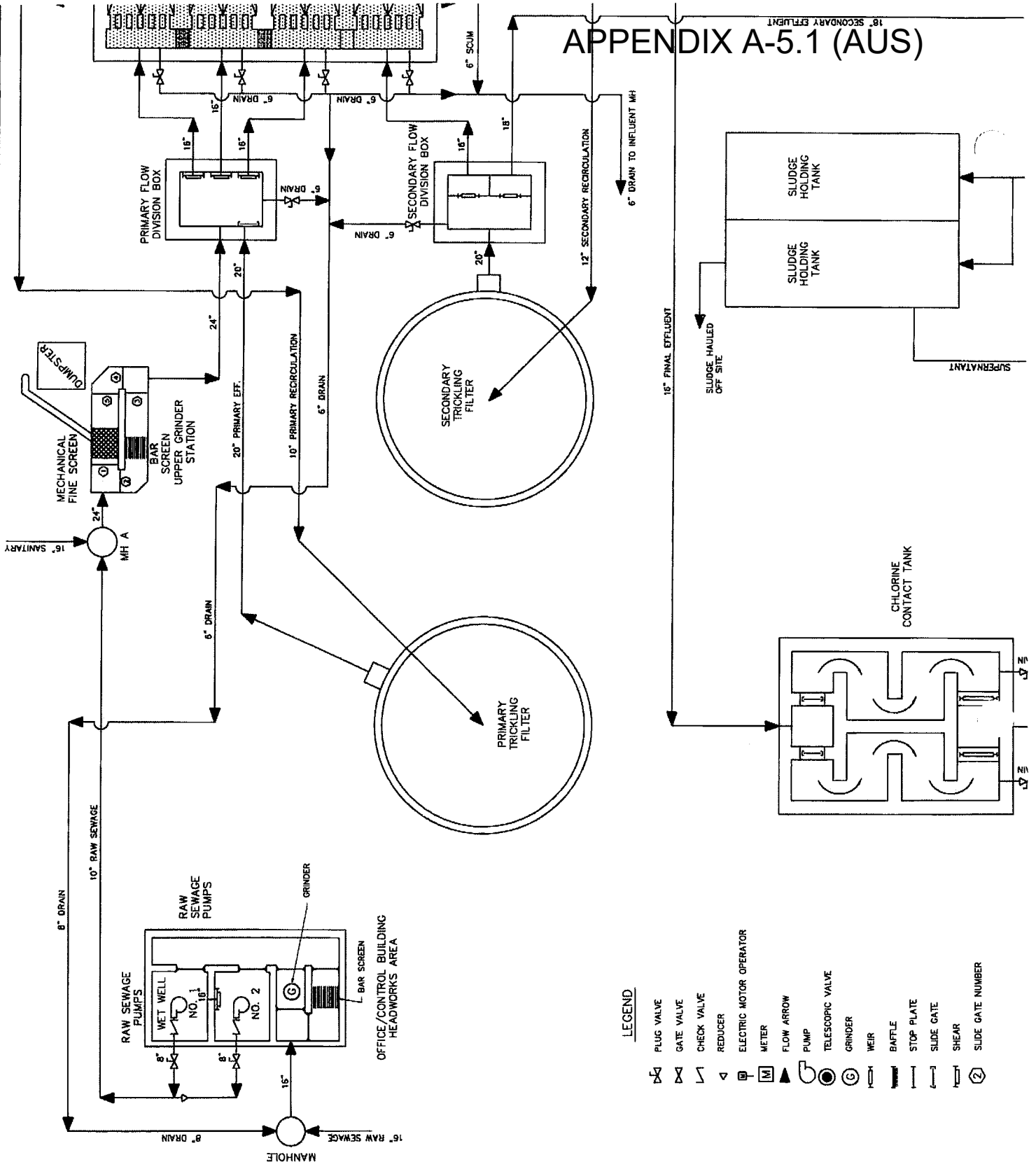
- Emergency Generator

The generator is an MTU/Detroit Diesel Model 250 312KVA, 250KW unit. It is powered by a John Deer 384 HP engine and has 455-gallon integral fuel tank.

- Storage Building

A 2,150 SF storage building was constructed in 2015. The building is a wood frame structure built on 8-foot high concrete walls and concrete slab. There is a second story loft area that is isolated and can be used for storage or as an office. The exterior walls and roof are steel panels.

# APPENDIX A-5.1 (AUS)



## LEGEND

- ⊘ FLUG VALVE
- ⊘ GATE VALVE
- ⊘ CHECK VALVE
- ⊘ REDUCER
- ⊘ ELECTRIC MOTOR OPERATOR
- ⊘ METER
- ⊘ FLOW ARROW
- ⊘ PUMP
- ⊘ TELESCOPIC VALVE
- ⊘ GRINDER
- ⊘ WEIR
- ⊘ BAFFLE
- ⊘ STOP PLATE
- ⊘ SLIDE GATE
- ⊘ SHEAR
- ⊘ SLIDE GATE NUMBER



Figure 1 – Lab Building, Secondary Settling Tanks #2 & #3, Sludge Storage Tanks



Figure 2 – Emergency Generator and Sludge Digester



Figure 3 – Trickling Filters



Figure 4 – Trickling Filter





Figure 5 – Settling Tanks



Figure 6 – Office entrance and wetwell



Figure 7 – Raw Sewage Pumps



Figure 8 – Chlorine Storage and dosing room

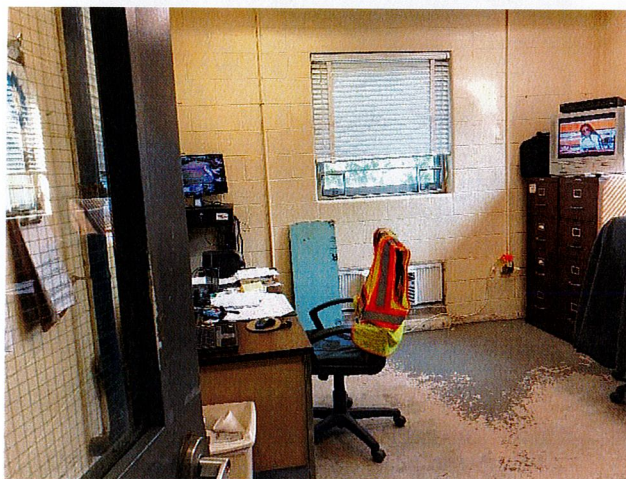


Figure 9 – Office

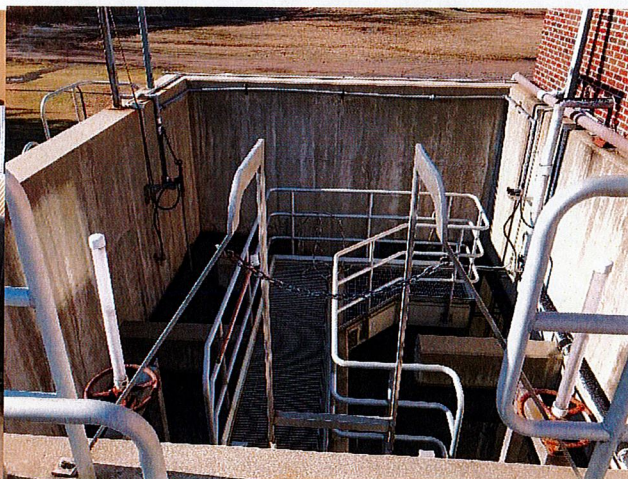


Figure 10 – Chlorine Contact Basin



Figure 11 – Storage Building

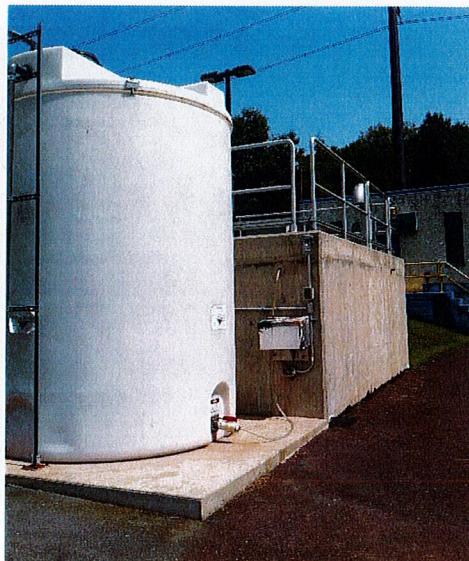


Figure 12 – PAC storage and Dosing System



Figure 13 –Secondary Recirculation Pump Station



Figure 14 – Secondary Recirculation Pump Station VFDs



Figure 15 – Lab Building. Basement – Primary Recirculation pump and Sludge Transfer Pump

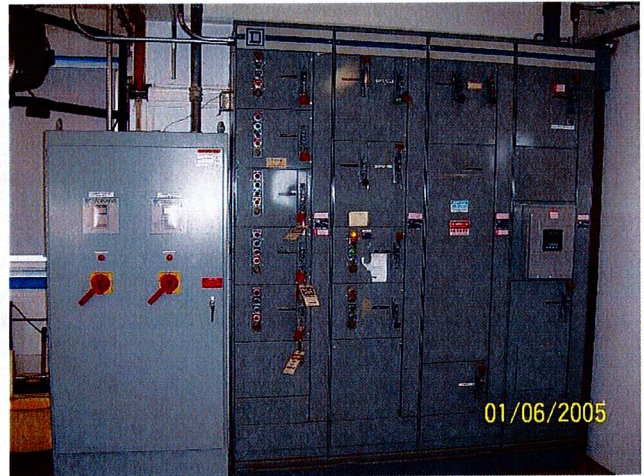


Figure 16 – Primary Recirculation Pumps VFDs and MCC in Lab Building



Figure 17 – Influent Screen Unit (Upper Grinder Station)

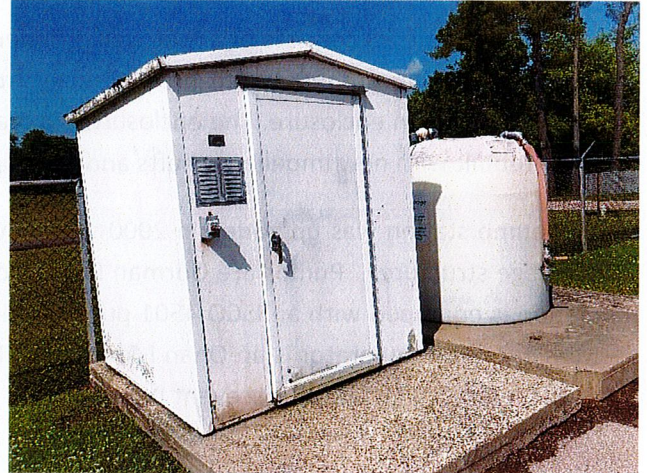


Figure 18 – De-Chlorination System

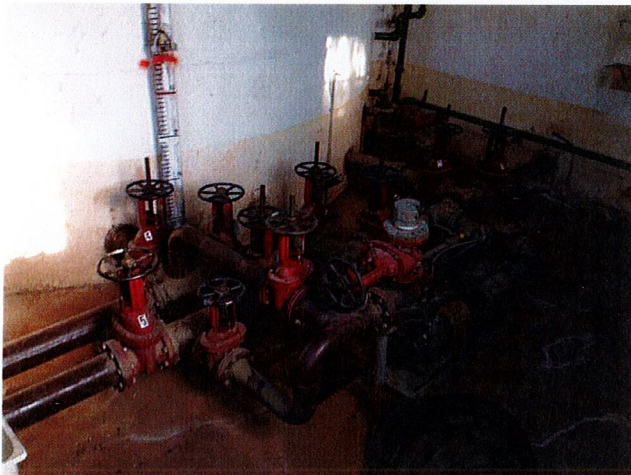


Figure 19 – Digester Building Control Room



Figure 20 – Proposed Propane Heating System Location

### 3.2 PUMP STATIONS

#### 10<sup>th</sup> Avenue Pump Station

##### Facility Description (see attached Information Sheet)

The 10<sup>th</sup> Avenue PS consists of a wet well, grinder, pump station enclosure, and generator. The station uses self-priming pumps, which draw directly from a wet well. The pumps and station controls are located within an enclosure. The enclosure is a masonry building with a shingled roof. Both pumps have been rebuilt with new impellers, shafts and bearings.

The pump station was upgraded in 2000 with new pumps, flow meter, muffin monster, generator and drainage structures. Pumps are Gorman Rupp Model T4A3-B, 450 GPM, 20 HP, 230 V, 3 ph. The pump station is equipped with an ISCO 4501 pump station monitor/flow meters. The grinder is a 3HP Muffin Monster. The Generator is an Onan Model 80DGDA, 100kVA, 82kW diesel powered. In 2011, drainage structures were installed to prevent flooding.

##### Property Condition

A majority of the equipment was upgraded in 2000. The building, pumps and electrical systems are in good condition.



Figure 1 – Wet Well

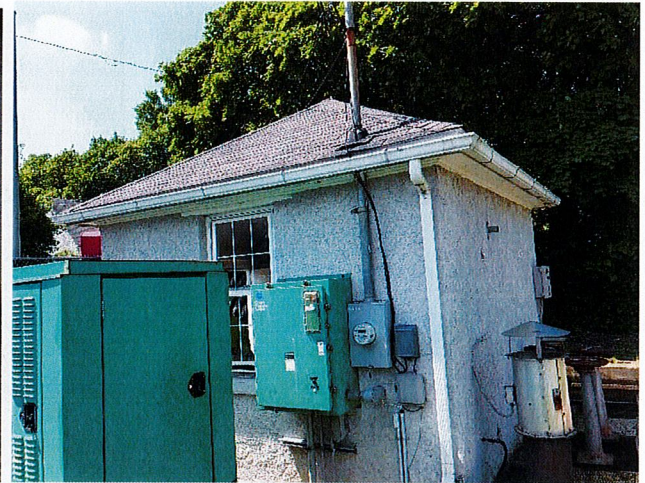


Figure 2 – Building, Generator and ATS



Figure 3 – Generator



Figure 4 – Gorman Rupp Pump

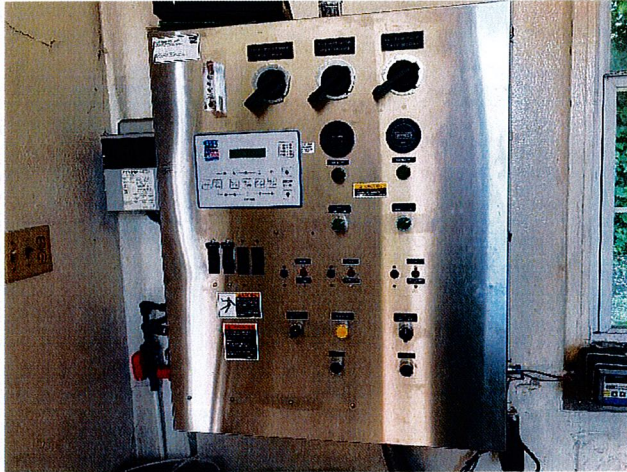


Figure 5 – Pump Control Panel

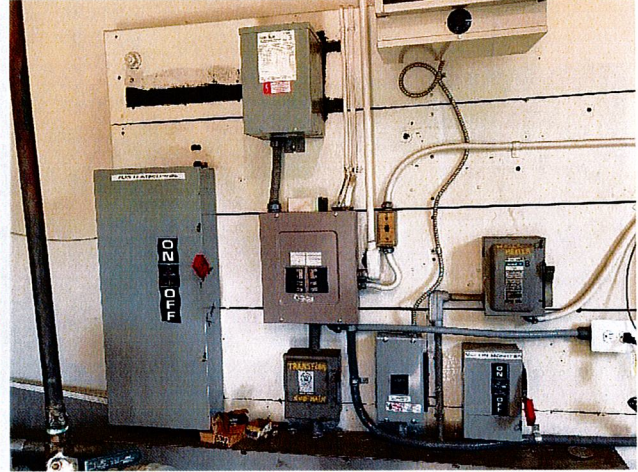


Figure 6 – Electrical Controls

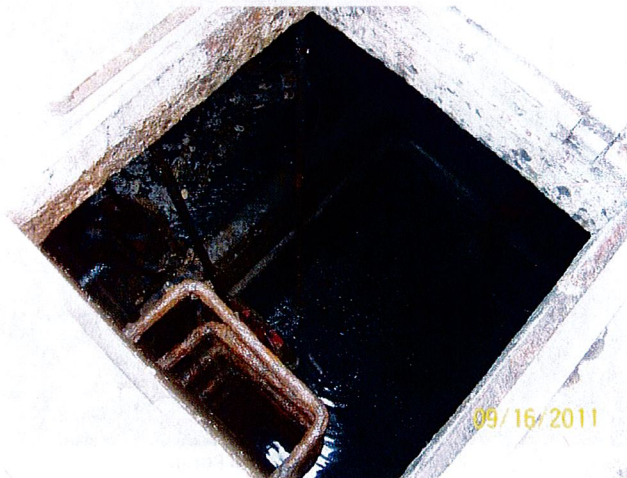


Figure 7 – Wet Well



Figure 8 – Back of Building

**Green Street Pump Station**

**Facility Description (see attached Information Sheet)**

The Green Street pump station consists of a wet well, dry well and generator. The station uses end suction dry pit sewage pumps located in an underground vault (dry well). In 2019, the electrical controls from the dry pit were relocated to the pump station deck. Access to the pumps is through a hatch and ladder.

The pumps are Vaughan Chopper Pumps Model P4L6, 350 GPM, 15 HP, 230V, 3 phase installed in 1989. The generator is a Baldor Model TS60, 61kVA, 49kW diesel powered with an integral 80 gallon diesel storage tank installed in 2012. An ISCO 4501 pump station monitor/flow meter was installed in 2012.

**Property Condition**

All of the station components are in good condition.





Figure 1 – Facility Site



Figure 2 – Pump Control Panels



Figure 3 – Dry Pit Entry Hatchway



Figure 4 – View into Dry Pit from above

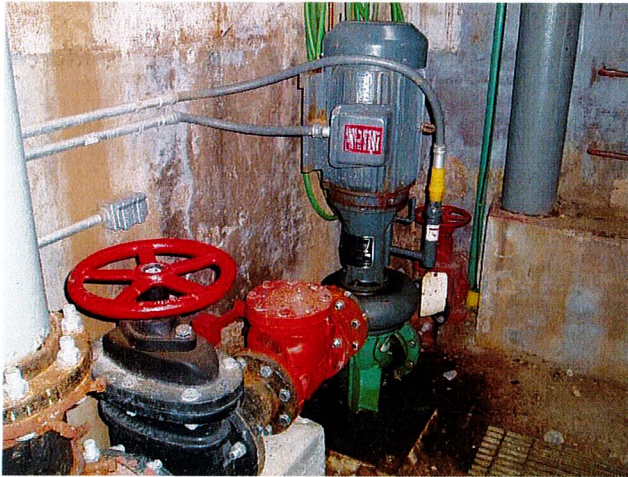


Figure 5 – Pump #1



Figure 6 – Pump #2



Figure 7 – Generator



Figure 8 – Pump Control Panel (now located on deck)

### 3.3 CONVEYANCE SYSTEM

The conveyance system consists of approximately 69,990 feet of 8, 10, 12 and 15-inch clay and PVC pipe. There is approximately 205 LF of 15-inch cast iron pipe. There are 259 manholes in the system. A vast majority of the piping was installed in 1935 and 1936.

There is 26,842 linear feet of laterals. Lateral lineal footages were estimated based on an average length from the center of average road widths to the curb. Additional quantities were measured from plans or quantified on escrows.

Green Street Pump Station's force main is 680 LF of 6-inch CIP. The 10<sup>th</sup> Avenue Pump Station force main is 3,500 LF of 8-Inch CIP.

## APPENDIX A-5.1 (AUS)

<b>ROYERSFORD, PA - SANITARY SEWER PIPE QUANTITIES</b>					
<b>GRAVITY PIPING</b>					
<b>Segment</b>	<b>Street Name</b>	<b>Upstream MH</b>	<b>Downstream MH</b>	<b>Pipe Size (inches)</b>	<b>Section Length (LF)</b>
1	3rd Ave	49	48	8	131
2	3rd Ave	48	47	8	355
3	3rd Ave	47	46	8	281
4	3rd Ave	46	26	8	200
5	3rd Ave	72	73	8	279
6	3rd Ave	73	74	8	400
7	3rd Ave	74	111	8	140
8	3rd Ave	111	112	8	91
9	Unitech	26	25	15	138
10	4th Ave	76	70	8	300
11	5th Ave	103	79	8	325
12	5th Ave	79	67	8	397
13	5th Ave	67	51	8	400
14	5th Ave	51	50	8	274
15	5th Ave	50	45	8	131
16	5th Ave	45	36	8	399
17	6th Ave	81	65	8	336
18	6th Ave	44	38	8	400
19	6th Ave	53	44	8	410
20	6th Ave	100	82	8	428
21	7th Ave	84	63	8	300
22	7th Ave	55	63	8	304
23	7th Ave	56	42	8	416
24	7th Ave	42	40	8	388
25	7th Ave	40A	40	8	300
26	Elm Street	40B	40A	8	350
27	Elm Street	40B	39	8	300
28	Church St	82	83	8	325
29	Church St	83	85	8	331
30	Church St	85	86	8	415
31	Church St	86	87	8	345
32	Church St	87	88	8	363
33	Church St	78	79	8	408
34	Church St	77	78	8	230
35	Church St	77	75	8	256
36	Church St	75	74	8	266
37	Church St	82	80	8	330
38	Church St	80	79	8	310
39	Chestnut St	63	62	8	328
40	Chestnut St	62	61	8	325
41	Chestnut St	61	60	8	316

## APPENDIX A-5.1 (AUS)

42	Chestnut St	60	59	8	332
43	Chestnut St	70	71	8	200
44	Chestnut St	71	73	8	325
45	Chestnut St	68	69	8	225
46	Chestnut St	68	67	8	300
47	Chestnut St	67	66	8	300
48	Chestnut St	65	66	8	307
49	Chestnut St	66	65	8	400
50	Chestnut St	65	64	8	325
51	Chestnut St	64	63	8	300
52	Oak St	57	56	8	395
53	Oak St	54	53	8	454
54	Oak St	52A	52	8	200
55	Oak St	53	52A	8	237
56	Pine St	40	39	8	335
57	Pine St	39	38	8	500
58	Pine St	36	35	8	225
59	Pine St	35	34	8	350
60	Pine St	34	28	8	175
61	Pine St	28	27	8	90
62	Pine St	26	27	8	80
63	Pine St	37	33A	12	278
64	Pine St	33A	33	12	169
65	Pine St	33	32	12	74
66	Pine St	38	37	12	262
67	Pine St Easement	37	33A	12	279
68	Pine St. Easement	30	29	12	49
69	Pine St. Easement	32	31	12	169
70	Pine St. Easement	31	31A	12	259
71	Pine St. Easement	31A	30	12	180
72	Spruce St	41	42	8	250
73	Spruce St	45	46	8	205
74	Spruce St	43	44	8	365
75	Summer St.	109	110	8	264
76	Summer St.	110	112	8	117
77	Summer St.	111	111A	8	108
78	Summer St.	111A	111B	8	122
79	Summer St.	111B	111C	8	151
80	Summer St.	111C	111D	8	60
81	Summer St.	111D	17B	8	259
82	1st Ave	2	1	15	480
83	1st Ave	3	2	15	450
84	1st Ave	4	3	15	340
85	1st Ave	5	4	15	110
86	1st Ave	6	5	15	550
87	1st Ave	7	6	15	35
88	1st Ave	8	7	15	305
89	1st Ave	9	8	15	350

## APPENDIX A-5.1 (AUS)

90	1st Ave	10	9	15	185
91	1st Ave	11	11A	15	70
92	1st Ave	11	10	15	165
93	1st Ave	12	11A	15	280
94	1st Ave	12A	12	15	295
95	1st Ave	12B	12A	15	115
96	1st Ave	13	12B	15	270
97	1st Ave	14	13	15	50
98	1st Ave	12A	12	15	290
99	1st Ave	12B	12A	15	110
100	2nd Ave	201A	201	8	44
101	2nd Ave	201B	201A	8	220
102	2nd Ave	118	117	8	230
103	2nd Ave	124	118	8	220
104	2nd Ave	167	124	8	430
105	2nd Ave	168	167	8	147
106	2nd Ave	169	168	8	410
107	2nd Ave	194	195	8	62
108	2nd Ave	195	169	12	360
109	2nd Ave	200	194	8	227
110	2nd Ave	201	200	8	215
111	3rd Ave	112	114	8	191
112	3rd Ave	120	115	8	210
113	3rd Ave	120	119	8	120
114	3rd Ave	129	120	8	112
115	3rd Ave	163	164	8	199
116	3rd Ave	170	190	8	396
117	3rd Ave	205	190	8	370
118	4th Ave	130	123	8	183
119	4th Ave	173	183	8	344
120	4th Ave	184	207	8	293
121	5th Ave	105	133	8	298
122	5th Ave	133	155	8	193
123	5th Ave	155	156	8	193
124	5th Ave	157	175	8	253
125	5th Ave	181	175	8	414
126	6th Ave	177	177A	8	210
127	6th Ave	179	177A	8	190
128	6th Ave	179	212	8	370
129	6th Ave	177A	177	8	210
130	Adams St	126	165	8	430
131	Arch St	178	179	8	250
132	Arch St	179	180A	8	175
133	Arch St	180	181	8	323
134	Arch St	183	186	8	109
135	Arch St	185	186	8	190
136	Arch St	186	188	8	275
137	Arch St	187	186	8	200

## APPENDIX A-5.1 (AUS)

138	Arch St	188	189	8	285
139	Arch St	189	190	8	35
140	Arch St	198	6	8	254
141	Arch St Easement	190	191	8	28
142	Arch St Easement	191	192	12	330
143	Arch St Easement	192	192A	12	170
144	Arch St Easement	192A	193	12	110
145	Arch St Easement	193	194	12	257
146	Arch St Easement	195	196	12	160
147	Arch St Easement	197	198	8	216
148	Arch St Easement	192A	193	12	139
149	Green St	202	201	8	70
150	Green St	203	202	8	340
151	Green St	204	203	8	275
152	Green St	205	204	8	275
153	Green St	206	206A	8	347
154	Green St	207	206	8	27
155	Green St	208	207	8	310
156	Green St	210	208	8	320
157	Green St	211	210	8	299
158	Green St	212	211	8	340
159	Green St	213	212	8	282
160	Green St	206A	205	8	337
161	Main St	94	93	8	310
162	Main St	95	94	8	225
163	Main St	96	95	8	301
164	Main St	97	96	8	296
165	Main St	98	97	8	330
166	Main St	99	98	8	340
167	Main St	100	99	8	336
168	Main St	101	100	8	300
169	Main St	102	101	8	270
170	Main St	104	102	8	90
171	Main St	104	106	8	300
172	Main St	104	102	8	90
173	Main St	106	108	8	330
174	Main St	108	113	8	280
175	Main St	113	114	8	250
176	Main St	114	115	8	200
177	Main St	116	117	8	334
178	Main St	117	16	8	225
179	Main St	100A	100	8	336
180	Main St	101A	100	8	160
181	Main St	15	14	15	246
182	Main St	16	15	15	105
183	Myrtle Alley	121	121A	8	115
184	Myrtle St	121	120	8	320
185	Myrtle St	122	121A	8	216

## APPENDIX A-5.1 (AUS)

186	Myrtle St	123	122	8	70
187	N 4th St	107	108	8	380
188	Plum St	160	161	8	332
189	Plum St	161	163	8	317
190	Spring St	171	170	8	341
191	Spring St	171	171A	8	170
192	Spring St	172	171A	8	205
193	Spring St	174	174C	8	220
194	Spring St	176	175	8	390
195	Spring St	177	176	8	266
196	Spring St	174	172	8	310
197	Spring St Easement	175	174C	8	110
198	Spring St Easement	174A	174	8	175
199	Spring St Easement	174B	174A	8	235
200	Spring St Easement	174C	174B	8	156
201	Walnut St	125	124	8	270
202	Walnut St	127	125	8	160
203	Walnut St	128	127	8	103
204	Walnut St	130	130A	8	88
205	Walnut St	131	130A	8	252
206	Walnut St	132	131	8	240
207	Walnut St	134	135	8	413
208	Walnut St	134	133	8	227
209	Walnut St	135	136	8	316
210	Walnut St	136	137	8	311
211	Walnut St	137	138	8	418
212	Walnut St	138	139	8	359
213	Walnut St	130A	130	8	88
214	Washington St	150	149	8	394
215	Washington St	151	150	8	376
216	Washington St	152	151	8	288
217	Washington St	153	152	8	360
218	Washington St	154	153	8	273
219	Washington St	154	156	8	350
220	Washington St	156	158	8	310
221	Washington St	158	159	8	345
222	Washington St	159	162	10	361
223	Washington St	162	164	10	339
224	Washington St	164	165	10	475
225	Washington St	165	166	10	214
226	Washington St	166	168	10	66
227	Church Street R.O.W.	58	90	8	406
228	Chestnut Street	58A	58	8	291
229	Chestnut Street	58B	58A	8	197
230	Chestnut Street	59	58B	8	172
231	Church Street	88	89	8	327
232	Church Street	89	90	8	483
233	Main Street R.O.W.	90	91	8	381



## APPENDIX A-5.1 (AUS)

234	Main Street	92	PS	8	40
235	Main Street	92A	92	8	166
236	Main Street	93	92A	8	319
237	Main Street	94	93	8	273
238	Main Street	95	94	8	244
239	Main Street	96	95	8	286
240	Walnut Street	139	140	8	373
241	Walnut Street	140	141	8	323
242	Walnut Street	141	142	8	327
243	Walnut Street	142	143	8	481
244	Walnut Street R.O.W.	143	92	8	415
245	Walnut Street	144	143	8	95
246	Washington Street R.O.W.	145	144	8	300
247	Washington Street R.O.W.	146	145	8	300
248	Washington Street	147	146	8	225
249	Washington Street	147A	147	8	329
250	Washington Street	148	147A	8	287
251	Lewis Road	149	139	8	386
252	9th Avenue R.O.W.	14	147	8	412
253	Spring Street	15	14	8	401
254	Spring Street	16	15	8	187
255	RR ROW	196	199	15	140
256	RR ROW	199	199A	15	430
257	RR ROW	199A	199B	15	300
258	RR ROW	199B	215	15	360
259	RR ROW	215	216	15	350
260	RR ROW	216	217	15	100
261	N 6th Ave	un-numbered	38	8	185
262	Elm Street	un-numbered	un-numbered	8	385
263	S. Third Ave	205A	205	8	350
264	S. Fourth Ave	206B	206	8	270
				<b>total length</b>	<b>69,990</b>
	<b>Total Gravity Piping (LF)</b>		Total 8 inch VCP		57,265
			Total 10 inch VCP		1,455
			Total 12 inch VCP		3,245
			Total 15 inch VCP		6,414
			Total 15 inch CIP		205
			Total 8 inch PVC		1,406
					<b>69,990</b>
<b>FORCE MAINS</b>					
GREEN STREET PUMP STATION			6-Inch Cast Iron		680
10th AVENUE PUMP STATION			8-Inch Cast Iron		3,500

**4. OWNED PROPERTY AND EASEMENTS OF VALUE**

Property that was directly purchased by the Authority and easements acquired with a significant purchase price are listed in the following chart. A majority of the properties owned by the Authority were transferred as part of the purchase of the facility and cannot be isolated as a separate value. The value of said properties is listed with a value of \$3,000 that was listed in the original project costs of the facilities in Section 8 – “List of Assets and Costs”. No specific parcel or parcels were identified.

<b>Royersford Public Sewer Locations Outside of Road Right-of-Way</b>				
<b>Property</b>	<b>Address</b>	<b>PARID</b>	<b>Easement Info</b>	<b>Cost</b>
1	962 WALNUT ST	19-00-04504-00-4	Easement recorded 8/7/1961 in Deed Book 3196, page 1	\$9.50
2	WASHINGTON ST	19-00-05492-00-6		
3	389 S FOURTH AVE	19-00-01552-00-4	Easement recorded 5/4/1937 in Deed Book 1234, page 406	\$1.00
4	391 S FOURTH AVE	19-00-01556-00-9	Easement recorded 5/4/1937 in Deed Book 1234, page 408	\$1.00
5	393 S FOURTH AVE	19-00-01560-00-5		
6	395 S FOURTH AVE	19-00-01564-00-1		
7	397 S FOURTH AVE	19-00-01568-00-6		
8	399 S FOURTH AVE	19-00-01572-00-2		
9	401 S FOURTH AVE	19-00-01576-00-7	Easement recorded 5/4/1937 in Deed Book 1234, page 384	\$1.00
10	403 S FOURTH AVE	19-00-01580-00-3		
11	405 S FOURTH AVE	19-00-01584-00-8		
12	WWTP		1935	\$3,000.00
13	10th AVE PUMP STATION	19-00-00368-00-9	Easement recorded 10/20/2000 Deed Book 5381, Page 1362	\$38.50

**5. REGULATORY REQUIREMENTS**



December 28, 2017

**CERTIFIED MAIL NO. 7017 1000 000 5886 5688**

Mr. Michael Leonard, Manager  
Royersford Borough  
300 Main Street  
Royersford, PA 19468-2313

Re: Final NPDES Permit- Sewage  
Royersford Borough STP  
NPDES Permit No. PA0021512  
Authorization ID No. 1175844  
Upper Providence Township, Montgomery County

Dear Mr. Leonard:

Your NPDES permit is enclosed. Please read the permit carefully. The permit expires on the date identified on page 1 of the permit. A renewal application must be submitted to this office 180 days prior to the permit expiration date, if a discharge is expected to continue past the expiration date of the permit.

Enclosed are Discharge Monitoring Report (DMR) templates and DMR instructions. It is recommended that you retain the DMR templates in the event you are unable to submit DMRs electronically through DEP's eDMR system. Routine use of the eDMR system is a requirement of the permit unless the conditions in Part A III.B.3 of the permit are met to submit hard copies.

Also enclosed is a Supplemental Form Inventory, which identifies the forms that are attached to the permit and must be submitted as attachments to eDMR reports, as applicable (see individual form instructions). The submission of other supplemental forms may be required in accordance with the permit. We encourage you to use the spreadsheet versions of supplemental forms that contain appropriate validation and DEP-approved calculations.

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, PA 17105-8457, 717.787.3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800.654.5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on

# APPENDIX A-5.1 (AUS)

Mr. Michael Leonard

- 2 -

December 28, 2017

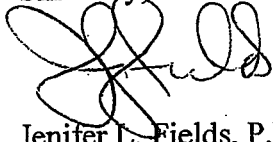
audiotape from the Secretary to the Board at 717.787.3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

**IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.**

**IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717.787.3483) FOR MORE INFORMATION.**

If you have any questions, please contact Orest Kolodij at 484.250.5191.

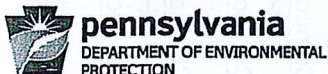
Sincerely,



Jenifer L. Fields, P.E.  
Environmental Program Manager  
Clean Water Program

## Enclosures

cc: Montgomery County Health Department (Transmittal Letter Only)  
Upper Providence Township (Transmittal Letter Only)  
EPA 3WP41 (Transmittal Letter Only)  
DRDC - Mr. David Kovach (w/enclosures)  
Gilmore & Associates - Mr. Thomas Figaniak (w/enclosures)  
Operations Section  
Central Office, Division of Operations  
Ms. Lashley  
File



**AUTHORIZATION TO DISCHARGE UNDER THE  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
DISCHARGE REQUIREMENTS FOR PUBLICLY OWNED  
TREATMENT WORKS (POTWs)**

**NPDES PERMIT NO: PA0021512**

In compliance with the provisions of the Clean Water Act, 33 U.S.C. Section 1251 *et seq.* ("the Act") and Pennsylvania's Clean Streams Law, as amended, 35 P.S. Section 691.1 *et seq.*,

**Borough of Royersford  
300 Main Street  
Royersford, PA 19468**

is authorized to discharge from a facility known as **Royersford Borough STP**, located at **600 South First Avenue, Upper Providence Township, Montgomery County**, to **Schuylkill River** in Watershed(s) 3-D in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts A, B and C hereof.

**THIS PERMIT SHALL BECOME EFFECTIVE ON January 1, 2018**

**THIS PERMIT SHALL EXPIRE AT MIDNIGHT ON December 31, 2022**

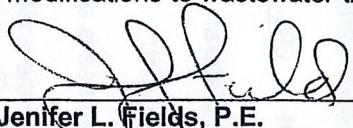
The authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application, its supporting documents and/or amendments and the terms and conditions of this permit, the terms and conditions shall apply.
2. Failure to comply with the terms, conditions or effluent limitations of this permit is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. (40 CFR 122.41(a))
3. A complete application for renewal of this permit, or notice of intent to cease discharging by the expiration date, must be submitted to DEP at least 180 days prior to the above expiration date (unless permission has been granted by DEP for submission at a later date), using the appropriate NPDES permit application form. (40 CFR 122.41(b), 122.21(d))

In the event that a timely and complete application for renewal has been submitted and DEP is unable, through no fault of the permittee, to reissue the permit before the above expiration date, the terms and conditions of this permit, including submission of the Discharge Monitoring Reports (DMRs), will be automatically continued and will remain fully effective and enforceable against the discharger until DEP takes final action on the pending permit application. (25 Pa. Code §§ 92a.7(b), (c))

4. This NPDES permit does not constitute authorization to construct or make modifications to wastewater treatment facilities necessary to meet the terms and conditions of this permit.

**DATE PERMIT ISSUED** December 28, 2017

**ISSUED BY**   
**Jenifer L. Fields, P.E.**  
**Clean Water Program Manager**  
**South East Regional Office**

**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS**

I. A. For Outfall 001, Latitude 40° 10' 31.00", Longitude 75° 32' 14.00", River Mile Index 41.25, Stream Code 00833

Receiving Waters: Schuylkill River

Type of Effluent: Treated sewage from Royersford Borough STP.

1. The permittee is authorized to discharge during the period from January 1, 2018 through December 31, 2022.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)			Instant. Maximum	Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average			
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.2	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	117	175	XXX	20.0	30.0	40	1/week	Composite
Biochemical Oxygen Demand (BOD5)	Report	XXX	XXX	Report	XXX	XXX	1/week	Composite
Raw Sewage Influent	117	175	XXX	20.0	30.0	40	1/week	Composite
Total Suspended Solids	Report	XXX	XXX	Report	XXX	XXX	1/week	Composite
Total Suspended Solids Raw Sewage Influent	XXX	XXX	2000.0 Daily Max	1000.0	2500	2500	1/month	Composite
Total Dissolved Solids	XXX	XXX	200	Geo Mean	XXX	1000	1/week	Grab

Outfall 001, Continued (from January 1, 2018 through December 31, 2022)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)			Instant. Maximum	Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average			
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Ammonia-Nitrogen	35	XXX	XXX	6.0	XXX	12	1/week	24-Hr Composite
Total Phosphorus	12	XXX	XXX	2.0	XXX	XXX	1/week	24-Hr Composite
PCBs Dry Weather Analysis (pg/L)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Outfall 001

(\*) See Part C Requirement I.F. for instructions regarding October thru April reporting of maximum fecal coliform values.



**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS  
(Continued)**

Additional Requirements

1. The permittee may not discharge:
  - a. Floating solids, scum, sheen or substances that result in observed deposits in the receiving water. (25 Pa Code § 92a.41(c))
  - b. Oil and grease in amounts that cause a film or sheen upon or discoloration of the waters of this Commonwealth or adjoining shoreline, or that exceed 15 mg/l as a daily average or 30 mg/l at any time (or lesser amounts if specified in this permit). (25 Pa. Code § 92a.47(a)(7), § 95.2(2))
  - c. Substances in concentration or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life. (25 Pa Code § 93.6(a))
  - d. Foam or substances that produce an observed change in the color, taste, odor or turbidity of the receiving water, unless those conditions are otherwise controlled through effluent limitations or other requirements in this permit. For the purpose of determining compliance with this condition, DEP will compare conditions in the receiving water upstream of the discharge to conditions in the receiving water approximately 100 feet downstream of the discharge to determine if there is an observable change in the receiving water. (25 Pa Code § 92a.41(c))
2. The monthly average percent removal of BOD<sub>5</sub> or CBOD<sub>5</sub> and TSS must be at least 85% for POTW facilities on a concentration basis except where 25 Pa. Code 92a.47(g) and (h) are applicable to facilities with combined sewer overflows (CSOs) or as otherwise specified in this permit. (25 Pa. Code § 92a.47(a)(3))
3. If the permit requires the reporting of average weekly statistical results, the maximum weekly average concentration and maximum weekly average mass loading shall be reported, regardless of whether the results are obtained for the same or different weeks.
4. The permittee shall monitor the sewage effluent discharge(s) for the effluent parameters identified in the Part A limitations table(s) during all bypass events at the facility, using the sample types that are specified in the limitations table(s). Where the required sample type is "composite", the permittee must commence sample collection within one hour of the start of the bypass, wherever possible. The results shall be reported on the Daily Effluent Monitoring supplemental form (3800-FM-BCW0435) and be incorporated into the calculations used to report self-monitoring data on Discharge Monitoring Reports (DMRs).

Footnotes

- (1) When sampling to determine compliance with mass effluent limitations, the discharge flow at the time of sampling must be measured and recorded.
- (2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events.

Supplemental Information

- (1) The hydraulic design capacity of 1.0 million gallons per day for the treatment facility is used to prepare the annual Municipal Wasteload Management Report to help determine whether a "hydraulic overload" situation exists, as defined in Title 25 Pa. Code Chapter 94.
- (2) The effluent limitations for Outfall 001 were determined using an effluent discharge rate of 0.7 MGD.
- (3) The organic design capacity of 1,751 lbs BOD<sub>5</sub> per day for the treatment facility is used to prepare the annual Municipal Wasteload Management Report to determine whether an "organic overload" condition exists, as defined in 25 Pa. Code Chapter 94.

## APPENDIX A-5.1 (AUS)

- (4) Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N ( $\text{NO}_2+\text{NO}_3\text{-N}$ ), where TKN and  $\text{NO}_2+\text{NO}_3\text{-N}$  are measured in the same sample.

## II. DEFINITIONS

At Outfall (XXX) means a sampling location in outfall line XXX below the last point at which wastes are added to outfall line (XXX), or where otherwise specified.

Average refers to the use of an arithmetic mean, unless otherwise specified in this permit. (40 CFR 122.41(l)(4)(iii))

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the pollutant loading to surface waters of the Commonwealth. The term also includes treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. The term includes activities, facilities, measures, planning or procedures used to minimize accelerated erosion and sedimentation and manage stormwater to protect, maintain, reclaim, and restore the quality of waters and the existing and designated uses of waters within this Commonwealth before, during, and after earth disturbance activities. (25 Pa. Code § 92a.2)

Bypass means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 122.41(m)(1)(i))

Calendar Week is defined as the seven consecutive days from Sunday through Saturday, unless the permittee has been given permission by DEP to provide weekly data as Monday through Friday based on showing excellent performance of the facility and a history of compliance. In cases when the week falls in two separate months, the month with the most days in that week shall be the month for reporting.

Clean Water Act means the Federal Water Pollution Control Act, as amended (33 U.S.C.A. §§ 1251 to 1387).

Composite Sample (for all except GC/MS volatile organic analysis) means a combination of individual samples (at least eight for a 24-hour period or four for an 8-hour period) of at least 100 milliliters (mL) each obtained at spaced time intervals during the compositing period. The composite must be flow-proportional; either the volume of each individual sample is proportional to discharge flow rates, or the sampling interval is proportional to the flow rates over the time period used to produce the composite. (EPA Form 2C)

Composite Sample (for GC/MS volatile organic analysis) consists of at least four aliquots or grab samples collected during the sampling event (not necessarily flow proportioned). The samples must be combined in the laboratory immediately before analysis and then one analysis is performed. (EPA Form 2C)

Daily Average Temperature means the average of all temperature measurements made, or the mean value plot of the record of a continuous automated temperature recording instrument, either during a calendar day or during the operating day if flows are of a shorter duration.

Daily Discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day. (25 Pa. Code § 92a.2, 40 CFR 122.2)

Daily Maximum Discharge Limitation means the highest allowable "daily discharge."

Discharge Monitoring Report (DMR) means the DEP or EPA supplied form(s) for the reporting of self-monitoring results by the permittee. (25 Pa. Code § 92a.2, 40 CFR 122.2)

Estimated Flow means any method of liquid volume measurement based on a technical evaluation of the sources contributing to the discharge including, but not limited to, pump capabilities, water meters and batch discharge volumes.

Geometric Mean means the average of a set of n sample results given by the n<sup>th</sup> root of their product.

**Grab Sample** means an individual sample of at least 100 mL collected at a randomly selected time over a period not to exceed 15 minutes. (EPA Form 2C)

**Hauled-In Wastes** means any waste that is introduced into a treatment facility through any method other than a direct connection to the sewage collection system. The term includes wastes transported to and disposed of within the treatment facility or other entry points within the collection system.

**Hazardous Substance** means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the Clean Water Act. (40 CFR 122.2)

**Immersion Stabilization** (i-s) means a calibrated device is immersed in the wastewater until the reading is stabilized.

**Indirect Discharger** means a non-domestic discharger introducing pollutants to a Publicly Owned Treatment Works (POTW) or other treatment works. (25 Pa. Code § 92a.2, 40 CFR 122.2)

**Industrial User** means a source of Indirect Discharge. (40 CFR 403.3)

**Instantaneous Maximum Effluent Limitation** means the highest allowable discharge of a concentration or mass of a substance at any one time as measured by a grab sample. (25 Pa. Code § 92a.2)

**Measured Flow** means any method of liquid volume measurement, the accuracy of which has been previously demonstrated in engineering practice, or for which a relationship to absolute volume has been obtained.

**Monthly Average Discharge Limitation** means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month. (25 Pa. Code § 92a.2)

**Municipality** means a city, town, borough, county, township, school district, institution, authority or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes. (25 Pa. Code § 92a.2)

**Municipal Waste** means garbage, refuse, industrial lunchroom or office waste and other material, including solid, liquid, semisolid or contained gaseous material resulting from operation of residential, municipal, commercial or institutional establishments and from community activities; and sludge not meeting the definition of residual or hazardous waste under this section from a municipal, commercial or institutional water supply treatment plant, waste water treatment plant or air pollution control facility. (25 Pa. Code § 271.1)

**Publicly Owned Treatment Works** (POTW) means a treatment works as defined by §212 of the Clean Water Act, owned by a state or municipality. The term includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. The term also includes sewers, pipes or other conveyances if they convey wastewater to a POTW providing treatment. The term also means the municipality as defined in section 502(4) of the Clean Water Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works. (25 Pa Code § 92a.2, 40 CFR 122.2)

**Residual Waste** means garbage, refuse, other discarded material or other waste, including solid, liquid, semisolid or contained gaseous materials resulting from industrial, mining and agricultural operations and sludge from an industrial, mining or agricultural water supply treatment facility, wastewater treatment facility or air pollution control facility, if it is not hazardous. The term does not include coal refuse as defined in the Coal Refuse Disposal Control Act. The term does not include treatment sludges from coal mine drainage treatment plants, disposal of which is being carried on under and in compliance with a valid permit issued under the Clean Streams Law. (25 Pa Code § 287.1)

**Severe Property Damage** means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR 122.41(m)(1)(ii))

**Stormwater** means the runoff from precipitation, snow melt runoff, and surface runoff and drainage. (25 Pa. Code § 92a.2)

Stormwater Associated With Industrial Activity means the discharge from any conveyance that is used for collecting and conveying stormwater and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant, and as defined at 40 CFR §122.26(b)(14)(i) – (ix) and (xi) and 25 Pa. Code § 92a.2.

Toxic Pollutant means those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains may, on the basis of information available to DEP cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction, or physical deformations in these organisms or their offspring. (25 Pa. Code § 92a.2)

Weekly Average Discharge Limitation means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

### III. SELF-MONITORING, REPORTING AND RECORDKEEPING

#### A. Representative Sampling

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity (40 CFR 122.41(i)(1)). Representative sampling includes the collection of samples, where possible, during periods of adverse weather, changes in treatment plant performance and changes in treatment plant loading. If possible, effluent samples must be collected where the effluent is well mixed near the center of the discharge conveyance and at the approximate mid-depth point, where the turbulence is at a maximum and the settlement of solids is minimized. (40 CFR 122.48, 25 Pa. Code § 92a.61)

2. Records Retention (40 CFR 122.41(i)(2))

Except for records of monitoring information required by this permit related to the permittee's sludge use and disposal activities which shall be retained for a period of at least 5 years, all records of monitoring activities and results (including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records), copies of all reports required by this permit, and records of all data used to complete the application for this permit shall be retained by the permittee for 3 years from the date of the sample measurement, report or application, unless a longer retention period is required by the permit. The 3-year period shall be extended as requested by DEP or the EPA Regional Administrator.

3. Recording of Results (40 CFR 122.41(i)(3))

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date and time of sampling or measurements.
- b. The person(s) who performed the sampling or measurements.
- c. The date(s) the analyses were performed.
- d. The person(s) who performed the analyses.
- e. The analytical techniques or methods used; and the associated detection level.
- f. The results of such analyses.

4. Test Procedures

- a. Facilities that test or analyze environmental samples used to demonstrate compliance with this permit shall be in compliance with laboratory accreditation requirements of Act 90 of 2002 (27 Pa. C.S. §§ 4101-4113) and 25 Pa. Code Chapter 252, relating to environmental laboratory accreditation.
- b. Test procedures (methods) for the analysis of pollutants or pollutant parameters shall be those approved under 40 CFR Part 136 or required under 40 CFR Chapter I, Subchapters N or O, unless the method is specified in this permit or has been otherwise approved in writing by DEP. (40 CFR 122.41(j)(4), 122.44(i)(1)(iv))
- c. Test procedures (methods) for the analysis of pollutants or pollutant parameters shall be sufficiently sensitive. A method is sufficiently sensitive when 1) the method minimum level is at or below the level of the effluent limit established in the permit for the measured pollutant or pollutant parameter; or 2) the method has the lowest minimum level of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR Chapter I, Subchapters N or O, for the measured pollutant or pollutant parameter; or 3) the method is specified in this permit or has been otherwise approved in writing by DEP for the measured pollutant or pollutant parameter. Permittees have the option of providing matrix or sample-specific minimum levels rather than the published levels. (40 CFR 122.44(i)(1)(iv))

5. Quality/Assurance/Control

In an effort to assure accurate self-monitoring analyses results:

- a. The permittee, or its designated laboratory, shall participate in the periodic scheduled quality assurance inspections conducted by DEP and EPA. (40 CFR 122.41(e), 122.41(i)(3))
- b. The permittee, or its designated laboratory, shall develop and implement a program to assure the quality and accurateness of the analyses performed to satisfy the requirements of this permit, in accordance with 40 CFR Part 136. (40 CFR 122.41(i)(4))

B. Reporting of Monitoring Results

1. The permittee shall effectively monitor the operation and efficiency of all wastewater treatment and control facilities, and the quantity and quality of the discharge(s) as specified in this permit. (25 Pa. Code §§ 92a.3(c), 92a.41(a), 92a.44, 92a.61(i) and 40 CFR §§ 122.41(e), 122.44(i)(1))
2. The permittee shall use DEP's electronic Discharge Monitoring Report (eDMR) system to report the results of compliance monitoring under this permit (see [www.dep.pa.gov/edmr](http://www.dep.pa.gov/edmr)). Permittees that are not using the eDMR system as of the effective date of this permit shall submit the necessary registration and trading partner agreement forms to DEP's Bureau of Clean Water (BCW) within 30 days of the effective date of this permit and begin using the eDMR system when notified by DEP BCW to do so. (25 Pa. Code §§ 92a.3(c), 92a.41(a), 92a.61(g) and 40 CFR § 122.41(i)(4))
3. Submission of a physical (paper) copy of a Discharge Monitoring Report (DMR) is acceptable under the following circumstances:
  - a. For a permittee that is not yet using the eDMR system, the permittee shall submit a physical copy of a DMR to the DEP regional office that issued the permit during the interim period between the submission of registration and trading partner agreement forms to DEP and DEP's notification to begin using the eDMR system.
  - b. For any permittee, as a contingency a physical DMR may be mailed to the DEP regional office that issued the permit if there are technological malfunction(s) that prevent the successful submission of a DMR through the eDMR system. In such situations, the permittee shall submit the DMR through the eDMR system within 5 days following remedy of the malfunction(s).
4. DMRs must be completed in accordance with DEP's published DMR instructions (3800-FM-BCW0463). DMRs must be received by DEP no later than 28 days following the end of the monitoring period. DMRs are based on calendar reporting periods and must be received by DEP in accordance with the following schedule:
  - Monthly DMRs must be received within 28 days following the end of each calendar month.
  - Quarterly DMRs must be received within 28 days following the end of each calendar quarter, i.e., January 28, April 28, July 28, and October 28.
  - Semiannual DMRs must be received within 28 days following the end of each calendar semiannual period, i.e., January 28 and July 28.
  - Annual DMRs must be received by January 28, unless Part C of this permit requires otherwise.
5. The permittee shall complete all Supplemental Reporting forms (Supplemental DMRs) attached to this permit, or an approved equivalent, and submit the signed, completed forms as attachments to the DMR, through DEP's eDMR system. DEP's Supplemental Laboratory Accreditation Form (3800-FM-BCW0189) must be completed and submitted to DEP with the first DMR following issuance of this permit, and anytime thereafter when changes to laboratories or methods occur. (25 Pa. Code §§ 92a.3(c), 92a.41(a), 92a.61(g) and 40 CFR § 122.41(i)(4))
6. The completed DMR Form shall be signed and certified by either of the following applicable persons, as defined in 25 Pa. Code § 92a.22:

- For a corporation - by a principal executive officer of at least the level of vice president, or an authorized representative, if the representative is responsible for the overall operation of the facility from which the discharge described in the NPDES form originates.
- For a partnership or sole proprietorship - by a general partner or the proprietor, respectively.
- For a municipality, state, federal or other public agency - by a principal executive officer or ranking elected official.

If signed by a person other than the above and for co-permittees, written notification of delegation of DMR signatory authority must be submitted to DEP in advance of or along with the relevant DMR form, (40 CFR § 122.22(b))

7. If the permittee monitors any pollutant at monitoring points as designated by this permit, using analytical methods described in Part A III.A.4. herein, more frequently than the permit requires, the results of this monitoring shall be incorporated, as appropriate, into the calculations used to report self-monitoring data on the DMR. (40 CFR 122.41(l)(4)(ii))

C. Reporting and Notification Requirements

1. Planned Changes to Physical Facilities – The permittee shall give notice to DEP as soon as possible but no later than 30 days prior to planned physical alterations or additions to the permitted facility. A permit under 25 Pa. Code Chapter 91 may be required for these situations prior to implementing the planned changes. A permit application, or other written submission to DEP, can be used to satisfy the notification requirements of this section.

Notice is required when:

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b). (40 CFR 122.41(l)(1)(i))
  - b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are not subject to effluent limitations in this permit. (40 CFR 122.41(l)(1)(ii))
  - c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR 122.41(l)(1)(iii))
  - d. The planned change may result in noncompliance with permit requirements. (40 CFR 122.41(l)(2))
2. Planned Changes to Waste Stream – Under the authority of 25 Pa. Code § 92a.24(a) and 40 CFR 122.42(b), the permittee shall provide notice to DEP and EPA as soon as possible but no later than 45 days prior to any planned changes in the volume or pollutant concentration of its influent waste stream as a result of indirect discharges or hauled-in wastes, as specified in paragraphs 2.a. and 2.b., below. Notice shall be provided on the "Planned Changes to Waste Stream" Supplemental Report (3800-FM-BCW0482), available on DEP's website. The permittee shall provide information on the quality and quantity of waste introduced into the POTW, and any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW (40 CFR 122.42(b)(3)). The Report shall be sent via Certified Mail or other means to confirm DEP's receipt of the notification. DEP will determine if the submission of a new application and receipt of a new or amended permit is required.
    - a. Introduction of New Pollutants (25 Pa. Code § 92a.24(a), 40 CFR 122.42(b)(1))

New pollutants are defined as parameters that meet one or more of the following criteria:



- (i) Any pollutants that were not detected in the facilities' influent waste stream as reported in the permit application; and have not been approved to be included in the permittee's influent waste stream by DEP in writing.
- (ii) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants (40 CFR 122.42(b)(1)).

The permittee shall provide notification of the introduction of new pollutants in accordance with paragraph 2 above. The permittee may not authorize the introduction of new pollutants until the permittee receives DEP's written approval.

b. Increased Loading of Approved Pollutants (25 Pa. Code § 92a.24(a), 40 CFR 122.42(b)(2))

Approved pollutants are defined as parameters that meet one or more of the following criteria:

- (i) Were detected in the facilities' influent waste stream as reported in the permittee's permit application; or have been previously approved to be included in the permittee's influent waste stream by DEP in writing.
- (ii) Have an effluent limitation or monitoring requirement in this permit.

The permittee shall provide notification of the introduction of increased influent loading (lbs/day) of approved pollutants in accordance with paragraph 2 above when (1) the cumulative increase in influent loading (lbs/day) exceeds 20% of the maximum loading reported in the permit application, or a loading previously approved by DEP and/or EPA, or (2) may cause an exceedance in the effluent of Effluent Limitation Guidelines (ELGs) or limitations in Part A of this permit, or (3) may cause interference or pass through at the POTW, or (4) may cause exceedances of the applicable water quality standards in the receiving stream. Unless specified otherwise in this permit, if DEP does not respond to the notification within 30 days of its receipt, the permittee may proceed with the increase in loading. The acceptance of increased loading of approved pollutants may not result in an exceedance of ELGs or effluent limitations, may not result in a hydraulic or organic overload condition as defined in 25 Pa. Code § 94.1, and may not cause exceedances of the applicable water quality standards in the receiving stream.

3. Reporting Requirements for Hauled-In Wastes

a. Receipt of Residual Waste

- (i) The permittee shall document the receipt of all hauled-in residual wastes (including but not limited to wastewater from oil and gas wells, food processing waste, and landfill leachate), as defined at 25 Pa. Code § 287.1, that are received for processing at the treatment facility. The permittee shall report hauled-in residual wastes on a monthly basis to DEP on the "Hauled In Residual Wastes" Supplemental Report (3800-FM-BCW0450) as an attachment to the DMR. If no residual wastes were received during a month, submission of the Supplemental Report is not required.

The following information is required by the Supplemental Report. The information used to develop the Report shall be retained by the permittee for five years from the date of receipt and must be made available to DEP or EPA upon request.

- (1) The dates that residual wastes were received.
- (2) The volume (gallons) of wastes received.
- (3) The license plate number of the vehicle transporting the waste to the treatment facility.
- (4) The permit number(s) of the well(s) where residual wastes were generated, if applicable.

- (5) The name and address of the generator of the residual wastes.
- (6) The type of wastewater.

The transporter of residual waste must maintain these and other records as part of the daily operational record (25 Pa. Code § 299.219). If the transporter is unable to provide this information or the permittee has not otherwise received the information from the generator, the residual wastes shall not be accepted by the permittee until such time as the permittee receives such information from the transporter or generator.

- (ii) The following conditions apply to the characterization of residual wastes received by the permittee:

- (1) If the generator is required to complete a chemical analysis of residual wastes in accordance with 25 Pa. Code § 287.51, the permittee must receive and maintain on file a chemical analysis of the residual wastes it receives. The chemical analysis must conform to the Bureau of Waste Management's Form 26R except as noted in paragraph (2), below. Each load of residual waste received must be covered by a chemical analysis if the generator is required to complete it.

- (2) For wastewater generated from hydraulic fracturing operations ("frac wastewater") within the first 30 production days of a well site, the chemical analysis may be a general frac wastewater characterization approved by DEP. Thereafter, the chemical analysis must be waste-specific and be reported on the Form 26R.

b. Receipt of Municipal Waste

- (i) The permittee shall document the receipt of all hauled-in municipal wastes (including but not limited to septage and liquid sewage sludge), as defined at 25 Pa. Code § 271.1, that are received for processing at the treatment facility. The permittee shall report hauled-in municipal wastes on a monthly basis to DEP on the "Hauled In Municipal Wastes" Supplemental Report (3800-FM-BCW0437) as an attachment to the DMR. If no municipal wastes were received during a month, submission of the Supplemental Report is not required.

The following information is required by the Supplemental Report:

- (1) The dates that municipal wastes were received.
  - (2) The volume (gallons) of wastes received.
  - (3) The BOD<sub>5</sub> concentration (mg/l) and load (lbs) for the wastes received.
  - (4) The location(s) where wastes were disposed of within the treatment facility.
- (ii) Sampling and analysis of hauled-in municipal wastes must be completed to characterize the organic strength of the wastes, unless composite sampling of influent wastewater is performed at a location downstream of the point of entry for the wastes. The influent BOD<sub>5</sub> characterization for the treatment facility, as reported in the annual Municipal Wasteload Management Report per 25 Pa. Code Chapter 94, must be representative of the hauled-in municipal wastes received.

#### 4. Unanticipated Noncompliance or Potential Pollution Reporting

- a. Immediate Reporting - The permittee shall immediately report any incident causing or threatening pollution in accordance with the requirements of 25 Pa. Code §§ 91.33 and 92a.41(b).
- (i) If, because of an accident, other activity or incident a toxic substance or another substance which would endanger users downstream from the discharge, or would otherwise result in pollution or create a danger of pollution or would damage property, the permittee shall immediately notify DEP by telephone of the location and nature of the danger. Oral notification to the Department is required as soon as possible, but no later than 4 hours after the permittee becomes aware of the incident causing or threatening pollution.
  - (ii) If reasonably possible to do so, the permittee shall immediately notify downstream users of the waters of the Commonwealth to which the substance was discharged. Such notice shall include the location and nature of the danger.
  - (iii) The permittee shall immediately take or cause to be taken steps necessary to prevent injury to property and downstream users of the waters from pollution or a danger of pollution and, in addition, within 15 days from the incident, shall remove the residual substances contained thereon or therein from the ground and from the affected waters of this Commonwealth to the extent required by applicable law.
- b. The permittee shall report any noncompliance which may endanger health or the environment in accordance with the requirements of 40 CFR 122.41(l)(6). These requirements include the following obligations:
- (i) 24 Hour Reporting - The permittee shall orally report any noncompliance with this permit which may endanger health or the environment within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):
    - (1) Any unanticipated bypass which exceeds any effluent limitation in the permit;
    - (2) Any upset which exceeds any effluent limitation in the permit; and
    - (3) Violation of the maximum daily discharge limitation for any of the pollutants listed in the permit as being subject to the 24-hour reporting requirement.
  - (ii) Written Report - A written submission shall also be provided within 5 days of the time the permittee becomes aware of any noncompliance which may endanger health or the environment. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
  - (iii) Waiver of Written Report - DEP may waive the written report on a case-by-case basis if the associated oral report has been received within 24 hours from the time the permittee becomes aware of the circumstances which may endanger health or the environment. Unless such a waiver is expressly granted by DEP, the permittee shall submit a written report in accordance with this paragraph. (40 CFR 122.41(l)(6)(iii))

#### 5. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under paragraph C.4 of this section or specific requirements of compliance schedules, at the time DMRs are submitted, on the Non-Compliance Reporting Form (3800-FM-BCW0440). The reports shall contain the information listed in paragraph C.4.b.(ii) of this section. (40 CFR 122.41(l)(7))

**PART B**

**I. MANAGEMENT REQUIREMENTS**

**A. Compliance**

1. The permittee shall comply with all conditions of this permit. If a compliance schedule has been established in this permit, the permittee shall achieve compliance with the terms and conditions of this permit within the time frames specified in this permit. (40 CFR 122.41(a)(1))
2. The permittee shall submit reports of compliance or noncompliance, or progress reports as applicable, for any interim and final requirements contained in this permit. Such reports shall be submitted no later than 14 days following the applicable schedule date or compliance deadline. (25 Pa. Code § 92a.51(c), 40 CFR 122.47(a)(4))

**B. Permit Modification, Termination, or Revocation and Reissuance**

1. This permit may be modified, terminated, or revoked and reissued during its term in accordance with 25 Pa. Code § 92a.72 and 40 CFR 122.41(f).
2. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. (40 CFR 122.41(f))
3. In the absence of DEP action to modify or revoke and reissue this permit, the permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time specified in the regulations that establish those standards or prohibitions. (40 CFR 122.41(a)(1))

**C. Duty to Provide Information**

1. The permittee shall furnish to DEP, within a reasonable time, any information which DEP may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. (40 CFR 122.41(h))
2. The permittee shall furnish to DEP, upon request, copies of records required to be kept by this permit. (40 CFR 122.41(h))
3. Other Information - Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to DEP, it shall promptly submit the correct and complete facts or information. (40 CFR 122.41(l)(8))
4. The permittee shall provide the following information in the annual Municipal Wasteload Management Report, required under the provisions of Title 25 Pa. Code Chapter 94:
  - a. The requirements identified in 25 Pa. Code § 94.12.
  - b. The identity of any indirect discharger(s) served by the POTW which are subject to pretreatment standards adopted under Section 307(b) of the Clean Water Act; the POTW shall also specify the total volume of discharge and estimated concentration of each pollutant discharged into the POTW by the indirect discharger.
  - c. A "Solids Management Inventory" if specified in Part C of this permit.
  - d. The total volume of hauled-in residual and municipal wastes received during the year, by source.
  - e. The Annual Report requirements for permittees required to implement an industrial pretreatment program listed in Part C, as applicable.

## APPENDIX A-5.1 (AUS)

### D. General Pretreatment Requirements

1. Any POTW (or combination of POTWs operated by the same authority) with a total design flow greater than 5 million gallons per day (MGD) and receiving from industrial users pollutants which pass through or interfere with the operation of the POTW or are otherwise subject to Pretreatment Standards will be required to establish a POTW Pretreatment Program unless specifically exempted by the Approval Authority. A POTW with a design flow of 5 MGD or less may be required to develop a POTW Pretreatment Program if the Approval Authority finds that the nature or volume of the industrial influent, treatment process upsets, violations of effluent limitations, contamination of sludge, or other circumstances warrant in order to prevent interference or pass through. (40 CFR 403.8)
2. Each POTW with an approved Pretreatment Program pursuant to 40 CFR 403.8 shall develop and enforce specific limits to implement the prohibitions listed in 40 CFR 403.5(a)(1) and (b), and shall continue to develop these limits as necessary and effectively enforce such limits. This condition applies, for example, when there are planned changes to the waste stream as identified in Part A III.C.2. If the permittee is required to develop or continue implementation of a Pretreatment Program, detailed requirements will be contained in Part C of this permit.
3. For all POTWs, where pollutants contributed by indirect dischargers result in interference or pass through, and a violation is likely to recur, the permittee shall develop and enforce specific limits for indirect dischargers and other users, as appropriate, that together with appropriate facility or operational changes, are necessary to ensure renewed or continued compliance with this permit or sludge use or disposal practices. Where POTWs do not have an approved Pretreatment Program, the permittee shall submit a copy of such limits to DEP when developed. (25 Pa. Code § 92a.47(d))

### E. Proper Operation and Maintenance

1. The permittee shall employ operators certified in compliance with the Water and Wastewater Systems Operators Certification Act (63 P.S. §§ 1001-1015.1).
2. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes, but is not limited to, adequate laboratory controls including appropriate quality assurance procedures. This provision also includes the operation of backup or auxiliary facilities or similar systems that are installed by the permittee, only when necessary to achieve compliance with the terms and conditions of this permit. (40 CFR 122.41(e))

### F. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge, sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR 122.41(d))

### G. Bypassing

1. Bypassing Not Exceeding Permit Limitations - The permittee may allow a bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions in paragraphs two, three and four of this section. (40 CFR 122.41(m)(2))
2. Other Bypassing - In all other situations, bypassing is prohibited and DEP may take enforcement action against the permittee for bypass unless:
  - a. A bypass is unavoidable to prevent loss of life, personal injury or "severe property damage." (40 CFR 122.41(m)(4)(i)(A))
  - b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This

condition is not satisfied if adequate backup equipment has not been installed. The permittee shall exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance. (40 CFR 122.41(m)(4)(i)(B))

- c. The permittee submitted the necessary notice required in paragraph G.4 below. (40 CFR 122.41(m)(4)(i)(C))
- 3. DEP may approve an anticipated bypass, after considering its adverse effects, if DEP determines that it will meet the conditions listed in paragraph G.2 above. (40 CFR 122.41(m)(4)(ii))
- 4. Notice
  - a. Anticipated Bypass – If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least 10 days before the bypass. (40 CFR 122.41(m)(3)(i))
  - b. Unanticipated Bypass – The permittee shall submit oral notice of any other unanticipated bypass within 24 hours, regardless of whether the bypass may endanger health or the environment or whether the bypass exceeds effluent limitations. The notice shall be in accordance with Part A III.C.4.b.

H. Sanitary Sewer Overflows (SSOs)

An SSO is an overflow of wastewater, or other untreated discharge from a separate sanitary sewer system (which is not a combined sewer system), which results from a flow in excess of the carrying capacity of the system or from some other cause prior to reaching the headworks of the sewage treatment facility. SSOs are not authorized under this permit. The permittee shall immediately report any SSO to DEP in accordance with Part A III.C.4 of this permit.

II. PENALTIES AND LIABILITY

A. Violations of Permit Conditions

Any person violating Sections 301, 302, 306, 307, 308, 318 or 405 of the Clean Water Act or any permit condition or limitation implementing such sections in a permit issued under Section 402 of the Act is subject to civil, administrative and/or criminal penalties as set forth in 40 CFR 122.41(a)(2).

Any person or municipality, who violates any provision of this permit; any rule, regulation or order of DEP; or any condition or limitation of any permit issued pursuant to the Clean Streams Law, is subject to criminal and/or civil penalties as set forth in Sections 602, 603 and 605 of the Clean Streams Law.

B. Falsifying Information

Any person who does any of the following:

- Falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, or
- Knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit (including monitoring reports or reports of compliance or noncompliance)

Shall, upon conviction, be punished by a fine and/or imprisonment as set forth in 18 Pa.C.S.A § 4904 and 40 CFR 122.41(j)(5) and (k)(2).

C. Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance pursuant to Section 309 of the Clean Water Act or Sections 602, 603 or 605 of the Clean Streams Law.

**APPENDIX A 5.1 (AIG)**

Nothing in this permit shall be construed to preclude the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject to under the Clean Water Act and the Clean Streams Law.

**D. Need to Halt or Reduce Activity Not a Defense**

It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (40 CFR 122.41(c))

**III. OTHER RESPONSIBILITIES**

**A. Right of Entry**

Pursuant to Sections 5(b) and 305 of Pennsylvania's Clean Streams Law, and Title 25 Pa. Code Chapter 92a and 40 CFR 122.41(i), the permittee shall allow authorized representatives of DEP and EPA, upon the presentation of credentials and other documents as may be required by law:

1. To enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit; (40 CFR 122.41(i)(1))
2. To have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit; (40 CFR 122.41(i)(2))
3. To inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and (40 CFR 122.41(i)(3))
4. To sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act or the Clean Streams Law, any substances or parameters at any location. (40 CFR 122.41(i)(4))

**B. Transfer of Permits**

1. Transfers by modification. Except as provided in paragraph 2 of this section, a permit may be transferred by the permittee to a new owner or operator only if this permit has been modified or revoked and reissued, or a minor modification made to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act. (40 CFR 122.61(a))
2. Automatic transfers. As an alternative to transfers under paragraph 1 of this section, any NPDES permit may be automatically transferred to a new permittee if:
  - a. The current permittee notifies DEP at least 30 days in advance of the proposed transfer date in paragraph 2.b. of this section; (40 CFR 122.61(b)(1))
  - b. The notice includes the appropriate DEP transfer form signed by the existing and new permittees containing a specific date for transfer of permit responsibility, coverage and liability between them; and (40 CFR 122.61(b)(2))
  - c. DEP does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue this permit, the transfer is effective on the date specified in the agreement mentioned in paragraph 2.b. of this section. (40 CFR 122.61(b)(3))
  - d. The new permittee is in compliance with existing DEP issued permits, regulations, orders and schedules of compliance, or has demonstrated that any noncompliance with the existing permits has been resolved by an appropriate compliance action or by the terms and conditions of the permit (including compliance schedules set forth in the permit), consistent with 25 Pa. Code § 92a.51 (relating to schedules of compliance) and other appropriate Department regulations. (25 Pa. Code § 92a.71)

3. In the event DEP does not approve transfer of this permit, the new owner or operator must submit a new permit application.

**C. Property Rights**

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege. (40 CFR 122.41(g))

**D. Duty to Reapply**

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for a new permit. (40 CFR 122.41(b))

**E. Other Laws**

The issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations.

**IV. ANNUAL FEE**

Permittees shall pay an annual fee in accordance with 25 Pa. Code § 92a.62. Annual fee amounts are specified in the following schedule and are due on each anniversary of the effective date of the most recent new or reissued permit. All flows identified in the schedule are annual average design flows. (25 Pa. Code § 92a.62)

Small Flow Treatment Facility (SRSTP and SFTF)	\$0
Minor Sewage Facility < 0.05 MGD (million gallons per day)	\$250
Minor Sewage Facility ≥ 0.05 and < 1 MGD	\$500
Minor Sewage Facility with CSO (Combined Sewer Overflow)	\$750
Major Sewage Facility ≥ 1 and < 5 MGD	\$1,250
Major Sewage Facility ≥ 5 MGD	\$2,500
Major Sewage Facility with CSO	\$5,000

As of the effective date of this permit, the facility covered by the permit is classified in the following fee category:  
**Minor Sewage Facility ≥ 0.05 and < 1 MGD.**

Invoices for annual fees will be mailed to permittees approximately three months prior to the due date. In the event that an invoice is not received, the permittee is nonetheless responsible for payment. Throughout a five year permit term, permittees will pay four annual fees followed by a permit renewal application fee in the last year of permit coverage. Permittees may contact the DEP at 717-787-6744 with questions related to annual fees. The fees identified above are subject to change in accordance with 25 Pa. Code § 92a.62(e).

Payment for annual fees shall be remitted to DEP at the address below by the anniversary date. Checks should be made payable to the Commonwealth of Pennsylvania.

PA Department of Environmental Protection  
 Bureau of Clean Water  
 Re: Chapter 92a Annual Fee  
 P.O. Box 8466  
 Harrisburg, PA 17105-8466



**PART C****I. OTHER REQUIREMENTS**

- A. No storm water from pavements, area ways, roofs, foundation drains or other sources shall be directly admitted to the sanitary sewers associated with the herein approved discharge.
- B. The approval herein given is specifically made contingent upon the permittee acquiring all necessary property rights by easement or otherwise, providing for the satisfactory construction, operation, maintenance or replacement of all sewers or sewerage structures associated with the herein approved discharge in, along, or across private property, with full rights of ingress, egress and regress.
- C. Collected screenings, slurries, sludges, and other solids shall be handled and disposed of in compliance with 25 Pa. Code, Chapters 271, ~~273~~, 275, 283, and 285 (related to permits and requirements for landfilling, ~~land~~ land application, incineration, and storage of sewage sludge), Federal Regulation 40 CFR 257, Pennsylvania Clean Streams Law, Pennsylvania Solid Waste Management Act of 1980, and the Federal Clean Water Act and its amendments. The permittee is responsible to obtain or assure that contracted agents have all necessary permits and approvals for the handling, storage, transport, and disposal of solid waste materials generated as a result of wastewater treatment.
- D. The permittee shall optimize chlorine dosages used for disinfection or other purposes to minimize the concentration of Total Residual Chlorine (TRC) in the effluent, meet applicable effluent limitations, and reduce the possibility of adversely affecting the receiving waters. Optimization efforts may include an evaluation of wastewater characteristics, mixing characteristics, and contact times, adjustments to process controls, and maintenance of the disinfection facilities. If DEP determines that effluent TRC is causing adverse water quality impacts, DEP may reopen this permit to apply new or more stringent effluent limitations and/or require implementation of control measures or operational practices to eliminate such impacts.

Where the permittee does not use chlorine for primary or backup disinfection, but proposes the use of chlorine for cleaning or other purposes, the permittee shall notify DEP prior to initiating use of chlorine and monitor TRC concentrations in the effluent on each day in which chlorine is used. The results shall be submitted as an attachment to the DMR.

- E. Notification of the designation of the responsible operator must be submitted to the permitting agency by the permittee within 60 days after the effective date of the permit and from time to time thereafter as the operator is replaced.
- F. The seasonal effluent limitations for fecal coliform are based on Chapter 92a (Section 92a.47(4) and (5)) of DEP's regulations and Delaware River Basin Commission's (DRBC's) Water Quality Regulations at Section 4.30.4.A. DEP's regulations govern the summer limits for fecal coliform while the winter limits are based on DRBC's regulations. The DRBC regulations state that during winter season from October through April, the instantaneous maximum concentration of fecal coliform organisms shall not be greater than 1,000 per 100 milliliters in more than 10 percent of the samples tested. For reporting purposes, a copy of the guidelines on the 10 percent rule is enclosed with the permit.
- G. The permittee shall develop a treatment facility operations and maintenance (O&M) plan addressing key wastewater processes. The plan shall be reviewed annually and updated when appropriate. The plan shall be submitted to DEP for review upon request. For the purpose of this paragraph, a key wastewater process includes any equipment or process that, if it fails, may cause the discharge of raw wastewater or wastewater that fails to meet NPDES permit discharge requirements, or a failure that may threaten human or environmental health. The O&M plan shall include the following, at a minimum:
  - 1. A process control strategy that includes a schedule for process control sampling, monitoring, testing, and recordkeeping.

2. A plan that identifies how key wastewater processes shall be monitored and adjusted while the facility is staffed.
3. A plan that identifies how key wastewater processes will be monitored while the treatment facility is not staffed.
4. For treatment plants that are impacted by wet weather flows, the permittee shall develop and implement a wet weather operations strategy that minimizes or eliminates the wash out of solids from the treatment system while maximizing the flow through the treatment plant.
5. An emergency plan that identifies how the facility will be operated during times of emergency. For example, the plan shall detail how key wastewater processes will be repaired or replaced in the event of a failure while minimizing loss of life and property damage to the facility. This plan shall also include emergency contact numbers for local emergency response agencies, plant personnel, critical suppliers and vendors, and DEP contacts, at a minimum.
6. A preventative maintenance plan that includes a schedule for preventative maintenance for all equipment within the treatment system. A spare parts inventory shall be included as part of this plan.
7. A solids management plan that identifies how solids produced by the facility will be wasted, treated, and ultimately disposed of.

## II. PCB MONITORING

- A. On April 7, 2007, the U.S. Environmental Protection Agency (EPA) Region III adopted a Total Maximum Daily Load (TMDL) for Polychlorinated Biphenyls (PCBs) in the Schuylkill River. Implementation of the TMDL requires that permitted facilities that discharge directly to the Schuylkill River conduct sampling for PCBs and, based upon review of the results, develop and implement a PCB Pollutant Minimization Plan (PMP). The Schuylkill River's PCB TMDL was established using a water quality criterion of 0.044 ng/l for PCBs. Based on the sampling results submitted by the facility, this facility is required to develop and implement a PCB PMP.
- B. The permittee shall collect one 24-hour composite sample annually during dry weather flow. The samples shall be collected from Outfall(s) 001.
- C. All sample analyses shall be performed using EPA Method 1668A, Revision A: Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by HRGC/HRMS (EPA-821-R-00-002, December 1999) as supplemented or amended, and results for all 209 PCB congeners shall be reported. Project-specific sample collection protocols, analytical procedures, and reporting requirements of the Delaware River Basin Commission (DRBC) shall be followed (see [www.state.nj.us/drbc/quality/toxics/pcbs/monitoring.html](http://www.state.nj.us/drbc/quality/toxics/pcbs/monitoring.html)). Monitoring information, sample data, and reports associated with PCB monitoring shall be submitted to DEP and DRBC in the form of two compact discs in the format referenced at [www.state.nj.us/drbc/library/documents/PCB-EDD011309.pdf](http://www.state.nj.us/drbc/library/documents/PCB-EDD011309.pdf).
- D. In accordance with the EPA TMDL for PCBs for the Schuylkill River, the permittee shall submit a PMP for PCBs within 12 months from the effective date of the permit. The permittee shall comply with the requirements of Section 4.30.9 of DRBC's Water Quality Regulations. Additional information regarding PMP development may be found at [www.state.nj.us/drbc/programs/quality/pmp.html](http://www.state.nj.us/drbc/programs/quality/pmp.html). In addition, the permittee shall:
  1. Continue implementation of its PMP as submitted.
  2. Continue to submit Annual Reports to DEP and DRBC consistent with the guidance at [www.state.nj.us/drbc/programs/quality/pmp.html](http://www.state.nj.us/drbc/programs/quality/pmp.html).

## APPENDIX A-5.1 (AUS)

The PMP, PMP Annual Report, and PCB data shall be submitted to DEP and DRBC at the following addresses:

PA Department of Environmental Protection  
Southeast Regional Office  
Clean Water Program  
2 East Main Street  
Norristown, PA 19401

Delaware River Basin Commission  
Modeling, Monitoring & Assessment Branch  
P.O. Box 7360  
West Trenton, NJ 08628

COMMONWEALTH OF PENNSYLVANIA  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT  
 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
 DISCHARGE MONITORING REPORT (DMR)

PRIMARY FACILITY NAME/ADDRESS

NAME Royersford Borough STP  
 CLIENT Royersford Borough  
 ADDRESS 300 Main Street  
Royersford, PA 19468-2313  
 LOCATION Upper Providence Township  
Montgomery County  
 WATERSHED 3-D

PA0021512  
 PERMIT NUMBER

001  
 OUTFALL NUMBER

Reporting Frequency: Annually  
 DMR Effective From: January 1, 2018  
 DMR Effective To: December 31, 2022  
 Permit Expires: December 31, 2022  
 Permit Application Due: July 4, 2022

Check Here if No Discharge

NOTE: Read Instructions before completing this form

PARAMETER	SAMPLE MEASUREMENT PERMIT REQUIREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	UNITS			
PCBs Dry Weather Analysis	XXX	XXX	XXX	Report Daily Max	XXX	1/year	24-Hr Composite	

MONITORING PERIOD						
YEAR	MO	DAY	TO	YEAR	MO	DAY

APPENDIX A-5.1 (AUS)

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE		DATE	
	AREA CODE	NUMBER	YEAR	MO
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT			
COMMENTS (Report all violations on the "Non-Compliance Reporting Form")				

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure the certified person who gathers and enters the information submitted. Based on my knowledge and belief, the information submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
DISCHARGE MONITORING REPORT (DMR)

PRIMARY FACILITY NAME/ADDRESS

NAME Royersford Borough STP  
CLIENT Royersford Borough  
ADDRESS 300 Main Street  
Royersford, PA 19468-2313  
LOCATION Upper Providence Township  
Montgomery County  
WATERSHED 3-D

PA0021512  
PERMIT NUMBER

001  
OUTFALL NUMBER

Reporting Frequency: Monthly  
DMR Effective From: January 1, 2018  
DMR Effective To: December 31, 2022  
Permit Expires: December 31, 2022  
Permit Application Due: July 4, 2022

Check Here if No Discharge

NOTE: Read Instructions before completing this form

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
			TO		

PARAMETER	SAMPLE MEASUREMENT PERMIT REQUIREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	VALUE	UNITS			
Flow	MEASUREMENT	Report Avg Mo	MGD	XXX	XXX	XXX			
	PERMIT REQUIREMENT							Continuous	Recorded
	MEASUREMENT	Report Daily Max							
pH	MEASUREMENT	XXX	XXX	6.0	Inst Min	9.0		1/day	Grab
	PERMIT REQUIREMENT								
	MEASUREMENT	XXX	XXX	5.0	Inst Min				
Dissolved Oxygen	MEASUREMENT	XXX	XXX					1/day	Grab
	PERMIT REQUIREMENT								
	MEASUREMENT	XXX	XXX						
Total Residual Chlorine (TRC)	MEASUREMENT	XXX	XXX					1/day	Grab
	PERMIT REQUIREMENT								
	MEASUREMENT	117	Wkly Avg	175	0.5	Avg Mo			
Carbonaceous Biochemical Oxygen Demand (CBOD5)	MEASUREMENT	117	Wkly Avg	175	20.0	Avg Mo		1/week	24-Hr Composite
	PERMIT REQUIREMENT								
	MEASUREMENT	Report Avg Mo	lbs/day	XXX	XXX	XXX			
Biochemical Oxygen Demand (BOD5)	MEASUREMENT	Report Avg Mo	lbs/day	XXX	Report Avg Mo	XXX		1/week	24-Hr Composite
	PERMIT REQUIREMENT								
	MEASUREMENT	Report Avg Mo	lbs/day	XXX	Report Avg Mo	XXX			

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
TYPED OR PRINTED	AREA CODE	YEAR
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		MO

COMMENTS (Report all violations on the "Non-Compliance Reporting Form")

APPENDIX A-5.1 (A6S)

COMMONWEALTH OF PENNSYLVANIA  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT  
 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
 DISCHARGE MONITORING REPORT (DMR)

PRIMARY FACILITY NAME/ADDRESS

NAME: Royersford Borough STP  
 CLIENT: Royersford Borough  
 ADDRESS: 300 Main Street  
Royersford, PA 19468-2313  
 LOCATION: Upper Providence Township  
Montgomery County  
 WATERSHED: 3-D

PA0021512  
 PERMIT NUMBER

001  
 OUTFALL NUMBER

Reporting Frequency: Monthly  
 DMR Effective From: January 1, 2018  
 DMR Effective To: December 31, 2022  
 Permit Expires: December 31, 2022  
 Permit Application Due: July 4, 2022  
 Check Here if No Discharge

MONITORING PERIOD			
YEAR	MO	DAY	TO

NOTE: Read Instructions before completing this form

PARAMETER	SAMPLE MEASUREMENT PERMIT REQUIREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	UNITS				
Total Suspended Solids Raw Sewage Influent	MEASUREMENT								
	PERMIT REQUIREMENT	Report Avg Mo	XXX	Report Avg Mo	XXX	mg/L		1/week	24-Hr Composite
	MEASUREMENT								
Total Suspended Solids	PERMIT REQUIREMENT	117 Avg Mo	175 Wkly Avg	20.0 Avg Mo	30.0 Wkly Avg	mg/L		1/week	24-Hr Composite
	MEASUREMENT								
	PERMIT REQUIREMENT	XXX	XXX	1000.0 Avg Mo	2000.0 Daily Max	mg/L		1/month	24-Hr Composite
Fecal Coliform	MEASUREMENT								
	PERMIT REQUIREMENT	XXX	XXX	200 Geo Mean	1000 IMAX	No./100 ml		1/week	Grab
	MEASUREMENT								
Total Nitrogen	PERMIT REQUIREMENT	Report Avg Mo	XXX	Report Avg Mo	XXX	mg/L		1/month	24-Hr Composite
	MEASUREMENT								
	PERMIT REQUIREMENT	35 Avg Mo	XXX	6.0 Avg Mo	XXX	mg/L		1/week	24-Hr Composite

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
TYPED OR PRINTED		AREA CODE NUMBER	YEAR MO

COMMENTS (Report all violations on the "Non-Compliance Reporting Form")

APPENDIX A-5.1 (AUS)



COMMONWEALTH OF PENNSYLVANIA  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT  
 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
 DISCHARGE MONITORING REPORT (DMR)

PRIMARY FACILITY NAME/ADDRESS

NAME Royersford Borough STP  
 CLIENT Royersford Borough  
 ADDRESS 300 Main Street  
Royersford, PA 19468-2313  
 LOCATION Upper Providence Township  
Montgomery County  
 WATERSHED 3-D

PA0021512  
 PERMIT NUMBER

001  
 OUTFALL NUMBER

Reporting Frequency: Monthly  
 DMR Effective From: January 1, 2018  
 DMR Effective To: December 31, 2022  
 Permit Expires: December 31, 2022  
 Permit Application Due: July 4, 2022

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY

Check Here if No Discharge  
 NOTE: Read Instructions before completing this form

PARAMETER	SAMPLE MEASUREMENT PERMIT REQUIREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	VALUE	UNITS			
Total Phosphorus	12 Avg Mo	XXX	lbs/day	XXX	2.0 Avg Mo	XXX	1/week	24-Hr Composite	

APPENDIX A-5.1 (AUS)

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE		DATE
TYPED OR PRINTED	AREA CODE	NUMBER	YEAR MO DAY
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT			
COMMENTS (Report all violations on the "Non-Compliance Reporting Form")			

I certify under penalty of law that this document was prepared under my direct supervision and that I am a duly licensed professional engineer or geologist in the State of Pennsylvania. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 Pa. C.S. § 4604 (relating to unsworn falsification).



## INSTRUCTIONS FOR COMPLETING DISCHARGE MONITORING REPORTS (DMRs)

### General

One or more Discharge Monitoring Reports (DMRs) are attached to your permit for reporting the results of self-monitoring activities as required by your permit. You should make copies of the DMRs for your ongoing use, unless you elect to participate in the Department of Environmental Protection's (DEP's) electronic DMR (eDMR) program (see [www.dep.state.pa.us/edmr](http://www.dep.state.pa.us/edmr)).

- Reporting frequencies will vary depending on the monitoring frequencies listed in your permit, and are generally monthly, quarterly, semi-annually and annually.
- Your reports must be received by DEP on the 28<sup>th</sup> day of the month following the end of the reporting period, unless otherwise specified in Part C of your permit.
- Your permit may require submission of DMRs to other agencies, including the U.S. Environmental Protection Agency (EPA).
- If you receive DMRs in the mail from EPA, please discontinue use of DMR Form No. 3800-FM-BPNPSM0462 and begin using EPA's DMRs.
- DMRs will generally include pre-populated information for permittee name and address, facility location, permit number, outfall number, permit expiration date, parameter names, and permit requirements. If you identify any errors on a DMR issued by DEP, please contact the DEP regional office that issued your permit. If you identify any errors on a DMR issued by EPA, please contact DEP's Central Office at 717-787-6744. **DO NOT make changes to DMRs issued to you.**
- You may use computer-generated replicas of Form No. 3800-FM-BPNPSM0462 or of EPA's DMR if you receive prior approval from DEP and EPA. **DEP reserves the right to instruct you to discontinue the submission of computer-generated DMRs if the permit requirements you entered on the form are inaccurate.**

### Instructions

1. Enter statistical results into each blank field below the "VALUE" column headers. Results must be reported in the same units shown on the DMR.
2. Sum the total number of excursions or exceedances of permit limits across the row for each parameter and enter the value into the "NO. EX" field. For example, if the permit contains limits of 6.0 S.U. (Minimum) and 9.0 S.U. (Maximum) for pH, and the Minimum and Maximum results are 5.9 S.U. and 9.1 S.U., respectively, enter "2" into the "NO. EX" field.
3. Report the actual sampling frequency and sample type utilized during the reporting period in the fields corresponding to "Frequency of Analysis" and "Sample Type", respectively.
4. Type the name of the principal executive officer (or an authorized agent designated by a principal executive officer) who is taking responsibility for the report, sign the report (should be in ink), enter the telephone number of the responsible individual, and record the date that the report was signed. Mail only original, signed copies of DMRs.
5. In the Comments section at the bottom of the DMR, you may write a brief summary of violations in this section; however, DEP requests that all violations during the monitoring period be reported in more detail on DEP's **Non-Compliance Reporting Form** (3800-FM-BPNPSM0440) and be submitted as an attachment to the DMR. Other uses of the Comments Section include explanations of attachments to the DMR, explanations for the unavailability of data, and brief summaries of issues that have affected operations or effluent quality during the monitoring period. Always consider attaching a letter or separate document to explain your situation in more detail.



## APPENDIX A-5.1 (AUS)

**No Discharge or No Data Available**

If there was no discharge at all from an outfall during the monitoring period, check the "No Discharge" box on the top of the DMR. Complete the information above and below the table and mail the DMR to the appropriate agencies. Be sure to sign and date the DMR.

If there was no discharge of a specific parameter (e.g., if a chlorine limit is in the permit but chlorine was not used for disinfection during the entire reporting period), or if data are not available for a specific parameter for the entire reporting period, do not leave the DMR blank. Instead, report one of the following No Data Indicator (NODI) codes that apply to your situation in the appropriate value field, and **provide an explanation as an attachment to the DMR:**

- A** Use if you are exempted from monitoring the parameter because of a General Permit condition.
- E** Use if all samples or results are not available for the reporting period due to equipment failure or because sample collection was overlooked or samples could not be collected for the parameter.
- GG** Use if your permit requires sample collection and analysis only under certain conditions and those conditions were not met during the reporting period (e.g., report chlorine results only when chlorination system is used).
- FF** Other: use if there is any reason for the absence of data that is not covered by those above.

If you have at least one result for a parameter, the value should be reported and not a NODI code.

**Calculations**

The following explains how to calculate statistical values that are commonly required by permits:

**Monthly Average** – For Loading (lbs/day), sum the total of daily loadings and divide by the number of samples during the month. To calculate the daily loading, multiply the daily concentration (mg/l) by the flow (MGD) on the date of sampling and a conversion factor of 8.34. For Concentration, sum the total of daily concentrations and divide by the number of samples.

**Weekly Average** – For Loading (lbs/day), sum the total of average daily loadings during each week of the reporting period (beginning on a Sunday and ending on a Saturday) and divide by the number of samples during the week. For Concentration, sum the total of daily concentrations each week and divide by the number of samples. Report the maximum weekly average on the DMR.

**Maximum Daily ("Daily Max")** – Report the maximum concentration or load measured during a 24-hour period during the reporting period; if multiple measurements are taken daily, include all data in the analysis.

**Instantaneous Maximum ("IMAX")** – Report the maximum result obtained by a grab sample for a specific pollutant over the entire reporting period covered by a DMR.

**Instantaneous Minimum ("Minimum")** – Report the minimum result obtained by a grab sample for a specific pollutant over the entire reporting period covered by a DMR.

**Total Monthly Load (lbs)** – Sum the total of average daily loadings, divide by the number of samples during the month, and multiply by the number of days in the month.

**Geometric Mean** – Report the average of a set of  $n$  sample results given by the  $n$ th root of their product. If any result is zero (0), substitute 1 for the calculation. For example, five samples were analyzed with the following results: 20, 300, 400, 500, and 0. The calculation of geometric mean is as follows (note that you will need to use the power function on a calculator):

$$\sqrt[5]{20 \cdot 300 \cdot 400 \cdot 500 \cdot 1} = \sqrt[5]{1,200,000,000} = (1,200,000,000)^{1/5} = 65$$

# APPENDIX A-5.1 (AUS)

## Non-Detect Data

### Conventional and Toxic Parameters

For calculating average values of data sets in which there are some "detections" (results at or above the laboratory reporting limit) and some "non-detect" data (results reported below the laboratory reporting limit), use the reporting limit for non-detect data. In other words, ignore the less than (<) symbol for statistical calculations and include the < symbol with the statistical result if there is at least one non-detect result in the data set. For example, four samples were analyzed with the following results: < 1.0, 2.0, < 1.0, and 1.0. The average statistical result is < 1.3.

Where the permit includes an effluent limitation for a parameter that is less than the most sensitive detection limit available, and the laboratory reports a value at or below the lowest level specified by the permit, you may use zero (0) in the calculation in lieu of the reporting limit, if the parameter is identified in 25 Pa. Code Chapter 16, Appendix A, Tables 2A and 2B. In general, parameters with limitations that are less than the most sensitive detection limit will be identified in Part C of the permit, if applicable.

### Bacteria Parameters

Report all "non-detect" (e.g., < 2) and "too numerous to count" (TNTC) (e.g., > 2,000) results on DMR supplemental forms as reported by the laboratory. Do not report "TNTC" on supplemental forms, but instead report a value qualified with the ">" symbol. Where a data set includes one or more "non-detect" and/or TNTC results, calculate the geometric mean by ignoring qualifying symbols, but report the value with the symbol. If a data set includes both ">" and "<" qualifiers, the ">" qualifier takes precedence for reporting. For all "non-detect" values, specify in the Comments section of the DMR the maximum volume filtered at the laboratory.

*Example 1* – For results are determined, < 2, 10, 20, and 30. The geometric mean should be reported as  $(2 \bullet 10 \bullet 20 \bullet 30)^{0.25} = < 10$ . Specify the maximum volume filtered for the < 2 result in the DMR Comments.

*Example 2* – Three results are determined, < 2, 1,000, and > 2,000. The geometric mean should be reported as  $(2 \bullet 1,000 \bullet 2,000)^{0.333} = > 158$ .

### Rounding and Precision

Statistical values reported on the DMR should be rounded to the same number of decimal places as the limit for the parameter as set forth in the permit. If the permit does not contain a limit but requests monitoring only, statistical values for concentration results should be rounded to the maximum number of decimal places in the data set as reported by the laboratory or the instrument used for analysis. If mass loads must be reported and there is no limit, round statistical values to the nearest whole number, unless the calculated number is less than one; in which case the value should be rounded to one significant figure (e.g., 0.1, 0.05, etc.). If the number you are rounding is followed by 5, 6, 7, 8, or 9, round the number up, otherwise round down.

The documents "Discharge Monitoring Reports Overview and Summary" (3800-BK-DEP3047) and "Management of Non-Detect Results for Discharge Monitoring Reports" (3800-FS-DEP4262) contain more information and are incorporated by reference. These documents are available on DEP's website.

## APPENDIX A-5.1 (AUS)

**Supplemental Form Inventory**  
**Royersford Borough STP**  
**Effective: January 1, 2018**

The following supplemental forms (indicated in the check box column) are attached to this permit and must be completed and submitted to DEP in accordance with the permit and the supplemental form instructions. If the eDMR system is used to submit DMR reports, the spreadsheet versions of these supplemental forms, where applicable, should be used and attached to the eDMR submissions. A link to DEP's supplemental form website is available when logging into the eDMR system.

Check Box	Supplemental Form Name and No.
<input checked="" type="checkbox"/>	Daily Effluent Monitoring (3800-FM-BPNPSM0435)
<input checked="" type="checkbox"/>	Influent & Process Control (3800-FM-BPNPSM0436)
<input checked="" type="checkbox"/>	Hauled in Municipal Wastes (3800-FM-BPNPSM0437)
<input checked="" type="checkbox"/>	Sewage Sludge/Biosolids Production and Disposal (3800-FM-BPNPSM0438)
<input type="checkbox"/>	Chemical Additives Usage (3800-FM-BPNPSM0439)
<input checked="" type="checkbox"/>	Non-Compliance Reporting Form (3800-FM-BPNPSM0440)
<input type="checkbox"/>	CSO Monthly Summary Report (3800-FM-BPNPSM0441)
<input type="checkbox"/>	CSO Detailed Report (3800-FM-BPNPSM0442)
<input type="checkbox"/>	Groundwater Monitoring Data Report (3800-FM-BPNPSM0443)
<input type="checkbox"/>	TMDL Annual Load Summary (3800-FM-BPNPSM0448)
<input type="checkbox"/>	Land Application Systems (3800-FM-BPNPSM0449)
<input checked="" type="checkbox"/>	Hauled in Residual Wastes (3800-FM-BPNPSM0450)
<input type="checkbox"/>	Surface Water Monitoring Data Report (3800-FM-BPNPSM0461)
<input checked="" type="checkbox"/>	Lab Accreditation Form (3800-FM-BPNPSM0189)
<input type="checkbox"/>	Whole Effluent Toxicity Test Summary Report (3800-FM-BPNPSM0485)
<input type="checkbox"/>	Storm Water Annual Inspection Form (3800-PM-WSFR0083v)
<input type="checkbox"/>	Storm Water Additional Information (3800-PM-WSFR0083t)
<input checked="" type="checkbox"/>	Other: 10% Fecal Rule

**SUPPLEMENTAL REPORT  
DAILY EFFLUENT MONITORING**

Facility Name: Royersford Borough STP      Month: \_\_\_\_\_ Year: \_\_\_\_\_  
 Municipality: Upper Providence Township      NPDES Permit No.: PA0021512      Outfall No.: 001  
 Watershed: 3-D      County: Montgomery      Renewal application due 180 days prior to expiration  
 Laboratories: \_\_\_\_\_      This permit will expire on DECEMBER 31 2022

Day	Flow		pH		DO		TRC		CBOD5		TSS		Total Dissolved Solids		Fecal Coliform		Total Nitrogen		
	Q	MGD	Q	S.U.	Q	mg/L	Q	mg/L	Q	mg/L	Q	mg/L	Q	mg/L	Q	No./100 ml.	Q	mg/L	
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																			
Avg																			

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Prepared By: \_\_\_\_\_ Signature: \_\_\_\_\_  
 Title: \_\_\_\_\_ Date: \_\_\_\_\_



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

**SUPPLEMENTAL REPORT  
DAILY EFFLUENT MONITORING**

Facility Name: Royersford Borough STP      Month: \_\_\_\_\_      Year: \_\_\_\_\_  
 Municipality: Upper Providence Township      County: Montgomery      NPDES Permit No.: PA0021512      Outfall No.: 001  
 Watershed: 3-D      Renewal application due 180 days prior to expiration  
 Laboratories: \_\_\_\_\_      This permit will expire on DECEMBER, 31 2022

Day	Ammonia		Total Phosphorus		PCBs (Dry Weather)		Effluent Parameters	
	Q	mg/L	Q	mg/L	Q	pg/L	Q	Q
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								
Avg								

APPENDIX A-5.1 (A)

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Prepared By: \_\_\_\_\_      Signature: \_\_\_\_\_  
 Title: \_\_\_\_\_      Date: \_\_\_\_\_

**INSTRUCTIONS FOR COMPLETING  
DAILY EFFLUENT MONITORING  
SUPPLEMENTAL REPORT**

APPENDIX A-5.1 (AUS)

Use this form to report daily monitoring results for the parameters that must be monitored in effluent for compliance with the permit. Results for influent parameters are normally reported on Form 3800-FM-BPNPSM0436.

1. Enter Facility Name, Municipality, County, Watershed No., Laboratories, Month, Year, NPDES Permit No., Outfall No., and Permit Expiration Date (it is noted that this information may be pre-populated if you have received this form with your permit). For Laboratories, list the names of all laboratories where samples were analyzed during the month, including on-site analysis.
2. In the column headers, below "Effluent Parameters," enter the names of parameters in the permit. Since limited space is provided, abbreviation may be necessary. If there are more parameters for an outfall than columns provided on the form, attach an additional sheet.
3. Below parameter names, and to the right of "Q" (Qualifier) column headers, enter the units associated each parameter (it is noted that this information may be pre-populated if you have received this form with your permit).
4. Enter monitoring results for parameters in the rows corresponding to the day of the month in which samples were collected. Enter results exactly as reported by the laboratory, or if measured with on-site equipment, to the level of precision recommended by the equipment manufacturer. Enter data qualifiers such as "<," ">," "J," and others in the "Q" column.
5. Calculate and report average values at the bottom of the table in accordance with the DMR Instructions (3800-FM-BPNPSM0463) and DEP guidance (3800-BK-DEP3047). Note – for bacteria, calculate and report the geometric mean value.
6. Type the name of the person who prepared the form, the person's job title, and sign and date the form after reading the certification statement.



### SUPPLEMENTAL REPORT - INFLUENT & PROCESS CONTROL

Facility Name: Roversford Borough STP      Month: \_\_\_\_\_ Year: \_\_\_\_\_  
 Municipality: Upper Providence Township      County: Montgomery  
 Watershed: 3-D      NPDES Permit No.: PA0021512  
 Renewal application due 180 days prior to expiration.  
 This permit will expire on December 31, 2022

Day	Influent				Process Control			
	Flow (MGD)	BOD5 (mg/l)	BOD5 (lbs)	TSS (mg/l)	TSS (lbs)	Aeration MLSS (mg/l)	Aeration DO (mg/l)	Sludge Wasted (gallons)
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								
Avg								
Max								

APPENDIX A-5.1 (AUS)

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Prepared By: \_\_\_\_\_ Signature: \_\_\_\_\_  
 Title: \_\_\_\_\_ Date: \_\_\_\_\_



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF POINT NON-POINT SOURCE MANAGEMENT

### SUPPLEMENTAL REPORT - HAULED IN MUNICIPAL WASTES

Facility Name: Roversford Borough STP Month: \_\_\_\_\_ Year: \_\_\_\_\_  
Municipality: Upper Providence Township County: Montgomery  
Watershed: 3-D NPDES Permit No.: PA0021512  
Renewal application due **180 days** prior to expiration  
This permit will expire on December 31, 2022

Day	SEPTAGE			SLUDGE			OTHER (specify):			DAILY TOTALS		
	Gallons	BOD <sub>5</sub> (mg/l)	BOD <sub>5</sub> (lbs)	Gallons	BOD <sub>5</sub> (mg/l)	BOD <sub>5</sub> (lbs)	Gallons	BOD <sub>5</sub> (mg/l)	BOD <sub>5</sub> (lbs)	Disposal Location	Gallons	BOD (lbs)
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												
AVG										Monthly Totals:		

APPENDIX A-5.1 (AUS)

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 35 P.S. § 4904 (relating to unsworn falsification).

Prepared By: \_\_\_\_\_ Signature: \_\_\_\_\_  
Title: \_\_\_\_\_ Date: \_\_\_\_\_







**NON-COMPLIANCE REPORTING FORM**

Use this supplemental form to report all permit violations and any other non-compliance that may endanger health or the environment, in accordance with your permit. Complete all sections that apply. If you are reporting violations of permit limits, monitoring requirements or schedules that do not pose an immediate threat to health or the environment, you may attach this form to the Discharge Monitoring Report (DMR). Title 25, Pa. Code §§ 91.33 and 91.34 (regarding incidents causing or threatening pollution and activities utilizing pollutants, respectively), in part requires immediate notification by telephone to the Department of Pollution Incidents, Remediation, and may require an additional report on the incident or plan of pollution prevention measures. If you are reporting other non-compliance events, and the reporting deadline does not coincide with your submission of the DMR, it should be submitted separately to the Department by the reporting deadline set forth in the permit. See instructions for more information.

Facility Name: Royersford Borough STP Month: \_\_\_\_\_ Year: \_\_\_\_\_  
Upper Providence  
 Municipality: Upper Providence County: Montgomery Permit No.: PA0021512  
Township

**Violations of Permit Effluent Limitations\***

Date	Parameter	Permit Limit	Units	Statistical Code	Result	Units	Cause of Violation	Corrective Action Taken

**Sanitary Sewer Overflows and Other Unauthorized Discharges\***

Event Date	Substance Discharged	Location	Volume (gals)	Duration (hrs)	Receiving Waters	Impact on Waters	Cause of Discharge	Date DEF Notified

**Other Permit Violations\***

- Sample collection less frequent than required Explain
- Sample type not in compliance with permit Explain
- Violation of permit schedule Explain
- Other Explain
- Other Explain

**\* If the space provided is not sufficient to record all information, please attach additional sheets.**

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Prepared By: \_\_\_\_\_ Signature: \_\_\_\_\_  
 Title: \_\_\_\_\_ Date: \_\_\_\_\_

APPENDIX A-5.1 (AUG)



**SUPPLEMENTAL LABORATORY ACCREDITATION FORM<sup>1</sup>**

<b>Permittee Name:</b> Royersford Borough STP			
<b>Address:</b> 300 Main Street Royersford, PA 19468-2313			
<b>PERMIT NUMBER</b>		<b>MONITORING PERIOD</b> Year/Month/Day	
PA0021512		TO	
PARAMETER	ANALYSIS METHOD	LAB NAME	LAB ID NUMBER <sup>2</sup>

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**Name/Title Principal Executive Officer**      **Phone:** \_\_\_\_\_      **Signature of Principal Executive Officer or Authorized Agent**  
 \_\_\_\_\_      **Date:** \_\_\_\_\_

<sup>1</sup> Submit this form with the first Discharge Monitoring Report (DMR) or Annual Report, where sample results are submitted to the Department for compliance purposes. You do not need to send this form to the Department again UNLESS there has been a change to the lab(s), parameter(s) or method(s) of analysis.

<sup>2</sup> For parameter(s) covered under accreditation-by-rule, submit the lab's registration number in lieu of an accreditation number.



**6. OPERATING EXPENSES**

# APPENDIX A-5.1 (AUS)

## BOROUGH OF ROYERSFORD BUDGET 2019

<b>EXPENDITURES:</b>				
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	<b>INC/DEC</b>
400	GOVERNMENT	305,665	301,702	(3,963)
403	TAX COLLECTOR	30,800	32,800	2,000
404	LEGAL	50,500	50,500	-
409	BOROUGH HALL	42,700	46,700	4,000
410	POLICE	1,297,259	1,324,477	27,218
411	FIRE	233,024	233,024	-
413	CODE ENFORCE/ENGINEER	132,868	160,400	27,532
414	PLANNING	5,000	3,000	(2,000)
415	EMERGENCY MANAGEMENT	5,544	4,470	(1,074)
430	PUBLIC WORKS	407,420	438,850	31,430
431	SWEEPER	2,000	2,000	-
432	SALT	40,000	40,000	-
433	STREET & TRAFFIC SIGN.	29,500	20,000	(9,500)
434	STREET LIGHTS	64,500	61,500	(3,000)
436	STORM SEWER	10,000	10,000	-
438	HIGHWAY PATCH	4,000	4,000	-
451	CULTURE	3,000	3,000	-
452	VICTORY PARK	99,350	103,055	3,705
456	LIBRARY	5,000	5,000	-
462	GRANTS	0	193,000	193,000
463	REVITALIZATION	186,125	30,300	(155,825)
483	RETIREMENT	126,500	133,500	7,000
492	CAPITAL PROJECTS	25,000	40,280	15,280
	<b>TOTALS</b>	<b>3,105,755</b>	<b>3,241,558</b>	<b>135,803</b>

BOROUGH OF ROYERSFORD  
BUDGET 2019

APPENDIX A-5.1 (AUS)

ACCOUNT #	DESCRIPTION	2018	2019	INC/DEC
400.100	COUNCIL COMPENSATION	6,200	6,200	-
400.120	MAYOR COMPENSATION	1,800	1,800	-
400.121	MANAGER'S SALARY	69,840	71,927	2,087
400.140	CLERICAL SALARIES	48,250	49,675	1,425
400.156	HEALTH, DENTAL, LIFE INSURANCE	72,250	69,500	(2,750)
400.161	SOCIAL SECURITY	9,650	11,450	1,800
400.162	UNEMP. COMP. INS.	2,235	1,500	(735)
400.163	WORKMEN'S COMPENSATION	200	100	(100)
400.210	OFFICE SUPPLIES	3,500	3,500	-
400.211	POSTAGE	1,200	1,200	-
400.214	POSTAGE METER RENTAL	1,540	1,500	(40)
400.215	COMPUTER/COPIER SUPPLIES & SERVI	10,000	10,000	-
400.217	BANK FEES/PAYROLL SERVICE	6,000	6,000	-
400.311	AUDITING SERVICES	16,500	16,500	-
400.321	COMMUNICATION EXPENSE	5,000	5,000	-
400.341	ADVERTISING ©NOT LEGAL	2,000	2,000	-
400.342	PRINTING	3,000	3,000	-
400.352	PROP. & LIAB. INSURANCE	9,800	8,000	(1,800)
400.353	TREAS. & BORO OFF. BONDS	700	850	150
400.370	OFFICE EQUIPMENT	14,000	10,000	(4,000)
400.420	SUBSCRIP & MEMBERSHIP	8,000	8,000	-
400.421	TRAINING & SEMINARS	2,000	2,000	-
400.422	BOROUGH RECOGNITION	2,000	2,000	-
400.700	CAPITAL PURCHASE	5,000	5,000	-
400.800	CAPITAL RESERVE	5,000	5,000	-
	<b>TOTAL</b>	<b>305,665</b>	<b>301,702</b>	<b>(3,963)</b>

<b>TAX COLLECTOR &amp; SUPPLIES:</b>				
ACCOUNT #	DESCRIPTION	2018	2019	INC/DEC
403.100	COMM. TAX COLLECTOR	20,000	20,000	-
403.110	COMMISSION E.I.T./L.S.T.	8,000	10,000	2,000
403.200	TAX COLLECTOR SUPPLIES	1,900	1,900	-
403.353	TAX COLLECTOR'S BOND	900	900	-
	<b>TOTAL</b>	<b>30,800</b>	<b>32,800</b>	<b>2,000</b>

<b>LEGAL:</b>				
ACCOUNT #	DESCRIPTION	2018	2019	INC/DEC
404.100	SOLICITOR'S FEE	48,000	48,000	-
404.341	LEGAL ADVERTISING	2,500	2,500	-
	<b>TOTAL</b>	<b>50,500</b>	<b>50,500</b>	<b>-</b>

BOROUGH OF ROYERS FORD  
BUDGET 2019

APPENDIX A-5.1 (AUS)

<b>BOROUGH HALL OPERATIONS:</b>				
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	<b>INC/DEC</b>
409.226	SUPPLIES	2,200	2,200	-
409.251	MAINTENANCE	10,000	10,000	-
409.300	OTHER SERVICES & CHARGES	6,000	6,000	-
409.352	INSURANCE - PROPERTY	7,500	12,000	4,500
409.361	ELECTRIC	6,500	6,000	(500)
409.366	WATER	500	500	-
409.370	REPAIRS/IMPROVEMENTS	10,000	10,000	-
	<b>TOTAL</b>	<b>42,700</b>	<b>46,700</b>	<b>4,000</b>

<b>FIRE PROTECTION:</b>				
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	<b>INC/DEC</b>
411.140	HYDRANT RENTAL	12,900	12,100	(800)
411.163	WORKMEN'S COMP-FIRE	36,020	42,300	6,280
411.352	LIABILITY INSURANCE	-	-	-
411.354	VEHICLE INSURANCE	-	-	-
411.900	CONT. TO FIRE CO.	184,104	178,624	(5,480)
	<b>TOTAL</b>	<b>233,024</b>	<b>233,024</b>	<b>-</b>

<b>413.100</b>	<b>CODE ENFORCEMENT OFFICER</b>	<b>60,000</b>	<b>60,000</b>	<b>-</b>
----------------	---------------------------------	---------------	---------------	----------

<b>413.310</b>	<b>ENGINEERING SERVICES</b>	<b>72,468</b>	<b>100,000</b>	<b>27,532</b>
----------------	-----------------------------	---------------	----------------	---------------

<b>413.313</b>	<b>PERMIT FEES DCED</b>	<b>400</b>	<b>400</b>	<b>-</b>
----------------	-------------------------	------------	------------	----------

<b>414.100</b>	<b>PLANNING &amp; ZONING EXP.</b>	<b>5,000</b>	<b>3,000</b>	<b>(2,000)</b>
----------------	-----------------------------------	--------------	--------------	----------------

<b>415.000</b>	<b>EMERG. MGT. EXPENSE</b>	<b>3,074</b>	<b>2,000</b>	<b>(1,074)</b>
----------------	----------------------------	--------------	--------------	----------------

<b>415.001</b>	<b>FIRE MARSHALL</b>	<b>2,470</b>	<b>2,470</b>	<b>-</b>
----------------	----------------------	--------------	--------------	----------



<b>PUBLIC WORKS DEPARTMENT</b>				
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	<b>INC/DEC</b>
430.122	SUPERINTENDENTS SALARY	60,850	62,700	1,850
430.130	EMPLOYEES SALARY	78,000	94,750	16,750
430.135	OVERTIME	7,000	7,000	-
430.156	HEALTH, DENTAL, LIFE INSURANCE	90,500	103,800	13,300
430.161	SOCIAL SECURITY	11,300	12,600	1,300
430.162	UNEMP. COMPENSATION	4,470	2,500	(1,970)
430.163	WORKMENS COMPENSATION	55,000	60,000	5,000
430.191	UNIFORMS & CLEANING	1,500	1,500	-
430.210	OFFICE SUPPLIES	1,000	1,000	-
430.231	GASOLINE	9,500	9,500	-
430.244	OPERATING SUPPLIES	4,500	4,500	-
430.250	VEHICLE EXPENSE	10,000	12,500	2,500
430.251	MAINTENANCE EXPENSE	6,000	6,000	-
430.260	MINOR EQUIP. PURCHASE	6,500	6,500	-
430.313	ENGINEERING EXPENSE	-	-	-
430.321	COMMUNICATION EXPENSE	4,000	4,000	-
430.326	MONTHLY MONITORING FEES	550	550	-
430.352	LIABILITY INSURANCE	12,000	9,200	(2,800)
430.354	VEHICLE INSURANCE	8,000	7,500	(500)
430.361	ELECTRIC	12,500	12,500	-
430.366	WATER	4,000	4,000	-
430.421	TRAINING, SEMINARS	250	250	-
430.439	STREET REPAIRS	10,000	10,000	-
430.451	EQUIPMENT RENTAL	1,000	1,000	-
430.700	CAPITAL ITEMS--PURCHASES	9,000	5,000	(4,000)
430.800	CAPITAL RESERVE	-	-	-
	<b>TOTAL</b>	<b>407,420</b>	<b>438,850</b>	<b>31,430</b>

<b>431.100</b>	<b>SWEEPER EXPENSE</b>	<b>2,000</b>	<b>2,000</b>	<b>-</b>
----------------	------------------------	--------------	--------------	----------

<b>432.220</b>	<b>SALT, SNOW REMOVAL SUPP</b>	<b>40,000</b>	<b>40,000</b>	<b>-</b>
----------------	--------------------------------	---------------	---------------	----------

<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	
433.220	PAINT FOR STREETS	3,500	6,000	2,500
433.221	STREET SIGNS	2,000	2,000	-
433.452	TRAFFIC SIGNAL ELECTRICITY	4,000	2,000	(2,000)
433.460	TRAFFIC SIGNAL SUPPLIES & MAINT.	20,000	10,000	(10,000)
	<b>TOTAL</b>	<b>29,500</b>	<b>20,000</b>	<b>(9,500)</b>

<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	
434.010	STREET LIGHTS, ELECTRIC	49,000	46,000	(3,000)
434.100	STREET LIGHTS, SUPPLIES	6,000	6,000	-
434.300	STREET LIGHTS, NEW EQUIPMENT	9,500	9,500	-
	<b>TOTAL</b>	<b>64,500</b>	<b>61,500</b>	<b>(3,000)</b>

<b>436.100</b>	<b>STORM SEWER EXPENSE</b>	<b>10,000</b>	<b>10,000</b>	<b>-</b>
----------------	----------------------------	---------------	---------------	----------

<b>438.100</b>	<b>HIGHWAY PATCHING</b>	<b>4,000</b>	<b>4,000</b>	<b>-</b>
----------------	-------------------------	--------------	--------------	----------

<b>451.100</b>	<b>CULTURE &amp; RECREATION</b>	<b>3,000</b>	<b>3,000</b>	<b>-</b>
----------------	---------------------------------	--------------	--------------	----------

<b>VICTORY PARK:</b>				
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	<b>INC/DEC</b>
452.130	PARK SALARIES	43,300	52,650	9,350
452.135	OVERTIME	0	0	-
452.140	CLERICAL SALARIES	5,400	5,550	150
452.156	HEALTH/DENTAL/LIFE INSURANCE	10,100	10,500	400
452.161	SOCIAL SECURITY	3,750	4,455	705
452.162	UNEMPLOYMENT COMPENSATION	-	-	-
452.163	WORKMENS COMP. INSURANCE	2,000	1,800	(200)
452.231	GASOLINE	300	300	-
452.244	OP. SUPPLIES, TOWELS ETC	3,000	3,000	-
452.247	RECREATION EQUIPMENT	500	500	-
452.251	MAINTENANCE SUPPLIES	10,000	10,000	-
452.320	PROGRAMS/ACTIVITIES EXPENSE	2,500	2,500	-
452.321	COMMUNICATION EXPENSE	1,400	1,400	-
452.352	LIABILITY INSURANCE	4,500	5,000	500
452.361	ELECTRIC	3,900	3,900	-
452.366	WATER	1,700	1,500	(200)
452.700	CAPITAL EXPENSE	7,000	-	(7,000)
	<b>TOTAL</b>	<b>99,350</b>	<b>103,055</b>	<b>3,705</b>

<b>456.100</b>	<b>LIBRARY</b>	<b>5,000</b>	<b>5,000</b>	<b>-</b>
----------------	----------------	--------------	--------------	----------

<b>462.530</b>	<b>GRANT REIMBURSEMENTS</b>	<b>181,125</b>	<b>193,000</b>	<b>11,875</b>
----------------	-----------------------------	----------------	----------------	---------------

<b>463.720</b>	<b>REVITALIZATION IMPROVEMENTS</b>	<b>5,000</b>	<b>-</b>	<b>(5,000)</b>
----------------	------------------------------------	--------------	----------	----------------

<b>463.900</b>	<b>REVITALIZATION DEBT REDUCTION</b>	<b>30,300</b>	<b>30,300</b>	<b>-</b>
----------------	--------------------------------------	---------------	---------------	----------

<b>483.000</b>	<b>RETIREMENT EXPENSE</b>	<b>126,500</b>	<b>133,500</b>	<b>7,000</b>
----------------	---------------------------	----------------	----------------	--------------

<b>492.750</b>	<b>CAPITAL PROJECTS/RESERVES</b>	<b>25,000</b>	<b>40,280</b>	<b>15,280</b>
----------------	----------------------------------	---------------	---------------	---------------

APPENDIX A-5.1 (AUS)

BOROUGH OF ROYERSFORD  
BUDGET 2019

<b>SUMMARY OF INCOME</b>				
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	<b>INC/DEC</b>
301	PROPERTY TAXES	1,932,480	2,028,508	96,028
310	LOCAL TAX ENABLING ACT	809,500	809,000	(500)
321	AMUSEMENT DEVICES	115,000	115,000	-
322	PERMITS	1,500	1,200	(300)
331	FINES	26,000	26,000	-
341	INTEREST EARNINGS	5,500	10,000	4,500
350	INTERGOVERNMENTAL REVENUES	126,500	133,500	7,000
354	STATE CAPITAL AND OPERATING GRANTS	3,125	3,500	375
355	STATE SHARED REVENUE AND ENTITLEMENTS	2,950	2,950	-
359	PAYMENT IN LIEU OF TAXES	5,400	5,500	100
361	GENERAL GOVERNMENT	5,300	5,300	-
362	REPORTS/PERMITS	44,200	42,000	(2,200)
367	CULTURE--RECREATION	8,600	9,100	500
380	MISCELLANEOUS REVENUE	50,000	50,000	-
399	CASH BALANCE FORWARDED	-	-	-
	<b>TOTALS</b>	<b>3,136,055</b>	<b>3,241,558</b>	<b>105,503</b>

BOROUGH OF ROYERSFORD  
BUDGET 2019

APPENDIX A-5.1 (AUS)

ACCOUNT #	DESCRIPTION	2018	2019	INC/DEC
301.100	REAL ESTATE TAX	1,668,456	1,764,284	95,828
301.400	DELINQUENT REAL ESTATE TAX	30,000	30,000	-
301.500	FIRE TAX	233,024	233,024	-
301.900	FIRE TAX PREVIOUS YEAR	1,000	1,200	200
310.010	PER CAPITA	15,000	15,000	-
310.020	PER CAPITA PREVIOUS YEAR	4,500	4,000	(500)
310.100	REAL ESTATE TRANSFER	85,000	85,000	-
310.210	EARNED INCOME TAX	650,000	655,000	5,000
310.500	LST	55,000	50,000	(5,000)
321.800	CABLE TV FRANCHISE FEE	115,000	115,000	-
322.800	STREET PERMITS	1,500	1,200	(300)
331.100	COURT FINES	20,000	20,000	-
331.110	TICKETS & PA DIST	6,000	5,000	(1,000)
331.120	ORDINANCE VIOLATIONS	-	1,000	1,000
341.010	INTEREST	5,500	10,000	4,500
350.020	STATE AID PENSION FUND	126,500	133,500	7,000
354.030	SNOW REMOVAL GRANT	3,125	3,500	375
355.010	PUB. REALTY UTILITY TAX	2,300	2,300	-
355.080	ALCOHOLIC BEV. LIC.	650	650	-
359.010	PAYMENT IN LIEU OF TAXES	5,400	5,500	100
361.300	SUB DIVISION FEE	1,000	1,000	-
361.340	ZONING HEARING FEES	4,000	4,000	-
361.750	DEED REGISTRATION	300	300	-
362.110	ACCIDENT REPORT	1,500	1,500	-
362.140	MISC. POLICE REVENUE	7,000	7,000	-
362.410	BUILDING PERMITS	25,000	25,000	-
362.420	ELEC. PERMITS & REG.	3,000	4,000	1,000
362.430	PLUMB. PERMITS & REG.	3,000	3,000	-
362.450	USE & OCCUPANCY PERMITS	300	200	(100)
362.460	APARTMENT HOUSE LICENSE	4,000	1,000	(3,000)
362.470	DCED PERMIT FEE	400	300	(100)
367.410	PARK USER FEES	1,100	1,100	-
367.420	CONT. & DONATIONS	2,000	3,000	1,000
367.500	SPRING-FORD SCHOOL DIST	5,500	5,000	(500)
380.100	MISCELLANEOUS RECEIPTS	50,000	50,000	-
	<b>TOTAL</b>	<b>3,136,055</b>	<b>3,241,558</b>	<b>105,503</b>
399.000	CARRY OVER FROM PREVIOUS YEAR			
	<b>TOTAL W/CARRYOVER</b>	<b>3,136,055</b>	<b>3,241,558</b>	
	SEWER	810,445	865,500	
	SOLID WASTE	401,895	425,455	
	<b>GRAND TOTAL</b>	<b>4,348,395</b>	<b>4,532,513</b>	

<b>TRASH FUND INCOME:</b>				
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	<b>INC/DEC</b>
341.010	INTEREST	0	0	-
364.300	REFUSE COLLECTION CHGS.	397,695	421,455	23,760
364.350	RECYCLE GRANT	4,200	4,000	(200)
	FUND BALANCE	-	-	-
	<b>TOTAL</b>	<b>401,895</b>	<b>425,455</b>	<b>23,560</b>
<b>TRASH FUND EXPENDITURES:</b>				
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	<b>INC/DEC</b>
427.100	SALARIES	36,750	41,650	4,900
427.140	CLERICAL	16,100	16,575	475
427.141	ADMINISTRATION	16,115	16,600	485
427.156	HEALTH, DENTAL, LIFE INSURANCE	20,000	21,000	1,000
427.161	SOCIAL SECURITY	5,300	5,800	500
427.163	WORKMEN'S COMP.	20,000	20,000	-
427.211	BILLING EXPENSE	3,000	3,000	-
427.231	GASOLINE	-	-	-
427.244	OPERATING EXPENSE	-	-	-
427.250	VEHICLE EXPENSE	-	-	-
427.260	MINOR EQUIP. EXPENSE	1,000	1,000	-
427.352	LIABILITY INSURANCE	10,000	11,400	1,400
427.354	VEHICLE INSURANCE	-	-	-
427.450	SOLID WASTE DISPOSAL EXPENSE	76,000	74,000	(2,000)
427.451	SOLID WASTE COLLECTION EXPENSE	152,630	169,430	16,800
427.455	RECYCLING FEES	45,000	45,000	-
427.700	CAPITAL PURCHASE	0	0	-
427.800	CAPITAL RESERVE	0	0	-
427.900	DEBT REDUCTION	0	0	-
	<b>TOTAL</b>	<b>401,895</b>	<b>425,455</b>	<b>23,560</b>

BOROUGH OF ROYERSFORD  
BUDGET 2019

APPENDIX A-5.1 (AUS)

<b>SEWER FUND INCOME:</b>				
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	<b>INC/DEC</b>
364.110	SEWER CONNECTION FEES	17,200	17,200	-
364.120	SEWER USE CHARGE	787,745	841,800	54,055
364.310	SEWER CERTIFICATION	3,000	3,000	-
364.341	INTEREST WWTP SINKING FUND	1,500	2,500	1,000
364.400	MISC SEWAGE CHARGES	1,000	1,000	-
	<b>TOTAL</b>	<b>810,445</b>	<b>865,500</b>	55,055

<b>SEWER FUND EXPENDITURES:</b>				
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2018</b>	<b>2019</b>	<b>INC/DEC</b>
429.122	SUPERINTENDENT SALARY	72,600	74,750	2,150
429.130	ASS'T SUPT. SALARY	52,500	50,400	(2,100)
429.131	PART TIME HELP(PUBLIC WKS)	26,000	31,600	5,600
429.140	CLERICAL SALARY	37,500	38,650	1,150
429.141	ADMINISTRATIVE EXP.	21,490	22,135	645
429.156	HEALTH, DENTAL, LIFE INSURANCE	61,800	65,000	3,200
429.161	SOCIAL SECURITY	16,100	16,650	550
429.162	UNEMP. COMP. INS.	1,490	1,000	(490)
429.163	WORKMEN'S COMP INS.	15,500	16,000	500
429.191	CLOTHING & BOOTS	600	600	-
429.210	OFFICE SUPPLIES	400	400	-
429.211	BILLING EXPENSE	4,500	4,500	-
429.222	CHEMICALS	35,000	37,000	2,000
429.225	LAB SUPPLIES	14,000	15,000	1,000
429.230	FUEL OIL	10,000	-	(10,000)
429.231	GASOLINE	2,000	2,500	500
429.244	OPERATING SUPPLIES	3,700	3,700	-
429.250	VEHICLE MAINTENANCE	750	750	-
429.251	MAINTENANCE (PLANT)	30,000	30,000	-
429.252	COLLECTION SYS. MAINT.	30,000	25,000	(5,000)
429.260	MINOR EQUIP. PURCHASES	1,500	1,500	-
429.313	ENGINEERING EXPENSE	30,000	30,000	-
429.321	COMMUNICATION EXPENSE	3,500	4,000	500
429.326	MONTHLY MONITORING FEES	1,000	1,000	-
429.352	LIABILITY INSURANCE	17,500	14,800	(2,700)
429.353	FLOOD INSURANCE	6,750	8,100	1,350
429.354	VEHICLE INSURANCE	5,000	1,800	(3,200)
429.361	ELECTRIC	32,000	30,000	(2,000)
429.366	WATER	6,500	6,500	-
429.404	LEGAL EXPENSE	2,500	2,500	-
429.421	DUES, TRAINING, SEMINARS	1,500	1,500	-
429.450	SLUDGE REMOVAL EXPENSE	35,000	45,000	10,000
429.451	EQUIPMENT RENTAL	300	300	-
429.700	MAJOR EQUIPMENT PURCHASES	21,500	21,500	-
429.800	CAPITAL RESERVE	149,965	26,365	(123,600)
429.900	DEBT REDUCTION	-	-	-
429.910	DEBT REDUCTION (Bond)	60,000	235,000	175,000
	<b>TOTAL</b>	<b>810,445</b>	<b>865,500</b>	<b>55,055</b>

BOROUGH OF ROYERSFORD  
BUDGET 2020

APPENDIX A-5.1 (AUS)

<b>SUMMARY OF INCOME</b>		
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
301	PROPERTY TAXES	1,937,677
310	LOCAL TAX ENABLING ACT	832,600
321	AMUSEMENT DEVICES	115,000
322	PERMITS	2,000
331	FINES	23,000
341	INTEREST EARNINGS	20,000
350	INTERGOVERNMENTAL REVENUES	151,000
354	STATE CAPITAL AND OPERATING GRANTS	1,403
355	STATE SHARED REVENUE AND ENTITLEMENTS	2,950
359	PAYMENT IN LIEU OF TAXES	5,500
361	GENERAL GOVERNMENT	5,300
362	REPORTS/PERMITS	49,500
367	CULTURE--RECREATION	11,100
380	MISCELLANEOUS REVENUE	50,000
399	CASH BALANCE FORWARDED	-
	<b>TOTALS</b>	<b>3,207,030</b>



BOROUGH OF ROYERSFORD  
BUDGET 2020

APPENDIX A-5.1 (AUS)

ACCOUNT #	DESCRIPTION	2020
301.100	REAL ESTATE TAX	1,672,752
301.400	DELINQUENT REAL ESTATE TAX	30,000
301.500	FIRE TAX	233,625
301.900	FIRE TAX PREVIOUS YEAR	1,300
310.010	PER CAPITA	14,000
310.020	PER CAPITA PREVIOUS YEAR	4,200
310.100	REAL ESTATE TRANSFER	106,400
310.210	EARNED INCOME TAX	655,000
310.500	LST	50,000
310.520	LST PRIOR YEAR	3,000
321.800	CABLE TV FRANCHISE FEE	115,000
322.800	STREET PERMITS	2,000
331.100	COURT FINES	15,000
331.110	TICKETS & PA DIST	7,000
331.120	ORDINANCE VIOLATIONS	1,000
341.010	INTEREST	20,000
350.020	STATE AID PENSION FUND	151,000
354.030	SNOW REMOVAL GRANT	1,403
355.010	PUB. REALTY UTILITY TAX	2,100
355.080	ALCOHOLIC BEV. LIC.	850
359.010	PAYMENT IN LIEU OF TAXES	5,500
361.300	SUB DIVISION FEE	1,000
361.340	ZONING HEARING FEES	4,000
361.750	DEED REGISTRATION	300
362.110	ACCIDENT REPORT	1,500
362.140	MISC. POLICE REVENUE	8,500
362.410	BUILDING PERMITS	25,000
362.420	ELEC. PERMITS & REG.	7,000
362.430	PLUMB. PERMITS & REG.	4,000
362.450	USE & OCCUPANCY PERMITS	200
362.460	APARTMENT HOUSE LICENSE	3,000
362.470	DCED PERMIT FEE	300
367.410	PARK USER FEES	1,100
367.420	CONT. & DONATIONS	5,000
367.500	SPRING-FORD SCHOOL DIST	5,000
380.100	MISCELLANEOUS RECEIPTS	50,000
	<b>TOTAL</b>	<b>3,207,030</b>
399.000	CARRY OVER FROM PREVIOUS YEAR	
	<b>TOTAL W/CARRYOVER</b>	<b>3,207,030</b>
	SEWER	856,900
	SOLID WASTE	425,455
	<b>GRAND TOTAL</b>	<b>4,489,385</b>

APPENDIX A-5.1 (AUS)  
 BOROUGH OF ROYERSFORD  
 BUDGET 2020

<b>EXPENDITURES:</b>		
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
400	GOVERNMENT	323,605
403	TAX COLLECTOR	22,900
404	LEGAL	57,500
409	BOROUGH HALL	32,350
410	POLICE	1,329,964
411	FIRE	233,625
413	CODE ENFORCE/ENGINEER	302,900
414	PLANNING	3,000
415	EMERGENCY MANAGEMENT	7,820
430	PUBLIC WORKS	391,666
431	SWEEPER	2,000
432	SALT	40,000
433	STREET & TRAFFIC SIGN.	26,508
434	STREET LIGHTS	61,500
436	STORM SEWER	10,000
438	HIGHWAY PATCH	4,000
451	CULTURE	3,000
452	VICTORY PARK	89,952
456	LIBRARY	5,000
462	GRANTS	62,515
463	REVITALIZATION	30,300
483	RETIREMENT	151,000
492	CAPITAL PROJECTS	15,925
	<b>TOTALS</b>	<b>3,207,030</b>

**BOROUGH OF ROYERSFORD  
BUDGET 2020**

**APPENDIX A-5.1 (AUS)**

<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
400.100	COUNCIL COMPENSATION	6,300
400.120	MAYOR COMPENSATION	1,800
400.121	MANAGER'S SALARY	74,085
400.140	CLERICAL SALARIES	61,650
400.156	HEALTH, DENTAL, LIFE INSURANCE	71,050
400.161	SOCIAL SECURITY	12,550
400.162	UNEMP. COMP. INS.	855
400.163	WORKMEN'S COMPENSATION	100
400.210	OFFICE SUPPLIES	3,500
400.211	POSTAGE	1,200
400.214	POSTAGE METER RENTAL	1,500
400.215	COMPUTER/COPIER SUPPLIES & SERVI	10,000
400.217	BANK FEES/PAYROLL SERVICE	6,300
400.311	AUDITING SERVICES	18,000
400.321	COMMUNICATION EXPENSE	5,000
400.341	ADVERTISING @NOT LEGAL	2,000
400.342	PRINTING	3,000
400.352	PROP. & LIAB. INSURANCE	8,000
400.353	TREAS. & BORO OFF. BONDS	850
400.370	OFFICE EQUIPMENT	5,000
400.420	SUBSCRIP & MEMBERSHIP	8,000
400.421	TRAINING & SEMINARS	2,000
400.422	BOROUGH RECOGNITION	2,500
400.700	CAPITAL PURCHASE	5,000
400.800	CAPITAL RESERVE	13,365
	<b>TOTAL</b>	<b>323,605</b>

**TAX COLLECTOR & SUPPLIES:**

<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
403.100	COMM. TAX COLLECTOR	20,000
403.110	COMMISSION E.I.T./L.S.T.	-
403.200	TAX COLLECTOR SUPPLIES	2,000
403.353	TAX COLLECTOR'S BOND	900
	<b>TOTAL</b>	<b>22,900</b>

**LEGAL:**

<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
404.100	SOLICITOR'S FEE	55,000
404.341	LEGAL ADVERTISING	2,500
	<b>TOTAL</b>	<b>57,500</b>

APPENDIX A-5.1 (AUS)

**Royersford Police  
2020 Budget**

Account #	Category	2020
410.122	Chief's Salary	\$104,335.00
410.123	Chief's Longevity/Bonus	\$0.00
410.126	Corporal Salary	\$94,438.00
410.128	Corporal Longevity	\$2,250.00
410.129	Corporal Overtime	\$0.00
410.130	Patrolman's Combined Salary	\$434,884.00
410.131	Part-Time Patrolman Salary	\$85,000.00
410.132	Overtime	\$45,000.00
410.133	Court Time	\$7,000.00
410.134	Longevity (patrolman)	\$3,000.00
410.140	Clerical Salary	\$47,059.00
410.141	Part-Time Clerical & O.T.	\$500.00
410.142	Crossing Guard Salary	\$13,000.00
410.143	Crossing Guard Uniform Replacement	\$200.00
410.156	Medical, Dental, Life, Disability Insurance	\$258,500.00
410.161	Social Security / FICA	\$21,600.00
410.162	Unemployment Compensation	\$5,500.00
410.163	Workmens Compensation	\$70,000.00
410.210	Office Supplies	\$2,000.00
410.211	Civil Service	\$500.00
410.212	Printed Forms	\$750.00
410.213	Postage / Mailing	\$850.00
410.214	Computer Expense	\$7,710.00
410.215	Vascar Calibration / Speedometer Testing / Etc.	\$470.00
410.231	Gasoline	\$13,500.00
410.238	Uniform Replacement (Part-Time Officers)	\$3,500.00
410.239	Uniform Allowance	\$7,400.00
410.242	Supplies	\$4,700.00
410.244	Police Incidentals	\$1,600.00
410.246	Part-time Hiring Expenses	\$1,500.00
410.250	Vehicle Expense	\$7,000.00
410.251	Maintenance	\$5,000.00
410.254	Travel Expense	\$1,000.00
410.260	Minor Equipment	\$5,544.00
410.321	Communications	\$19,000.00
410.341	Advertising	\$1,000.00
410.352	Liability Insurance	\$16,400.00
410.354	Vehicle Insurance	\$10,500.00
410.361	Electric	\$3,000.00
410.366	Water	\$250.00
410.370	Equipment Maintenance	\$1,000.00
410.373	Office Repairs/Improvements	\$6,000.00
410.404	Legal Expense	\$4,000.00
410.420	Subscriptions / Periodicals / Memberships	\$5,124.00
410.421	Training & Seminars (Tuition)	\$4,000.00
410.450	Animal Control	\$3,200.00
410.500	Contributions, Grants & Subsidies	\$0.00
410.550	Public Relations	\$1,200.00
410.700	Capital Purchase	\$0.00
410.800	Capital Reserve	\$0.00
410.900	Debt Reduction - Vehicle Loan Payment	\$0.00
	<b>TOTAL:</b>	<b>\$1,329,964.00</b>

<b>BOROUGH HALL OPERATIONS:</b>		
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
409.226	SUPPLIES	1,000
409.251	MAINTENANCE	5,000
409.300	OTHER SERVICES & CHARGES	6,000
409.352	INSURANCE - PROPERTY	12,100
409.361	ELECTRIC	3,000
409.366	WATER	250
409.370	REPAIRS/IMPROVEMENTS	5,000
	<b>TOTAL</b>	<b>32,350</b>

<b>FIRE PROTECTION:</b>		
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
411.140	HYDRANT RENTAL	12,100
411.163	WORKMEN'S COMP-FIRE	32,000
411.352	LIABILITY INSURANCE	-
411.354	VEHICLE INSURANCE	-
411.900	CONT. TO FIRE CO.	189,525
	<b>TOTAL</b>	<b>233,625</b>

<b>413.100</b>	<b>CODE ENFORCEMENT OFFICER</b>	<b>60,000</b>
----------------	---------------------------------	---------------

<b>413.310</b>	<b>ENGINEERING SERVICES</b>	<b>242,500</b>
----------------	-----------------------------	----------------

<b>413.313</b>	<b>PERMIT FEES DCED</b>	<b>400</b>
----------------	-------------------------	------------

<b>414.100</b>	<b>PLANNING &amp; ZONING EXP.</b>	<b>3,000</b>
----------------	-----------------------------------	--------------

<b>415.000</b>	<b>EMERG. MGT. EXPENSE</b>	<b>4,350</b>
----------------	----------------------------	--------------

<b>415.001</b>	<b>FIRE MARSHALL</b>	<b>3,470</b>
----------------	----------------------	--------------

BOROUGH OF ROYERSFORD  
BUDGET 2020

APPENDIX A-5.1 (AUS)

<b>PUBLIC WORKS DEPARTMENT</b>		
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
430.122	SUPERINTENDENTS SALARY	64,551
430.130	EMPLOYEES SALARY	70,275
430.135	OVERTIME	8,000
430.156	HEALTH, DENTAL, LIFE INSURANCE	82,500
430.161	SOCIAL SECURITY	11,000
430.162	UNEMP. COMPENSATION	1,140
430.163	WORKMENS COMPENSATION	60,000
430.191	UNIFORMS & CLEANING	1,500
430.210	OFFICE SUPPLIES	1,000
430.231	GASOLINE	9,000
430.244	OPERATING SUPPLIES	4,500
430.250	VEHICLE EXPENSE	12,500
430.251	MAINTENANCE EXPENSE	6,000
430.260	MINOR EQUIP. PURCHASE	6,500
430.313	ENGINEERING EXPENSE	-
430.321	COMMUNICATION EXPENSE	4,000
430.326	MONTHLY MONITORING FEES	550
430.352	LIABILITY INSURANCE	9,400
430.354	VEHICLE INSURANCE	6,500
430.361	ELECTRIC	12,500
430.366	WATER	4,000
430.421	TRAINING, SEMINARS	250
430.439	STREET REPAIRS	10,000
430.451	EQUIPMENT RENTAL	1,000
430.700	CAPITAL ITEMS--PURCHASES	5,000
430.800	CAPITAL RESERVE	
	<b>TOTAL</b>	<b>391,666</b>

<b>431.100</b>	<b>SWEEPER EXPENSE</b>	<b>2,000</b>
----------------	------------------------	--------------

<b>432.220</b>	<b>SALT, SNOW REMOVAL SUPP</b>	<b>40,000</b>
----------------	--------------------------------	---------------

<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
433.220	PAINT FOR STREETS	7,500
433.221	STREET SIGNS	3,540
433.452	TRAFFIC SIGNAL ELECTRICITY	2,000
433.460	TRAFFIC SIGNAL SUPPLIES & MAINT.	13,468
	<b>TOTAL</b>	<b>26,508</b>

<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
434.010	STREET LIGHTS, ELECTRIC	46,000
434.100	STREET LIGHTS, SUPPLIES	6,000
434.300	STREET LIGHTS, NEW EQUIPMENT	9,500
	<b>TOTAL</b>	<b>61,500</b>

<b>436.100</b>	<b>STORM SEWER EXPENSE</b>	<b>10,000</b>
----------------	----------------------------	---------------

<b>438.100</b>	<b>HIGHWAY PATCHING</b>	<b>4,000</b>
----------------	-------------------------	--------------

**BOROUGH OF ROYERSFORD  
BUDGET 2020**

**APPENDIX A-5.1 (AUS)**

<b>451.100</b>	<b>CULTURE &amp; RECREATION</b>	<b>3,000</b>
----------------	---------------------------------	--------------

<b>VICTORY PARK:</b>		
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
452.130	PARK SALARIES	39,042
452.135	OVERTIME	0
452.140	CLERICAL SALARIES	6,850
452.156	HEALTH/DENTAL/LIFE INSURANCE	8,400
452.161	SOCIAL SECURITY	3,550
452.162	UNEMPLOYMENT COMPENSATION	-
452.163	WORKMENS COMP. INSURANCE	1,510
452.231	GASOLINE	300
452.244	OP. SUPPLIES, TOWELS ETC	3,000
452.247	RECREATION EQUIPMENT	500
452.251	MAINTENANCE SUPPLIES	10,000
452.320	PROGRAMS/ACTIVITIES EXPENSE	5,000
452.321	COMMUNICATION EXPENSE	1,400
452.352	LIABILITY INSURANCE	5,000
452.361	ELECTRIC	3,900
452.366	WATER	1,500
452.700	CAPITAL EXPENSE	-
	<b>TOTAL</b>	<b>89,952</b>

<b>456.100</b>	<b>LIBRARY</b>	<b>5,000</b>
----------------	----------------	--------------

<b>462.530</b>	<b>GRANT REIMBURSEMENTS</b>	<b>62,515</b>
----------------	-----------------------------	---------------

<b>463.720</b>	<b>REVITALIZATION IMPROVEMENTS</b>	<b>-</b>
----------------	------------------------------------	----------

<b>463.900</b>	<b>REVITALIZATION DEBT REDUCTION</b>	<b>30,300</b>
----------------	--------------------------------------	---------------

<b>483.000</b>	<b>RETIREMENT EXPENSE</b>	<b>151,000</b>
----------------	---------------------------	----------------

<b>492.750</b>	<b>CAPITAL PROJECTS/RESERVES</b>	<b>15,925</b>
----------------	----------------------------------	---------------

## BOROUGH OF ROYERSFORD

## BUDGET 2020 APPENDIX A-5.1 (AUS)

<b>TRASH FUND INCOME:</b>		
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
364.300	REFUSE COLLECTION CHGS.	421,455
364.350	RECYCLE GRANT	4,000
	FUND BALANCE	
	<b>TOTAL</b>	<b>425,455</b>
<b>TRASH FUND EXPENDITURES:</b>		
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
427.100	SALARIES	34,817
427.140	CLERICAL	20,550
427.141	ADMINISTRATION	17,097
427.156	HEALTH, DENTAL, LIFE INSURANCE	16,800
427.161	SOCIAL SECURITY	5,550
427.163	WORKMEN'S COMP.	10,240
427.211	BILLING EXPENSE	2,500
427.260	MINOR EQUIP. EXPENSE	1,000
427.352	LIABILITY INSURANCE	11,400
427.450	SOLID WASTE DISPOSAL EXPENSE	78,000
427.451	SOLID WASTE COLLECTION EXPENSE	148,300
427.455	RECYCLING FEES	60,825
427.700	CAPITAL PURCHASE	
427.800	CAPITAL RESERVE	18,376
427.900	DEBT REDUCTION	
	<b>TOTAL</b>	<b>425,455</b>



## BOROUGH OF ROYERSFORD

BUDGET 2020

APPENDIX A-5.1 (AUS)

<b>SEWER FUND INCOME:</b>		
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
364.110	SEWER CONNECTION FEES	8,600
364.120	SEWER USE CHARGE	841,800
364.310	SEWER CERTIFICATION	3,000
364.341	INTEREST WWTP SINKING FUND	2,500
364.400	MISC SEWAGE CHARGES	1,000
	<b>TOTAL</b>	<b>856,900</b>

## BOROUGH OF ROYERSFORD

## BUDGET 2020 APPENDIX A-5.1 (AUS)

<b>SEWER FUND EXPENDITURES:</b>		
<b>ACCOUNT #</b>	<b>DESCRIPTION</b>	<b>2020</b>
429.122	SUPERINTENDENT SALARY	76,900
429.130	ASS'T SUPT. SALARY	51,740
429.131	PART TIME HELP(PUBLIC WKS)	23,425
429.140	CLERICAL SALARY	47,950
429.141	ADMINISTRATIVE EXP.	22,796
429.156	HEALTH, DENTAL, LIFE INSURANCE	67,500
429.161	SOCIAL SECURITY	17,100
429.162	UNEMP. COMP. INS.	570
429.163	WORKMEN'S COMP INS.	14,000
429.191	CLOTHING & BOOTS	600
429.210	OFFICE SUPPLIES	400
429.211	BILLING EXPENSE	4,000
429.222	CHEMICALS	37,000
429.225	LAB SUPPLIES	15,000
429.231	GASOLINE	2,500
429.244	OPERATING SUPPLIES	3,700
429.250	VEHICLE MAINTENANCE	750
429.251	MAINTENANCE (PLANT)	30,000
429.252	COLLECTION SYS. MAINT.	25,000
429.260	MINOR EQUIP. PURCHASES	1,500
429.313	ENGINEERING EXPENSE	31,400
429.321	COMMUNICATION EXPENSE	4,200
429.326	MONTHLY MONITORING FEES	1,000
429.352	LIABILITY INSURANCE	15,000
429.353	FLOOD INSURANCE	9,900
429.354	VEHICLE INSURANCE	2,700
429.361	ELECTRIC	27,000
429.366	WATER	8,000
429.404	LEGAL EXPENSE	20,000
429.421	DUES, TRAINING, SEMINARS	1,500
429.450	SLUDGE REMOVAL EXPENSE	45,000
429.451	EQUIPMENT RENTAL	300
429.700	MAJOR EQUIPMENT PURCHASE	21,469
429.800	CAPITAL RESERVE	0
429.900	DEBT REDUCTION	-
429.910	DEBT REDUCTION (Bond)	227,000
	<b>TOTAL</b>	<b>856,900</b>

## 7. FUTURE CAPITAL PROJECTS

The following report was created in 2016. Of the projects identified in the report, Item 1 - Green Street Pump Station upgrades and Item 2 – Primary Clarifier will be completed prior to the Asset Purchase Closure. Those values are included in the List of Assets and Costs.



**BOROUGH OF ROYERSFORD  
MONTGOMERY COUNTY, PENNSYLVANIA**

**ANALYSIS OF PROJECTS  
FOR  
PA SMALL WATER AND SEWER GRANT**

**Prepared For:  
Borough of Royersford  
300 Main Street  
Royersford, PA 19468**

**AUGUST 30, 2016**

**FILE NO. 16-01073T**

**Prepared By:  
Gilmore & Associates, Inc.  
Engineers ♦ Land Surveyors ♦ Planners ♦ GIS Consultants  
65 E. Butler Avenue, Suite 100  
New Britain, PA 18901  
215-345-4330**



**GILMORE & ASSOCIATES, INC.**  
ENGINEERS ♦ LAND SURVEYORS ♦ PLANNERS ♦ GIS CONSULTANTS



1913 TO 2003. CELEBRATING NINETY YEARS OF ENGINEERING EXCELLENCE.

# APPENDIX A-5.1 (AUS)

## INTRODUCTION

The purpose of this report is to review various projects listed in the Borough's Capital Plan as presented in the March 19, 2015 report entitled "Wastewater Treatment Facilities Evaluation" a prepared by Frank A. Ciuffo, P.E. of Pennoni Associates, Inc., to determine their applicability for the PA Small Water and Sewer Grant program offered through PA Department of Community and Economic Development.

The following projects were considered as part of this evaluation, after meeting with Borough personnel to better understand what projects should be given priority, which ones may have impact to the environment / safety and which ones fit the grant project type:

1. Green Street Pump Station – Relocate Controls and Replace Ladder
2. Primary Clarifiers-
  - a. Complete Structural Repairs
  - b. Replace Mechanical Equipment
3. Anaerobic Digester
  - a. Divert all flows to sludge holding tanks and abandon digester
  - b. Upgrade digester for increased capacity
4. Sludge Holding Tanks : Convert to Aerobic Digestion

The PA Small Water and Sewer Grant program has \$22,000,000 available for water and sewer projects with a total project cost between \$30,000 to \$500,000. Eligible projects involve the construction, improvement, expansion, repair, or rehabilitation of a water supply or sanitary sewer system which is owned and maintained by an eligible applicant.

Funds may be used for the following project costs:

1. Construction, improvement, expansion, repair, or rehabilitation of a water supply system or sewer system.
2. Installation of security measures.
3. Acquisition of land, rights-of-way and easements necessary to construct and eligible project.
4. Design costs not to exceed 10% of the grant amount.
5. Inspection costs related to the project.
6. Permit Fees.
7. Costs to secure appropriate bonds and insurance.
8. Administrative costs of the applicant that are necessary to administer the grant. Administrative costs will include advertising and, legal costs as well as documented staff expenses. Administrative cost shall not exceed 2% of the grant.

Ineligible costs include but are not limited to fees for securing other financing, interest on borrowed funds, and tap in fees.

An eligible applicant shall provide matching funds of not less than 15% of the total eligible project cost.

The application will be reviewed and evaluated to determine eligibility and competitiveness of the project using the following criteria:

1. Project readiness.
2. Project is consistent with all local, state and regional comprehensive, regional resource management or economic development plans.
3. The cost-effectiveness of the proposed project when compared to other alternatives.

# APPENDIX A-5.1 (AUS)

4. Whether the construction or repair of a water or sewer project will enable customers of the system or regional system to be more efficiently served.
5. Whether the project serves existing populations or whether the project is intended to serve a new development.
6. Whether the project will result in a substantiated positive economic development impact as evidenced by job creation and private investment.
7. The ability of the applicant to secure funding for the project.
8. The proactive implementation of practices to promote sustainability of the system such as asset management, water conservation, energy efficiency, and the use of nonstructural alternatives to minimize the amount of storm water that infiltrates into a system.

## 1. GREEN STREET PUMP STATION

The pump station has been evaluated and a number of safety issues are of concern including ladder access to the dry well, the ladder itself, ventilation, and the electrical rating of controls in the dry well. The dry well is classified as a confined space and is accessed daily, by Borough staff climbing down the ladder to inspect and record information about the station. Pennoni and Gilmore & Associates, Inc. have both reviewed the ladder safety and come to the same conclusion, that the ladder should be replaced for OSHA safety concerns. Other areas of known concern are the controls, electrical equipment and ventilation in the confined space dry well. Our recommendations for the pump station repairs are:

- Replace ladder rungs, hatch cover and opening to meet current OSHA regulations for size, spacing, clearances, slide-off protection, design loadings and other published requirements.  
Estimated Cost: \$8,000
- Relocate pump controls to the surface  
Estimated Cost: \$55,000
- Upgrade remaining electrical equipment in wetwell to meet Class 1, Division 2 area ratings  
Estimated Cost: \$10,000
- Upgrade ventilation system.  
Estimated Cost: \$7,000

Total Estimated Construction Cost:	\$80,000
Design Costs (10%)	\$ 8,000
Construction Administration & Observation (8%)	\$ 6,400
<u>Administrative (2%)</u>	<u>\$ 1,600</u>
<b>Total Project Cost</b>	<b>\$96,000</b>
Grant Match (15%)	\$14,400
Grant Request	\$81,600

## 2. PRIMARY CLARIFIER

The three (3) primary clarifiers have been evaluated and a number of safety and operational issues have been determined. The main issues are that the concrete walkways and railing has deteriorated significantly. Broken pieces of concrete have fallen into the clarifiers, leaving rebar exposed on the walkways above the tanks and corroding. These pieces of broken concrete could cause the mechanicals to break. It is also our understanding that the two older primary settling tanks collection mechanisms are seeing wear on the chains and the wall stub shafts. One clarifier has wall stub shafts with no grease joints. Additionally, at times, the scum pipe for settling tank #1 will flood causing clarified water to return to the head of the plant. Our recommendations for the primary clarifier repairs are:

# APPENDIX A-5.1 (AUS)

- A. Repair concrete on walkways above tanks, replace railings, and evaluate tanks:

Estimated Cost: \$130,000

Total Estimated Construction Cost:	\$130,000
Design Costs (10%)	\$ 13,000
Construction Administration & Observation (8%)	\$ 10,400
<u>Administrative (2%)</u>	<u>\$ 2,600</u>
<b>Total Project Cost</b>	<b>\$156,000</b>
Grant Match (15%)	\$ 23,400
Grant Request	\$132,600

- B. Replacement of clarifier drive and sprocket, chain, idler sprockets, wall bearings, flights, scum troughs and effluent weirs

Estimated Mechanical Equipment Replacement Cost: \$410,000

Concrete repairs from above Estimated Concrete Repair Cost: \$130,000

Total Estimated Construction Cost:	\$540,000
Engineering Costs (10%)	\$ 54,000
Construction Administration & Observation (8%)	\$ 43,200
<u>Administrative (2%)</u>	<u>\$ 10,800</u>
<b>Total Project Cost</b>	<b>\$648,000</b>

Replacing the internal mechanicals cannot be considered as a project for the grant application since the total cost is greater than the \$500,000.

### 3. ANAEROBIC DIGESTER

The anaerobic digester has approximately 35,000 gallons of capacity with an approximate sludge holding time of 3 to 4 days. The digester is undersized as its capacity is less than the recommended PA DEP 15 day treatment capacity time. The projects considered for the grant application, include the addition of anaerobic digester capacity or abandoning the digester and diverting all flow from the digester to the existing sludge holding tanks. Based on a preliminary review and the Pennoni Evaluation, our recommended options for the anaerobic digester is:

- A. Abandon digester and divert sludge to the sludge holding tanks

Estimated Cost: \$175,000

Total Estimated Construction Cost:	\$175,000
Design Costs (10%)	\$ 17,500
Construction Administration & Observation (8%)	\$ 14,000
<u>Administrative (2%)</u>	<u>\$ 3,500</u>
<b>Total Project Cost</b>	<b>\$210,000</b>
Grant Match (15%)	\$ 31,500
Grant Request	\$178,500

## APPENDIX A-5.1 (AUS)

- B. Increase the capacity anaerobic digester capacity through the addition of another anaerobic digester, cleaning, installing access stairs handrail, gas detection and alarming system, digester cover pressure relief valve, flare flame arrestor, pilot gas line and flame check arrestor, monitor gas pipe wall thickness, upgrade the digester room to explosion proof and relocate the hot water boiler outside the digester room.

The total work, including all necessary upgrades on the existing digester is anticipated to exceed \$500,000, not including design, construction administration and observation, administrative and permitting. In order to determine if upgrading the digesters is an option to pursue in the future, it is suggested a sludge treatment and disposal study be performed.

#### **4. SLUDGE HOLDING TANKS CONVERSION TO AEROBIC DIGESTERS**

The sludge holding tanks (Previously converted Imhoff tanks that were used for primary treatment) offer approximately 300,000 gallons in sludge storage capacity. In order to improve sludge breakdown and settling in the tanks, the holding tanks could be modified into aerobic digesters with the addition of aeration diffusers. The aerobic digesters would allow for additional solids reduction and potential sludge disposal cost reduction. Our recommendation is to perform a sludge treatment and disposal study to identify the most efficient long term sludge disposal option for the Borough. The project cost for aerobic digestion is expected to exceed \$500,000 thus is not eligible for this grant.

#### **CONCLUSION**

Upon review of the information presented above, it is recommended that the Borough pursue a grant for the Green Street Pump Station work or making structural concrete repairs to the primary clarifier. Both of these projects are good candidates for the grant application since they can be designed/bid in a short period of time and if/when a grant is awarded can wait until then for bidding and construction. Should Royersford receive the full 85% of the grant request, the 15% grant match requirements are similar (\$14,400 for Pump Station or \$23,400 for primary clarifier) for the Borough's contribution.



# APPENDIX A-5.1 (AUS)



**EVALUATION OF PROJECTS**

Project Name: Small Water and Sewer Grant Application  
Client: Borough of Royersford

Project Number: 16-01073T  
Date: August 30, 2016

	GREEN STREET PUMP STATION	PRIMARY CLARIFIERS		ANAEROBIC DIGESTER		SLUDGE HOLDING TANKS CONVERSION
		Structural Repairs	Mechanical Repl. (Incl. Structural Repairs)	Divert to Sludge Holding Tanks	Upgrade Digester	
1 Project Readiness	Minimal Design	Some Design/cleaning	Minimal Design	Significant Design	Significant Design	Significant Design
2 Project consistent with local, state plans	Yes	Yes	Yes	Yes	Yes	Yes
3 Cost-effectiveness to alternatives	Yes	Yes	Yes	Will evaluate	Will evaluate	Will evaluate
4 Customers efficiently served	Yes	Yes	Yes	Yes	Yes	Yes
5 Existing population or new development	Existing	Existing	Existing	Existing	Existing	Existing
6 Job creation	Short-term construction	Short-term construction	Short-term construction	Short-term construction	Short-term construction	Short-term construction
7 Funding by applicant	Applicant	Applicant	Applicant	Applicant	Applicant	Applicant
8 Sustainability of project/affects	Yes	Yes	Yes	Yes	Yes	Yes
9 Permitting	No	No	No	Yes	Yes	Yes

# APPENDIX A-5.1 (AUS)



**GILMORE & ASSOCIATES, INC.**  
ENGINEERING & CONSULTING SERVICES

**PROJECT COSTS**

Project Name: Small Water and Sewer Grant Application  
Client: Borough of Royersford

Project Number: 16-01073T  
Date: August 30, 2016

	GREEN STREET PUMP	PRIMARY CLARIFIERS		ANAEROBIC DIGESTER		SLUDGE HOLDING TANKS
	STATION	Structural Repairs	Mechanical Repl. (Incl. Structural Repairs)	Divert to Sludge Holding Tanks	Upgrade Digester	
1 Construction	\$80,000	\$130,000	\$540,000	\$175,000	\$500,000 +	\$500,000 +
2 Design (10%)	\$8,000	\$13,000	\$54,000	\$17,500		
3 Construction Administration & Observation (8%)	\$6,400	\$10,400	\$43,200	\$14,000		
4 Administrative (2%)	\$1,600	\$2,600	\$10,800	\$3,500		
5 Total Cost	\$96,000	\$156,000	\$648,000	\$210,000		
6 Grant Match (15%)	\$14,400	\$23,400	N/A	\$31,500	N/A	N/A
7 Grant Request	\$81,600	\$132,600	N/A	\$178,500	N/A	N/A

**8. LIST OF ASSETS AND COSTS**

# APPENDIX A-5.1 (AUS)

## ROYERSFORD WASTEWATER SYSTEM

### SUMMARY OF ANALYSIS OF ORIGINAL COST OF WASTEWATER SYSTEM

<u>ACCOUNT</u>	<u>DESCRIPTION</u>	<u>ORIGINAL COST (\$)</u>
353.20 ✓	LAND AND LAND RIGHTS - COLLECTION	\$ 13
353.30 ✓	LAND AND LAND RIGHTS - PUMPING	\$ 39
353.40 ✓	LAND AND LAND RIGHTS - TREATMENT	\$ 3,000
354.30 ✓	STRUCTURES AND IMPROVEMENTS - PUMPING	\$ 249,437
354.40 ✓	STRUCTURES AND IMPROVEMENTS - TREATMENT PLANT	\$ 313,245
355.30 ✓	POWER GENERATION - PUMPING	\$ 67,239
355.40 ✓	POWER GENERATION - TREATMENT AND DISPOSAL PLANT	\$ 303,849
360.20 ✓	COLLECTION SEWERS - FORCE - MAINS	\$ 31,522
361.21 ✓	COLLECTION SEWERS - GRAVITY - MAINS	\$ 320,640
361.22 ✓	COLLECTION SEWERS - GRAVITY MAINS - RELINING	\$ 742,945
361.23 ✓	COLLECTION SEWERS - GRAVITY - MANHOLES	\$ 42,549
363.20 ✓	SERVICE TO CUSTOMERS	\$ 32,180
364.30 ✓	FLOW MEASURING DEVICES - PUMPING	\$ 7,997
364.40	FLOW MEASURING DEVICES - WWTP	\$ 9,930
371.40 ✓	PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT	\$ 175,929
380.40 ✓	TREATMENT AND DISPOSAL EQUIPMENT	\$ 5,351,760
390.70	EQUIPMENT - GENERAL PLANT	\$ 7,325
396.70 ✓	COMMUNICATION EQUIPMENT - GENERAL PLANT	\$ 5,275
	<b>SYSTEM TOTAL</b>	<b>\$ 7,664,874</b>

*VCP 361.10*  
*CEP 361.20*  
*PVC 361.30*

# APPENDIX A-5.1 (AUS)

<u>ACCOUNT</u>	<u>DESCRIPTION</u>	<u>YEAR</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>ORIGINAL COST</u>
<u>353.2</u>	<u>LAND AND LAND RIGHTS - COLLECTION</u> Collection system ROW Properties 3,4,5,6,7,8,9,10 and 11 Collection system ROW Properties 1 and 2 TOTAL LAND AND LAND RIGHTS - COLLECTION	1937 1961			\$3 \$10.00 \$13.00
<u>353.3</u>	<u>LAND AND LAND RIGHTS - PUMPING</u> 10th Ave. Pump Station (Property 13) TOTAL LAND AND LAND RIGHTS - PUMPING	2000			\$39.00 \$39.00
<u>353.4</u>	<u>LAND AND LAND RIGHTS - TREATMENT</u> Wastewater Treatment Plant TOTAL LAND AND LAND RIGHTS - TREATMENT	1935			\$3,000 \$3,000
<u>354.3</u>	<u>STRUCTURES AND IMPROVEMENTS - PUMPING</u> 10th Avenue PS - Initial Facility Green Street Pump Station - Initial Facility Green Street PS improvements Green Street PS improvements Green Street PS improvements 10th Ave PS - Replaced pumps and grinder drainage improvements drainage improvements Electrical Improvements TOTAL STRUCTURES AND IMPROVEMENTS - PUMPING	1935 1958 1988 1989 1990 2000 2011 2012 2019			\$6,542 \$25,335 \$140 \$64,986 \$25,978 \$91,694 \$6,691 \$15,071 \$13,000 \$249,437
<u>354.4</u>	<u>STRUCTURES AND IMPROVEMENTS TREATMENT PLANT</u> Initial facility cost including pumps, building, treatment structures, fencing, property, etc. Digester Cover Furnace Storage Building TOTAL STRUCTURES AND IMPROVEMENTS TREATMENT PLANT	1935 1993 2014 2015			\$225,721 \$62,901 \$3,850 \$20,773 \$313,245
<u>355.3</u>	<u>POWER GENERATION - PUMPING</u> 10th Avenue Pump Station Generator Green Street Pump Station Generator TOTAL POWER GENERATION - PUMPING	2000 2012			\$45,847 \$21,392 \$67,239

# APPENDIX A-5.1 (AUS)

<u>ACCOUNT</u>	<u>DESCRIPTION</u>	<u>YEAR</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>ORIGINAL COST</u>
<b>355.4</b>	<b><u>POWER GENERATION - TREATMENT AND DISPOSAL PLANT</u></b>				
	WWTP Generator	2008			\$303,849
	TOTAL POWER GENERATION - TREATMENT AND DISPOSAL PLANT				\$303,849
<b>360.2</b>	<b><u>COLLECTION SEWERS - FORCE MAINS</u></b>				
	10th Ave. Forcemain	1935	3,500 LF	\$5.31	\$18,585
	Green Street Forcemain	1958	680 LF	\$19.02	\$12,937
	TOTAL COLLECTION SEWERS - FORCE MAINS				\$31,522
<b>361.21</b>	<b><u>COLLECTION SEWERS - GRAVITY MAINS</u></b>				
	VCP - 8-inch	1935	35,257	\$3.39	\$119,688
	VCP - 10-inch	1935	910	\$5.21	\$4,737
	VCP - 12-inch	1935	2,029	\$6.76	\$13,710
	VCP - 15-inch	1935	4,011	\$8.64	\$34,652
	CIP - 15-inch	1935	205	\$9.37	\$1,920
	VCP - 8-inch	1936	21,322	\$3.43	\$73,210
	VCP - 10-inch	1936	545	\$5.21	\$2,838
	VCP - 12-inch	1936	1,216	\$6.76	\$8,213
	VCP - 15-inch	1936	2,403	\$8.64	\$20,759
	VCP - 8-inch	1955	350	\$3.25	\$1,136
	VCP - 8-inch	1972	336	\$9.61	\$3,228
	PVC - 8-inch	1985	270	\$20.57	\$5,554
	PVC - 8-inch	1990	385	\$25.93	\$9,984
	PVC - 8-inch	1992	566	\$27.32	\$15,463
	PVC - 8-inch	1995	185	\$29.98	\$5,547
	TOTAL COLLECTION SEWERS - GRAVITY MAINS				\$320,640
<b>361.22</b>	<b><u>COLLECTION SEWERS - GRAVITY MAINS - RELINING</u></b>				
	2012 CIPP Lining	2013			\$191,498
	2013 CIPP Lining	2014			\$369,468
	2016 CIPP Lining	2015			\$181,979
	TOTAL COLLECTION SEWERS - GRAVITY MAINS - RELINING				\$742,945
<b>361.23</b>	<b><u>COLLECTION SEWERS - GRAVITY - MANHOLES</u></b>				
	Initial installation	1935	171	\$87.68	\$14,993
	System expansion	1936	78	\$116.00	\$9,048
	S. Third Ave	1955	1	\$295.00	\$295

# APPENDIX A-5.1 (AUS)

<u>ACCOUNT</u>	<u>DESCRIPTION</u>	<u>YEAR</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>ORIGINAL COST</u>
	6th St. at Church St.	1972	1	\$782.17	\$782
	S. Fourth Ave	1985	1	\$1,870.00	\$1,870
	Elm St.	1990	2	\$2,111.37	\$4,223
	Elementary School	1992	4	\$2,224.25	\$8,897
	6th St near Pine	1995	1	\$2,441.10	\$2,441
	<b>TOTAL COLLECTION SEWERS -GRAVITY - MANHOLES</b>				<b>\$42,549</b>
<b>363.20</b>	<b><u>SERVICE TO CUSTOMERS</u></b>				
	VCP - 5-inch	1935	16520	\$0.89	\$14,754
	VCP - 5-inch	1936	9896	\$0.90	\$8,919
	VCP -6-inch	1972	326	\$9.61	\$3,132
	PVC - 6-inch	1990	80	\$25.93	\$2,075
	PVC - 6-inch	2013	20	\$165.00	\$3,300
	<b>TOTAL SERVICE TO CUSTOMERS</b>		<b>26842</b>		<b>\$32,180</b>
<b>364.3</b>	<b><u>FLOW MEASURING DEVICES - PUMPING</u></b>				
	Pump Stations	2011			\$7,997
	<b>TOTAL FLOW MEASURING DEVICES - PUMPING</b>				<b>\$7,997</b>
<b>364.4</b>	<b><u>FLOW MEASURING DEVICES - WWTP</u></b>				
	WWTP	2011			\$9,930
	<b>TOTAL FLOW MEASURING DEVICES - WWTP</b>				<b>\$9,930</b>
<b>371.4</b>	<b><u>PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT</u></b>				
	Sludge Transfer Pumps	2005			\$9,925
	Raw and Recirculation Pumps	2010			\$131,000
	Replaced VFDs	2018			\$35,004
	<b>TOTAL PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT</b>				<b>\$175,929</b>
<b>380.4</b>	<b><u>TREATMENT AND DISPOSAL EQUIPMENT</u></b>				
	Facility improvements including new clarifiers, sludge digester, lab building and trickling filters	1951			\$354,456
	Miscellaneous improvements	1986			\$22,410
	Miscellaneous improvements	1987			\$550
	Facility improvements including new influent pump station and office building.	1998			\$1,462,008
	Upgrades to clarifiers, recirculation pumps and trickling filters.	2006			\$1,500
	Chlorination System	2007			\$15,000
	Dechlorination System				

# APPENDIX A-5.1 (AUS)

<u>ACCOUNT</u>	<u>DESCRIPTION</u>	<u>YEAR</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>ORIGINAL COST</u>
	New influent and recirculation pumps, clarifiers, influent screening chamber. Upgrades to existing clarifiers, piping and flow diversion chambers.	2010			\$2,785,371
	Screen Unit	2010			\$75,000
	Settling Tank Equipment	2010			\$171,000
	PAC system	2011			\$8,993
	Furnace	2014			\$3,850
	miscellaneous improvements	2015			\$44,411
	Grinder Rebuild	2016			\$11,091
	Settling Tank repairs, digester improvements	2020			\$396,120
	TOTAL TREATMENT AND DISPOSAL EQUIPMENT				\$5,351,760
<b>390.7</b>	<b><u>EQUIPMENT - GENERAL PLANT</u></b>				
	Security camera	2015			\$7,325
	TOTAL EQUIPMENT - GENERAL PLANT				\$7,325
<b>396.7</b>	<b><u>COMMUNICATION EQUIPMENT - GENERAL PLANT</u></b>				
	Transmitter	2015			\$5,275
	TOTAL COMMUNICATION EQUIPMENT - GENERAL PLANT				\$5,275



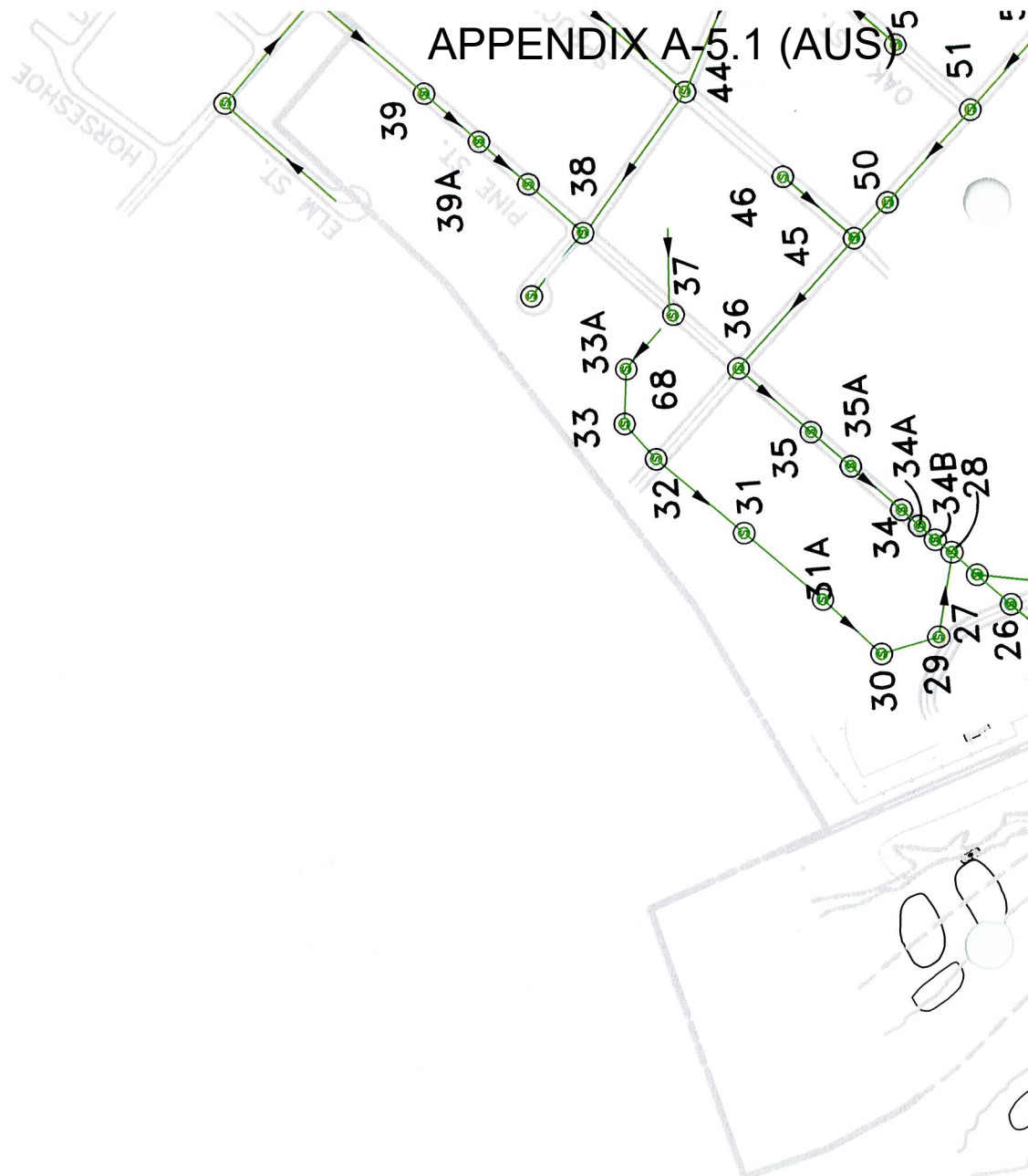
**APPENDICES**

**APPENDIX A**

**BOROUGH MAP**

1. Asset Facilities Map

APPENDIX A-5.1 (AUS)



HORSESHOE

ELM ST.

PINE ST.

OAK ST.

APPENDIX B

ACT 12

Uniform System of Accounts - Section 300



**PUBLIC UTILITY CODE (66 PA.C.S.) - VALUATION OF ACQUIRED WATER  
AND WASTEWATER SYSTEMS FOR RATEMAKING PURPOSES**

Act of Apr. 14, 2016, P.L. 76, No. 12

Cl. 66

Session of 2016

No. 2016-12

HB1326

AN ACT

Amending Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes, in rates and distribution systems, providing for valuation of acquired water and wastewater systems for ratemaking purposes.

The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

Section 1. Title 66 of the Pennsylvania Consolidated Statutes is amended by adding a section to read:

**§ 1329. Valuation of acquired water and wastewater systems.**

(a) **Process to establish fair market value of selling utility.** -- Upon agreement by both the acquiring public utility or entity and the selling utility, the following procedure shall be used to determine the fair market value of the selling utility:

(1) The commission will maintain a list of utility valuation experts from which the acquiring public utility or entity and selling utility will choose.

(2) Two utility valuation experts shall perform two separate appraisals of the selling utility for the purpose of establishing its fair market value.

(3) Each utility valuation expert shall determine fair market value in compliance with the Uniform Standards of Professional Appraisal Practice, employing the cost, market and income approaches.

(4) The acquiring public utility or entity and selling utility shall engage the services of the same licensed engineer to conduct an assessment of the tangible assets of the selling utility. The assessment shall be incorporated into the appraisal under the cost approach required under paragraph (3).

(5) Each utility valuation expert shall provide the completed appraisal to the acquiring public utility or entity and selling utility within 90 days of execution of the service contract.

(b) **Utility valuation experts.** --

(1) The utility valuation experts required under subsection (a) shall be selected as follows:

(i) one shall be selected by the acquiring public utility or entity; and

(ii) one shall be selected by the selling utility.

(2) The utility valuation experts shall not:

(i) derive any material financial benefit from the sale of the selling utility other than fees for services rendered; or

(ii) be an immediate family member of a director, officer or employee of either the acquiring public utility, entity or selling utility within a 12-month period of the date of hire to perform an appraisal.

(3) Fees paid to utility valuation experts may be included in the transaction and closing costs associated with acquisition by the acquiring utility or entity. Fees eligible for inclusion may be of an amount not exceeding 5% of the fair

market value of the selling utility or a fee approved by the commission.

(c) **Ratemaking rate base.**--The following apply:

(1) The ratemaking rate base of the selling utility shall be incorporated into the rate base of:

- (i) the acquiring public utility during the acquiring public utility's next base rate case; or
- (ii) the entity in its initial tariff filing.

(2) The ratemaking rate base of the selling utility shall be the lesser of the purchase price negotiated by the acquiring public utility or entity and selling utility or the fair market value of the selling utility.

(d) **Acquisitions by public utility.**--The following apply:

(1) If the acquiring public utility and selling utility agree to use the process outlined in subsection (a), the acquiring public utility shall include the following as an attachment to its application for commission approval of the acquisition filed pursuant to section 1102 (relating to enumeration of acts requiring certificate):

(i) Copies of the two appraisals performed by the utility valuation experts under subsection (a).

(ii) The purchase price of the selling utility as agreed to by the acquiring public utility and selling utility.

(iii) The ratemaking rate base determined pursuant to subsection (c) (2).

(iv) The transaction and closing costs incurred by the acquiring public utility that will be included in its rate base.

(v) A tariff containing a rate equal to the existing rates of the selling utility at the time of the acquisition and a rate stabilization plan, if applicable to the acquisition.

(2) The commission shall issue a final order on an application submitted under this section within six months of the filing date of an application meeting the requirements of subsection (d) (1).

(3) If the commission issues an order approving the application for acquisition, the order shall include:

(i) The ratemaking rate base of the selling utility, as determined under subsection (c) (2).

(ii) Additional conditions of approval as may be required by the commission.

(4) The tariff submitted pursuant to subsection (d) (1) (v) shall remain in effect until such time as new rates are approved for the acquiring public utility as the result of a base rate case proceeding before the commission. The acquiring public utility may collect a distribution system improvement charge during this time, as approved by the commission under this chapter.

(5) The selling utility's cost of service shall be incorporated into the revenue requirement of the acquiring public utility as part of the acquiring utility's next base rate case proceeding. The original source of funding for any part of the water or sewer assets of the selling utility shall not be relevant to determine the value of said assets.

(e) **Acquisitions by entity.**--An entity shall provide all the information required by subsection (d) (1) to the commission as an attachment to its application for a certificate of public convenience filed pursuant to section 1102.

(f) **Postacquisition projects.**--The following apply:

(1) An acquiring public utility's postacquisition improvements that are not included in a distribution improvement charge shall accrue allowance for funds used during construction after the date the cost was incurred until the asset has been in service for a period of four years or until

the asset is included in the acquiring public utility's next base rate case, whichever is earlier.

(2) Depreciation on an acquiring public utility's postacquisition improvements that have not been included in the calculation of a distribution system improvement charge shall be deferred for book and ratemaking purposes.

(g) Definitions.--The following words and phrases when used in this section shall have the meanings given to them in this section unless the context clearly indicates otherwise:

"Acquiring public utility." A water or wastewater public utility subject to regulation under this title that is acquiring a selling utility as the result of a voluntary arm's-length transaction between the buyer and seller.

"Allowance of funds used during construction." An accounting practice that recognizes the capital costs, including debt and equity funds that are used to finance the construction costs of an improvement to a selling utility's assets by an acquiring public utility.

"Entity." A person, partnership or corporation that is acquiring a selling utility and has filed or whose affiliate has filed an application with the commission seeking public utility status pursuant to section 1102.

"Fair market value." The average of the two utility valuation expert appraisals conducted under subsection (a) (2).

"Ratemaking rate base." The dollar value of a selling utility which, for postacquisition ratemaking purposes, is incorporated into the rate base of the acquiring public utility or entity.

"Rate stabilization plan." A plan that will hold rates constant or phase rates in over a period of time after the next base rate case.

"Selling utility." A water or wastewater company located in this Commonwealth, owned by a municipal corporation or authority that is being purchased by an acquiring public utility or entity as the result of a voluntary arm's-length transaction between the buyer and seller.

"Utility valuation expert." A person hired by an acquiring public utility and selling utility for the purpose of conducting an economic valuation of the selling utility to determine its fair market value.

Section 2. This act shall take effect in 60 days.

APPROVED--The 14th day of April, A.D. 2016.

TOM WOLF

**UNIFORM SYSTEM OF ACCOUNTS  
FOR CLASS A  
WASTEWATER UTILITIES**

**1996**



**NATIONAL ASSOCIATION OF  
REGULATORY UTILITY COMMISSIONERS**

1101 Vermont Avenue NW  
Washington, D.C. 20005  
USA

Tel: (202) 898-2200

Fax: (202) 898-2213

[www.naruc.org](http://www.naruc.org)

\$26.00



# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

	<u>.1</u>	<u>.2</u>
	<u>Intangible Plant</u>	<u>Collection Plant</u>
351. Organization	351.1	XXXXXXXXXX
352. Franchises	352.1	XXXXXXXXXX
353. Land and Land Rights	XXXXXXXXXX	353.2
354. Structures and Improvements	XXXXXXXXXX	354.2
355. Power Generation Equipment	XXXXXXXXXX	355.2
360. Collection Sewers - Force	XXXXXXXXXX	360.2
361. Collection Sewers - Gravity	XXXXXXXXXX	361.2
362. Special Collecting Structures	XXXXXXXXXX	362.2
363. Services to Customers	XXXXXXXXXX	363.2
364. Flow Measuring Devices	XXXXXXXXXX	364.2
365. Flow Measuring Installations	XXXXXXXXXX	365.2
366. Reuse Services	XXXXXXXXXX	XXXXXXXXXX
367. Reuse Meters and Meter Installations	XXXXXXXXXX	XXXXXXXXXX
370. Receiving Wells	XXXXXXXXXX	XXXXXXXXXX
371. Pumping Equipment	XXXXXXXXXX	XXXXXXXXXX
374. Reuse Distribution Reservoirs	XXXXXXXXXX	XXXXXXXXXX
375. Reuse Transmission and Distribution System	XXXXXXXXXX	XXXXXXXXXX
380. Treatment and Disposal Equipment	XXXXXXXXXX	XXXXXXXXXX
381. Plant Sewers	XXXXXXXXXX	XXXXXXXXXX
382. Outfall Sewer Lines	XXXXXXXXXX	XXXXXXXXXX
389. Other Plant and Misc. Equipment	389.1	389.2
390. Office Furniture and Equipment	XXXXXXXXXX	XXXXXXXXXX
391. Transportation Equipment	XXXXXXXXXX	XXXXXXXXXX
392. Stores Equipment	XXXXXXXXXX	XXXXXXXXXX
393. Tools, Shop and Garage Equipment	XXXXXXXXXX	XXXXXXXXXX
394. Laboratory Equipment	XXXXXXXXXX	XXXXXXXXXX
395. Power Operated Equipment	XXXXXXXXXX	XXXXXXXXXX
396. Communication Equipment	XXXXXXXXXX	XXXXXXXXXX
397. Miscellaneous Equipment	XXXXXXXXXX	XXXXXXXXXX
398. Other Tangible Plant	XXXXXXXXXX	XXXXXXXXXX

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

<u>.3</u>	<u>.4</u>	<u>.5</u>	<u>.6</u>	<u>.7</u>
System Pumping Plant	Treatment and Disposal Plant	Reclaimed Water Treatment Plant	Reclaimed Water Distribution Plant	General Plant
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	XXXXXXXXXXXXX
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	352.6	XXXXXXXXXXXXX
353.3	353.4	353.5	353.6	353.7
354.3	354.4	354.5	354.6	354.7
355.3	355.4	355.5	355.6	XXXXXXXXXXXXX
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	XXXXXXXXXXXXX
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	XXXXXXXXXXXXX
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	XXXXXXXXXXXXX
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	XXXXXXXXXXXXX
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	XXXXXXXXXXXXX
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	XXXXXXXXXXXXX
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	366.6	XXXXXXXXXXXXX
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	367.6	XXXXXXXXXXXXX
370.3	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	XXXXXXXXXXXXX
371.3	XXXXXXXXXX	371.5	371.6	XXXXXXXXXXXXX
XXXXXXXXXX	XXXXXXXXXX	374.5	XXXXXXXXXXXXX	XXXXXXXXXXXXX
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	375.6	XXXXXXXXXXXXX
XXXXXXXXXX	380.4	380.5	XXXXXXXXXXXXX	XXXXXXXXXXXXX
XXXXXXXXXX	381.4	381.5	XXXXXXXXXXXXX	XXXXXXXXXXXXX
XXXXXXXXXX	382.4	XXXXXXXXXX	XXXXXXXXXXXXX	XXXXXXXXXXXXX
389.3	389.4	389.5	389.6	XXXXXXXXXXXXX
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	390.7
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	391.7
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	392.7
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	393.7
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	394.7
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	395.7
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	396.7
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	397.7
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXX	398.7

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

The wastewater utility plant accounts have been designed utilizing an account matrix. The matrix employs a list of object accounts which in effect act as control accounts. The object accounts are further segregated by the matrix into classifications by functions or subaccount. The instructions for segregating the object accounts to the function subaccount are contained in Accounting Instruction 32. Listed below are the object account descriptions.

### 351. Organization

This account shall include all fees paid to federal or state governments for the privilege of incorporation and expenditures incident to organizing the corporation, partnership or other enterprise and putting it into readiness to do business. A sample of items to be included in this account are listed below.

1. Actual cost of obtaining certificates authorizing an enterprise to engage in the public utility business.
2. Fees and expenses for incorporation.
3. Fees and expenses for mergers or consolidations.
4. Office expenses incident to organizing the utility.
5. Stock and minute books and corporate seal.

Note A:--This account shall not include any discounts upon securities issued or assumed; nor shall it include any costs incident to negotiating loans, selling bonds or other evidences of debt, or expenses in connection with the authorization, issuance and sale of capital stock.

Note B:--Exclude from this account and include in the appropriate expense account the cost of preparing and filing papers in connection with the extension of the term of incorporation unless the first organization costs have been written off. Where charges are made to this account for expenses incurred in mergers, consolidations or reorganizations, amounts previously included herein or in similar accounts in the books of the companies concerned shall be excluded from this account.

### 352. Franchises

A. This account shall include amounts paid to the federal government, to a state or to a political subdivision thereof in consideration for franchises, consents or certificates, running in perpetuity or for a specified term of more than one year, together with necessary and reasonable expenses incident to procuring such franchises, consents or certificates of permission and approval, including expenses of organizing and merging separate corporations, where statutes require solely for the purpose of acquiring franchise.

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

B. If a franchise or certificate is acquired by assignment, the charge to this account in respect thereof shall not exceed the amount paid therefor by the utility to the assignor, nor shall it exceed the amount paid by the original grantee, plus the expense of acquisition to such grantee. Any excess of the amount actually paid by the utility over the amount specified shall be charged to account 426 - Miscellaneous Nonutility Expenses.

C. When any franchise has expired, the book cost thereof shall be credited hereto and charged to account 426 - Miscellaneous Nonutility Expenses, or to account 110.1 - Accumulated Amortization of Utility Plant in Service, as appropriate.

D. Records supporting this account shall be kept so as to show separately the book cost of each franchise.

Note:--Annual or other periodic payments under franchises shall not be included herein but in the appropriate expense account.

### 353. Land and Land Rights

This account shall include the cost of land and land rights used in connection with wastewater collection, pumping, treatment and disposal, reclaimed water treatment and distribution and general plant operations (See Accounting Instruction 24). A sample of items to be included in this account are listed below:

1. Bulkheads buried, not requiring maintenance or replacement.
2. Cost, first, of acquisition including mortgages and other liens assumed (but not subsequent interest thereon).
3. Condemnation proceedings, including court and counsel costs.
4. Consents and abutting damages, payment for.
5. Conveyancers' and notaries' fees.
6. Fees, commissions, and salaries to brokers, agents, and others in connection with the acquisition of the land or land rights.
7. Leases, cost of voiding upon purchase to secure possession of land.
8. Removing, relocating, or reconstructing property of others, such as buildings, highways, railroads, bridges, cemeteries, churches, telephone and power lines, etc., in order to acquire quiet possession.
9. Retaining walls unless identified with structures.
10. Special assessments levied by public authorities for public improvements on the basis of benefits for new

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

- roads, new bridges, new sewers, new curbing, new pavements, and other public improvements, but not taxes levied to provide for the maintenance of such improvements.
11. Surveys in connection with the acquisition, but not amounts paid for topographical surveys and maps where such costs are attributable to structures or plant equipment erected or to be erected or installed on such land.
  12. Taxes assumed, accrued to date of transfer of title.
  13. Title, examining, clearing, insuring and registering in connection with the acquisition and defending against claims relating to the period prior to the acquisition.
  14. Appraisals prior to closing title.
  15. Cost of dealing with distributees or legatees residing outside of the state or county, such as recording power of attorney, recording will or exemplification of will, recording satisfaction of state tax.
  16. Filing satisfaction of mortgage.
  17. Documentary stamps.
  18. Photographs of property at acquisition.
  19. Fees and expenses incurred in the acquisition of sewer rights, and grants.
  20. Cost of fill to extend bulkhead line over land under water, where riparian rights are held, which is not occasioned by the erection of a structure.
  21. Sidewalks and curbs constructed by the utility on public property.
  22. Labor and expenses in connection with securing rights of way, where performed by company employees and company agents.

### 354. Structures and Improvements

This account shall include the cost in place of structures and improvements used in connection with wastewater collection, pumping, treatment and disposal, reclaimed water treatment and distribution and general plant operations (See Accounting Instruction 25). A sample of items to be included in this account are listed below:

1. Architects' plans and specifications including supervision.
2. Boilers, furnaces, piping, wiring, fixtures, and machinery for heating, lighting, signaling, ventilating and air conditioning systems, plumbing, vacuum cleaning systems, incinerator and smoke pipe, flues, etc.

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

3. Bulkheads, including dredging, riprap fill, piling, decking, concrete fenders, etc., when exposed and subject to maintenance and replacement.
4. Commissions and fees to brokers, agents, architects and others.
5. Conduit (not to be removed) with its contents.
6. Damages to abutting property during construction.
7. Drainage systems.
8. Elevators, cranes, hoists, etc., and the machinery for operating them.
9. Excavation, including shoring, bracing, bridging, refill and disposal of excess excavated material, cofferdams around foundations, pumping water from cofferdam during construction, test borings.
10. Fences and fence curbs (not including protective fences isolating items of equipment, which should be charged to the appropriate equipment account).
11. Fire protection systems when forming a part of a structure.
12. Flagpole.
13. Floor covering (permanently attached).
14. Foundations and piers for machinery, constructed as a permanent part of a building or other item listed herein.
15. Grading and clearing when directly occasioned by the building of a structure.
16. Intrasite communication system, poles, pole fixtures, wires and cables.
17. Landscaping, lawns, shrubbery, etc.
18. Leases, voiding upon purchase, to secure possession of structures.
19. Leased property, expenditures on.
20. Lighting fixtures and outside lighting systems.
21. Marquee, permanently attached to building.
22. Painting, first cost.
23. Permanent paving, concrete, brick, flagstone, asphalt, etc., within the property lines.
24. Partitions, including movable.
25. Permits and privileges.
26. Power boards for services to a building.
27. Refrigerating systems for general use.
28. Retaining walls except when identified with land.
29. Roadways.
30. Roofs.
31. Scales, connected to and forming a part of a structure.
32. Water and wastewater systems, for general use.
33. Sidewalks, culverts, curbs and streets constructed by the utility on its property.

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

34. Sprinkling systems.
35. Stacks -- brick, steel, or concrete, when set on foundation forming part of general foundation and steelwork of a building.
36. Steel inspection during construction.
37. Storage facilities constituting a part of a building.
38. Storm doors and windows.
39. Temporary heating during construction (net cost).
40. Temporary water connection during construction (net cost).
41. Temporary shanties and other facilities used during construction (net cost).
42. Topographical maps.
43. Vaults constructed as part of a building.
44. Watchmen's sheds and clock systems (net cost when used during construction only).
45. Water meters and supply system for a building or for general company purposes.
46. Water supply piping, hydrants and wells.
47. Yard surfacing, gravel, concrete, or oil (First cost only).
48. Tunnels, intake and discharge when constructed as part of a structure including sluice gates and those constructed to house.

### 355. Power Generation Equipment

A. This account shall include the cost installed of any equipment used for the production of power principally used in pumping operations.

B. Subaccounts shall be maintained hereunder for the cost of equipment used for each type of power generating equipment.

### 360. Collecting Sewers - Force

This account shall include all sewers which are used to lift sewage from a low elevation to a higher elevation. The force sewer will include that pipe between the discharge outlet of the lift station and the receiving manhole.

### 361. Collecting Sewers - Gravity

This account shall include the installed cost of all gravity collecting sewers, interceptor, branch, trunk, lateral including service wye, and manholes and lampholes. Manholes shall be included as a separate unit of property.

### 362. Special Collecting Structures

Inverted siphon shall be included in this account but so

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

distinctly noted; also any other special designed structures unusual to the wastewater system should be included herein but specifically noted as to what they do.

### 363. Services to Customers

This account shall include the installed cost of service sewers, from collection sewer to the customer's property or curb line. A sample of items to be included in this account are listed below:

1. Jointing and jointing material.
2. Manhole or clean-out.
3. Municipal inspection and permits
4. Pavement disturbed.
5. Protection of street openings.
6. Tapping saddle.
7. Service connection wye shall be included in account 363 instead of account 361 when company owns service sewers to customers property line.

### 364. Flow Measuring Devices

A. This account shall include the cost of flow measuring and recording equipment and initial testing used for measuring the quantity of wastewater or wastewater effluent delivered by customers, whether actually in service or held in reserve.

B. When flow measuring equipment is permanently retired from service, the amount at which it is included herein shall be credited to this account.

C. The records covering flow measuring equipment shall be so kept that the utility can furnish information as to the number of devices of each type and size in service and in reserve, as well as the location of each device included in this account.

### 365. Flow Measuring Installations

A. This account shall include the cost of labor employed, materials used and expenses incurred in connection with the original installation of customers' flow measuring equipment. A sample of items to be included in this account are listed below:

1. Floats, connections, flumes, or wires.
2. Special manhole, boxes, or other separate housing.

B. When a flow measuring installation is permanently retired from service, the cost thereof shall be credited to this account.



# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

### 366. Reuse Services

A. This account shall include the cost installed of reclaimed water service pipes and accessories leading to the customers' premises.

B. A complete reclaimed water service begins with the connection on the main and extends to but does not include the connection with the customer's meter. A stub service extends from the main to the property line, or the curb stop (curb stop cock).

C. Services which have been used but have become inactive shall be retired from utility plant in service immediately if there is no prospect for future use.

#### Items

1. Corporation stops or tees.
2. Gate valves and boxes.
3. Goose necks.
4. Jointing and jointing material.
5. Municipal inspection or permits.
6. Pavements disturbed.
7. Pipes.
8. Placing pipes and accessories.
9. Protection of street openings.
10. Service or curb boxes.
11. Service or curb stops (curb stop cocks).
12. Tapping main.
13. Tapping saddle.

### 367. Reuse Meters and Meter Installations

A. This account shall include the cost of meters, devices and appurtenances attached thereto, used for measuring the quantity of reclaimed water delivered to users, whether actually in service or held in reserve. It shall also include the cost of labor employed, materials used and expenses incurred in connection with the original installation of a customer's meters and devices and appurtenances attached thereto.

B. When a meter and/or meter installation is permanently retired from service, the amount at which it is included herein shall be credited to this account.

C. The records covering meters shall be so kept that the utility can furnish information as to the number of meters of each type and size in service and in reserve as well as the location of each meter included in this account.

D. A sample of items to be included in this account are listed

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

below:

1. Meters, including badging and initial testing.
2. Remote meter registers.
3. Installation labor (first installation only).
4. Meter coupling.
5. Meter bars.
6. Meter yokes.
7. Meter fittings, connections and shelves.
8. Meter vaults or boxes.
9. Stops.

Note A:--This account shall not include meters for recording the output of a supply or treatment plant, or those located on mains. It includes only those meters to record reclaimed water delivered to customers, including company use and for those used elsewhere in the system if a type available for general use.

Note B:--The utility shall maintain a statistical record to show separately the number of each type and size of meter or group of types and sizes as carried in the continuing property record. Underlying records shall be kept so that the utility can determine readily for each such classification the number of company-owned meters in service (subdivided between active and inactive) and the number of meters carried herein but not in service, the latter to include meters undergoing repairs; and the number of meters in service owned by customers.

### 370. Receiving Wells

This account shall include the cost of constructing wells at pumping stations or at other junction points along the collecting system, used for intercepting wastewater for clearing and screening, transfer to a pumping well or otherwise further convey it along the collecting system to the treatment plant or point of final discharge. This account shall include any chemical feed apparatus and holding basins associated with the receiving well.

### 371. Pumping Equipment

This account shall include the cost installed of pumping equipment driven by electric power or diesel engines. A sample of items to be included in this account are listed below:

1. Motors or engines for driving pumps.
2. Pumps, including settings, gearing, shafting and belting.
3. Sewage piping within station, including valves.
4. Auxiliary equipment for motors and pumps such as oiling systems, cooling systems, condensers, etc.

## WASTEWATER UTILITY PLANT ACCOUNTS

5. Electrical power lines and switching.
6. Foundations, frames, and bed plates.
7. Hoist units.

374. Reuse Distribution Reservoirs

This account shall include the cost in place of reservoirs, tanks and appurtenances used in storing reclaimed water for distribution. A sample of items to be included in this account are listed below:

1. Bridges and culverts.
2. Clearing land.
3. Dams.
4. Embankments.
5. Fences.
6. Foundations.
7. Gates and gate houses.
8. Landscaping.
9. Lighting systems.
10. Piping system within reservoirs.
11. Retaining walls.
12. Roads and paths.
13. Rust-proofing apparatus.
14. Sewer drain or storm sewer.
15. Spillways and channels.
16. Standpipes.
17. Tanks.
18. Towers.
19. Valves.

375. Reuse Transmission and Distribution System

A. This account shall include the cost installed of reclaimed water transmission and distribution mains and appurtenances. A sample of items to be included in this account are listed below:

1. Air chambers.
2. Blow-offs and overflows.
3. Bridges and culverts.
4. Electrolysis control equipment.
5. Gauges and recorders.
6. Jointing and jointing material.
7. Manholes.
8. Meters and appurtenances.
9. Municipal inspection or permits.
10. Pavement disturbed, including cutting and replacing pavement, pavement base and sidewalks.
11. Pipes.
12. Fire mains.
13. Fire Hydrants.

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

B. Records supporting this account shall be so kept as to show separately the cost of mains of different sizes and types and of each tunnel, bridge, or river crossing.

### 380. Treatment and Disposal Equipment

This account shall include the cost installed of apparatus equipment and other facilities used for the treatment of wastewater, disposal of sewage wastes and the treatment of effluent for reuse. A sample of items to be included in this account are listed below:

1. Aeration chambers.
2. Chemical equipment.
3. Disinfection facilities.
4. Filters.
5. Imhoff tank.
6. Land fill equipment and appurtenances.
7. Monitoring equipment.
8. Oxidation pond or lagoon.
9. Sedimentation equipment.
10. Septic tank.
11. Screen unit.
12. Sludge system.
13. Trucks, tractors, or other equipment used primarily for sludge or other waste disposal.
14. Package mechanical treatment plant.
15. Sedimentation basin.
16. Sludge digestion equipment.
17. Sludge filtration or dewatering equipment.

### 381. Plant Sewers

This account shall include the cost installed of plant yard piping and appurtenances, and facilities required to dispose of treatment plant liquid effluent into the outfall sewer line. A sample of items to be included in this account are listed below:

1. Unit to unit sections of yard piping.
2. Valves and vaults.
3. Pipe tunnels and galleries.
4. Filter and filter backwash piping.

### 382. Outfall Sewer Lines

This account shall include the installed cost of sewer line carrying effluent from treatment facility to point of discharge. Includible in this account would be headwall or outlet.

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

### 389. Other Plant and Miscellaneous Equipment

This account shall include the cost installed of all other intangible, collection system pumping, treatment and disposal, reclaimed water treatment and reclaimed water distribution plant not provided for in the foregoing accounts.

### 390. Office Furniture and Equipment

A. This account shall include the cost of office furniture and equipment owned by the utility and devoted to utility service, and not permanently attached to buildings, except the cost of such furniture and equipment which the utility elects to assign to other plant accounts on a functional basis. A sample of items to be included in this account are listed below:

1. Book cases and shelves.
2. Desk, chairs, and desk equipment.
3. Drafting room equipment.
4. Electronic data processing equipment.
5. Filing, storage and other cabinets.
6. Floor covering.
7. Library and library equipment.
8. Mechanical office equipment such as accounting machines, typewriters, etc.
9. Safes.
10. Tables.

B. If the utility has equipment includible in this account at more than one location, separate records shall be maintained for each location.

### 391. Transportation Equipment

This account shall include the cost of transportation vehicles used for utility purposes. A sample of items to be included in this account are listed below:

1. Airplanes.
2. Automobiles.
3. Bicycles.
4. Electrical vehicles.
5. Motor trucks.
6. Motorcycles.
7. Repair cars or trucks.
8. Tractors and trailers.
9. Other transportation vehicles.

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

### 392. Stores Equipment

A. This account shall include the cost of equipment used for the receiving, shipping, handling and storage of materials and supplies.

B. If the utility has equipment includible in this account at more than one location, separate records shall be maintained for each location. A sample of items to be included in this account are listed below:

1. Chain falls.
2. Counters.
3. Cranes (portable).
4. Elevating and stacking equipment (portable).
5. Hoists.
6. Lockers.
7. Scales.
8. Shelving.
9. Storage bins.
10. Trucks, hand and power driven.
11. Wheelbarrows.

### 393. Tools, Shop and Garage Equipment

This account shall include the cost of tools, implements, and equipment used in construction, repair work, general shops and garages and not specifically provided for or includible in other accounts. A sample of items to be included in this account are listed below:

1. Air compressors.
2. Anvils.
3. Automobile repair shop equipment.
4. Battery charging equipment.
5. Belts, shafts and countershafts.
6. Boilers.
7. Cable pulling equipment.
8. Concrete mixers.
9. Drill presses.
10. Derricks.
11. Electric equipment.
12. Engines.
13. Forges.
14. Furnaces.
15. Foundations and settings specially constructed for and not expected to outlast the equipment for which provided.
16. Gas producers.
17. Gasoline pumps, oil pumps and storage tanks.
18. Greasing tools and equipment.

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

19. Hoists.
20. Ladders.
21. Lathes.
22. Machine tools.
23. Motor driven tools.
24. Motors.
25. Pipe threading and cutting tools.
26. Pneumatic tools.
27. Pumps.
28. Riveters.
29. Smithing equipment.
30. Tool racks.
31. Vises.
32. Welding apparatus.
33. Work benches.

### 394. Laboratory Equipment

A. This account shall include the cost installed of laboratory equipment used for general laboratory purposes and not specifically provided for or includible in other departmental or functional plant accounts. A sample of items to be included in this account are listed below:

1. Autoclaves.
2. Barometers.
3. Cameras.
4. Centrifuge.
5. Distilling apparatus.
6. Furnaces.
7. Microscopes.
8. Ovens.
9. Pitometers.
10. Rain gauges.
11. Refrigerators.
12. Scales.
13. Sterilizers.
14. Stop watches.
15. Testing machines.
16. Therometers.
17. Voltmeters.
18. Other bacteriological, electric, chemical hydraulic or research equipment.

B. If the utility has equipment includible in this account at more than one location, separate records shall be maintained for each location.

# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

### 395. Power Operated Equipment

This account shall include the cost of power operated equipment used in construction or repair work exclusive of equipment includible in other accounts. Include, also, the tools and accessories acquired for use with such equipment and the vehicle on which such equipment is mounted. A sample of items to be included in this account are listed below:

1. Air compressors, including driving unit and vehicle.
2. Back filling machines.
3. Boring machines.
4. Bulldozers.
5. Cranes and joists.
6. Diggers.
7. Engines.
8. Pile drivers.
9. Pipe cleaning machines.
10. Pipe coating or wrapping machines.
11. Tractors - Crawler type.
12. Trenchers.
13. Other power operated equipment.

Note:--It is intended that this account include only such large units as are generally self-propelled or mounted on moveable equipment.

### 396. Communication Equipment

This account shall include the cost installed of telephone, telegraph and wireless equipment for general use in connection with utility operations. A sample of items to be included in this account are listed below:

1. Antennae.
2. Booths.
3. Cables.
4. Distribution boards.
5. Extension cords.
6. Gongs.
7. Handsets, manual and dial.
8. Insulators.
9. Intercommunicating sets.
10. Loading coils.
11. Operators desks.
12. Poles and fixtures used wholly for telephone and telegraph wires.
13. Radio transmitting and receiving sets.
14. Remote control equipment and lines.
15. Sending keys.
16. Storage batteries.



# APPENDIX A-5.1 (AUS)

## WASTEWATER UTILITY PLANT ACCOUNTS

17. Switchboards.
18. Teleautograph circuit connections.
19. Telegraph receiving sets.
20. Telephone and telegraph circuits.
21. Testing instruments.
22. Towers.
23. Underground conduit used wholly for telephone or telegraph wires and cable wires.

### 397. Miscellaneous Equipment

This account shall include the cost of equipment, apparatus, etc., used in utility operations, and which is not includible in any other account. A sample of items to be included in this account are listed below:

1. Hospital and infirmary equipment.
2. Kitchen equipment.
3. Recreation equipment.
4. Radios.
5. Restaurant equipment.
6. Soda fountains.
7. Operator's cottage furnishings.
8. Electric signs advertising the corporate name or symbol, plant or facility name, or otherwise serving only the general purpose of acquainting the public with the facilities and services of the utility.
9. Other miscellaneous equipment.

Note:--Miscellaneous equipment of the nature indicated above wherever practicable shall be included in the utility plant accounts on a functional basis.

### 398. Other Tangible Plant

This account shall include the cost of tangible utility plant not provided for elsewhere.

# APPENDIX A-5.1 (AUS)

## Jerry Weinert

---

**From:** Frank A. Ciufu <FCiufu@Pennoni.com>  
**Sent:** Wednesday, May 13, 2020 11:05 AM  
**To:** Jerry Weinert; Walker, Harold, III  
**Cc:** Scott Shearer; Scott D Fogelsanger; Wyatt, Thomas; Khaled R. Hassan; 'mleonard@royersfordborough.org'  
**Subject:** RE: Royersford UVE Appraisal  
**Attachments:** Asset List\_code-year - mark up 5-13-20.pdf

Jerry, Harold,

Mike Leonard provided me with some additional records. In the course of reviewing them, I found that the sewer main on Forth Avenue was installed in 1994 not 1985 as first thought.

In order to stay consistent with some other data lists we have generated, attached is the Asset list marked up with the new year and cost estimate.

If you have any questions, let me know.

## Frank A. Ciufu, PE

### Pennoni

1501 Main Street, Suite 220 | Warrington, PA 18976

**Direct:** +1 (215) 589-6036 | **Mobile:** +1 (267) 221-6733

[www.pennoni.com](http://www.pennoni.com) | [FCiufu@Pennoni.com](mailto:FCiufu@Pennoni.com)

**From:** Frank A. Ciufu  
**Sent:** Monday, May 11, 2020 5:18 PM  
**To:** Jerry Weinert (weinertj@AUSWest.net) <weinertj@AUSWest.net>; Walker, Harold, III <hwalker@GFNET.com>  
**Cc:** Brian A Ardire <Brian.A.Ardire@amwater.com>; Susan S Marsh <Susan.Marsh@amwater.com>; Liz R Triscari <Elizabeth.Triscari@amwater.com>; Benjamin Kapenstein <KAPENSTEINB@pfm.com>; Scott Shearer <SHEARERS@pfm.com>; Scott D Fogelsanger <Scott.Fogelsanger@amwater.com>; Wyatt, Thomas <thomas.wyatt@obermayer.com>; Khaled R. Hassan <KHassan@Pennoni.com>  
**Subject:** RE: Royersford UVE Appraisal

Attached are the final pay applications and the system sewer map that was used for bidding for each of the project. I also included the change order for the 2012 project since there was a significant change.

Let me know if you need anything else.

## Frank A. Ciufu, PE

### Pennoni

1501 Main Street, Suite 220 | Warrington, PA 18976

**Direct:** +1 (215) 589-6036 | **Mobile:** +1 (267) 221-6733

[www.pennoni.com](http://www.pennoni.com) | [FCiufu@Pennoni.com](mailto:FCiufu@Pennoni.com)

# APPENDIX A-5.1 (AUS)

**From:** Scott D Fogelsanger <[Scott.Fogelsanger@amwater.com](mailto:Scott.Fogelsanger@amwater.com)>  
**Sent:** Monday, May 11, 2020 1:22 PM  
**To:** Wyatt, Thomas <[thomas.wyatt@obermayer.com](mailto:thomas.wyatt@obermayer.com)>  
**Cc:** Brian A Ardire <[Brian.A.Ardire@amwater.com](mailto:Brian.A.Ardire@amwater.com)>; Susan S Marsh <[Susan.Marsh@amwater.com](mailto:Susan.Marsh@amwater.com)>; Liz R Triscari <[Elizabeth.Triscari@amwater.com](mailto:Elizabeth.Triscari@amwater.com)>; Jerry Weinert ([weinertj@AUSWest.net](mailto:weinertj@AUSWest.net)) <[weinertj@AUSWest.net](mailto:weinertj@AUSWest.net)>; Walker, Harold, III <[hwalker@GFNET.com](mailto:hwalker@GFNET.com)>; Frank A. Ciufu <[FCiufu@Pennoni.com](mailto:FCiufu@Pennoni.com)>; Benjamin Kapenstein <[KAPENSTEINB@pfm.com](mailto:KAPENSTEINB@pfm.com)>; Scott Shearer <[SHEARERS@pfm.com](mailto:SHEARERS@pfm.com)>  
**Subject:** FW: Royersford UVE Appraisal

Tom,

See below a request from our appraiser (AUS). Please provide this info. to both appraisers (AUS & GF).

Thanks,

Scott D. Fogelsanger  
Senior Manager - Business Development  
Pennsylvania-American Water Company

852 Wesley Drive  
Mechanicsburg, PA 17055  
717-550-1509 (office) \*\* New Number \*\*  
717-875-2282 (cell)  
[Scott.Fogelsanger@amwater.com](mailto:Scott.Fogelsanger@amwater.com)

**From:** Jerry Weinert <[weinertj@auswest.net](mailto:weinertj@auswest.net)>  
**Sent:** Saturday, May 09, 2020 1:14 PM  
**To:** Scott D Fogelsanger <[Scott.Fogelsanger@amwater.com](mailto:Scott.Fogelsanger@amwater.com)>  
**Cc:** Bernard J Grundusky <[Bernie.Grundusky@amwater.com](mailto:Bernie.Grundusky@amwater.com)>  
**Subject:** Royersford UVE Appraisal

**EXTERNAL EMAIL:** The Actual Sender of this email is [weinertj@auswest.net](mailto:weinertj@auswest.net) "Think before you click!".

Scott & Bernie,

Could I get a little more detail related to the Pennoni Engineers Assessment, specifically about the conveyance mains relining detailed in the EA as:

361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING				
361.22	2012 CIPP Lining	2013			\$191,498
361.22	2013 CIPP Lining	2014			\$369,468
361.22	2016 CIPP Lining	2015			\$181,979
361.22	TOTAL COLLECTION SEWERS -GRAVITY MAINS - RELINING				\$742,945

Jerry Weinert  
414-698-8371 cell

# APPENDIX A-5.1 (AUS)

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error, please notify the sender. Please note that any views or opinions presented in this email are solely those of the author and do not necessarily represent those of American Water Works Company Inc. or its affiliates. The recipient should check this email and any attachments for the presence of viruses. American Water accepts no liability for any damages caused by any virus transmitted by this email. American Water Works Company Inc., 1 Water Street, Camden, NJ 08102

[www.amwater.com](http://www.amwater.com)

APPENDIX A-5.1 (AUS)

# APPENDIX A-5.1 (AUS)

<u>ACCOUNT</u>	<u>DESCRIPTION</u>	<u>YEAR</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>ORIGINAL COST</u>	
<u>353.2</u>	<u>LAND AND LAND RIGHTS - COLLECTION</u>					
	Collection system ROW Properties 3,4,5,6,7,8,9,10 and 11	1937		\$3	\$3	
	Collection system ROW Properties 1 and 2	1961		\$10.00	\$10.00	
	TOTAL LAND AND LAND RIGHTS - COLLECTION				\$13.00	
<u>353.3</u>	<u>LAND AND LAND RIGHTS - PUMPING</u>					
	10th Ave. Pump Station (Property 13)	2000		\$39.00	\$39.00	
	TOTAL LAND AND LAND RIGHTS - PUMPING				\$39.00	
<u>353.4</u>	<u>LAND AND LAND RIGHTS - TREATMENT</u>					
	Wastewater Treatment Plant	1935		\$3,000	\$3,000	
	TOTAL LAND AND LAND RIGHTS - TREATMENT				\$3,000	
<u>354.3</u>	<u>STRUCTURES AND IMPROVEMENTS - PUMPING</u>					
	10th Avenue PS - Initial Facility	1935		\$6,542	\$6,542	
	Green Street Pump Station - Initial Facility	1958		\$25,335	\$25,335	
	Green Street PS improvements	1988		\$140	\$140	
	Green Street PS improvements	1989		\$64,986	\$64,986	
	Green Street PS improvements	1990		\$25,978	\$25,978	
	10th Ave PS - Replaced pumps and grinder	2000		\$91,694	\$91,694	
	drainage improvements	2011		\$6,691	\$6,691	
	drainage improvements	2012		\$15,071	\$15,071	
	Electrical improvements	2019		\$13,000	\$13,000	
	TOTAL STRUCTURES AND IMPROVEMENTS - PUMPING					\$249,437
	<u>354.4</u>	<u>STRUCTURES AND IMPROVEMENTS TREATMENT PLANT</u>				
Initial facility cost including pumps, building, treatment		1935		\$225,721	\$225,721	
structures, fencing, property, etc.		1993		\$62,901	\$62,901	
Digester Cover		2014		\$3,850	\$3,850	
Furnace		2015		\$20,773	\$20,773	
	TOTAL STRUCTURES AND IMPROVEMENTS TREATMENT PLANT				\$313,245	
<u>355.3</u>	<u>POWER GENERATION - PUMPING</u>					
	10th Avenue Pump Station Generator	2000		\$45,847	\$45,847	
	Green Street Pump Station Generator	2012		\$21,392	\$21,392	
	TOTAL POWER GENERATION - PUMPING				\$67,239	

# APPENDIX A-5.1 (AUS)

<u>ACCOUNT</u>	<u>DESCRIPTION</u>	<u>YEAR</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>ORIGINAL COST</u>
<u>355.4</u>	<u>POWER GENERATION - TREATMENT AND DISPOSAL PLANT</u> WWTP Generator	2008			\$303,849
	TOTAL POWER GENERATION - TREATMENT AND DISPOSAL PLANT				\$303,849
<u>360.2</u>	<u>COLLECTION SEWERS - FORCE MAINS</u> 10th Ave. Forcemain	1935	3,500 LF	\$5.31	\$18,585
	Green Street Forcemain	1958	680 LF	\$19.02	\$12,937
	TOTAL COLLECTION SEWERS - FORCE MAINS				\$31,522
<u>361.21</u>	<u>COLLECTION SEWERS - GRAVITY MAINS</u> VCP - 8-inch	1935	35,257	\$3.39	\$119,688
	VCP - 10-inch	1935	910	\$5.21	\$4,737
	VCP - 12-inch	1935	2,029	\$6.76	\$13,710
	VCP - 15-inch	1935	4,011	\$8.64	\$34,652
	CIP - 15-inch	1935	205	\$9.37	\$1,920
	VCP - 8-inch	1936	21,322	\$3.43	\$73,210
	VCP - 10-inch	1936	545	\$5.21	\$2,838
	VCP - 12-inch	1936	1,216	\$6.76	\$8,213
	VCP - 15-inch	1936	2,403	\$8.64	\$20,759
	VCP - 8-inch	1955	350	\$3.25	\$1,136
	VCP - 8-inch	1972	336	\$9.61	\$3,228
	<b>1994</b> - 270	<b>1995</b> - 26.57			<b>7,173</b> <del>\$5,554</del>
	PVC - 8-inch	1990	385	\$25.93	\$9,984
	PVC - 8-inch	1992	566	\$27.32	\$15,463
	PVC - 8-inch	1995	185	\$29.98	\$5,547
	TOTAL COLLECTION SEWERS - GRAVITY MAINS				<del>\$320,640</del> <b>322,259</b>
<u>361.22</u>	<u>COLLECTION SEWERS - GRAVITY MAINS - RELINING</u> 2012 CIPP Lining	2013		7173	\$191,498
	2013 CIPP Lining	2014		5554	\$369,468
	2016 CIPP Lining	2015			\$181,979
	TOTAL COLLECTION SEWERS - GRAVITY MAINS - RELINING				\$742,945
<u>361.23</u>	<u>COLLECTION SEWERS - GRAVITY - MANHOLES</u> Initial installation	1935	171	\$87.68	\$14,993
	System expansion	1936	78	\$116.00	\$9,048
	S. Third Ave	1955	1	\$295.00	\$295

# APPENDIX A-5.1 (AUS)

<u>ACCOUNT</u>	<u>DESCRIPTION</u>	<u>YEAR</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>ORIGINAL COST</u>
	6th St. at Church St.	1972	1	\$782.17	\$782
	S. Fourth Ave	1985	1	\$1,870.00	\$1,870
	Elm St.	1990	2	\$2,111.37	\$4,223
	Elementary School	1992	4	\$2,224.25	\$8,897
	6th St near Pine	1995	1	\$2,441.10	\$2,441
	TOTAL COLLECTION SEWERS -GRAVITY - MANHOLES				<u>\$42,549</u>
<b><u>363.20</u></b>	<b><u>SERVICE TO CUSTOMERS</u></b>				
	VCP - 5-inch	1935	16520	\$0.89	\$14,754
	VCP - 5-inch	1936	9896	\$0.90	\$8,919
	VCP -6-inch	1972	326	\$9.61	\$3,132
	PVC - 6-inch	1990	80	\$25.93	\$2,075
	PVC - 6-inch	2013	20	\$165.00	\$3,300
	TOTAL SERVICE TO CUSTOMERS		26842		<u>\$32,180</u>
<b><u>364.3</u></b>	<b><u>FLOW MEASURING DEVICES - PUMPING</u></b>				
	Pump Stations	2011			\$7,997
	TOTAL FLOW MEASURING DEVICES - PUMPING				<u>\$7,997</u>
<b><u>364.4</u></b>	<b><u>FLOW MEASURING DEVICES - WWTP</u></b>				
	WWTP	2011			\$9,930
	TOTAL FLOW MEASURING DEVICES - WWTP				<u>\$9,930</u>
<b><u>371.4</u></b>	<b><u>PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT</u></b>				
	Sludge Transfer Pumps	2005			\$9,925
	Raw and Recirculation Pumps	2010			\$131,000
	Replaced VFDs	2018			\$35,004
	TOTAL PUMPING EQUIPMENT - TREATMENT AND DISPOSAL PLANT				<u>\$175,929</u>
<b><u>380.4</u></b>	<b><u>TREATMENT AND DISPOSAL EQUIPMENT</u></b>				
	Facility improvements including new clarifiers, sludge digester, lab building and trickling filters	1951			\$354,456
	Miscellaneous improvements	1986			\$22,410
	Miscellaneous improvements	1987			\$550
	Facility improvements including new influent pump station and office building.	1998			\$1,462,008
	Upgrades to clarifiers, recirculation pumps and trickling filters.	2006			\$1,500
	Chlorination System	2007			\$15,000
	Dechlorination System				



# APPENDIX A-5.1 (AUS)

<u>ACCOUNT</u>	<u>DESCRIPTION</u>	<u>YEAR</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>ORIGINAL COST</u>
	New influent and recirculation pumps, clarifiers, influent screening chamber. Upgrades to existing clarifiers, piping and flow diversion chambers.	2010			\$2,785,371
	Screen Unit	2010			\$75,000
	Settling Tank Equipment	2010			\$171,000
	PAC system	2011			\$8,993
	Furnace	2014			\$3,850
	miscellaneous improvements	2015			\$44,411
	Grinder Rebuild	2016			\$11,091
	Settling Tank repairs, digester improvements	2020			\$396,120
	<b>TOTAL TREATMENT AND DISPOSAL EQUIPMENT</b>				<b>\$5,351,760</b>
<b>390.7</b>	<b><u>EQUIPMENT - GENERAL PLANT</u></b>				
	Security camera	2015			\$7,325
	<b>TOTAL EQUIPMENT - GENERAL PLANT</b>				<b>\$7,325</b>
<b>396.7</b>	<b><u>COMMUNICATION EQUIPMENT - GENERAL PLANT</u></b>				
	Transmitter	2015			\$5,275
	<b>TOTAL COMMUNICATION EQUIPMENT - GENERAL PLANT</b>				<b>\$5,275</b>

# APPENDIX A-5.1 (AUS)

**Jerry Weinert**

---

**From:** Frank A. Ciufu <FCiufu@Pennoni.com>  
**Sent:** Monday, May 11, 2020 4:18 PM  
**To:** Jerry Weinert; Walker, Harold, III  
**Cc:** Brian A Ardire; Susan S Marsh; Liz R Triscari; Benjamin Kapenstein; Scott Shearer; Scott D Fogelsanger; Wyatt, Thomas; Khaled R. Hassan  
**Subject:** RE: Royersford UVE Appraisal  
**Attachments:** 2016 Sewer Lining Map 2-15-16.pdf; DRAWING NO. S1 – 2012 SANITARY SEWER LINING.pdf; 2012 Lining final payment.pdf; 2012 change order 1.pdf; 2013 lining final payment.pdf; 2013 Wastewater Facilities Map.pdf; 2016 Pay app #3 - final.pdf

Attached are the final pay applications and the system sewer map that was used for bidding for each of the project. I also included the change order for the 2012 project since there was a significant change.

Let me know if you need anything else.

**Frank A. Ciufu, PE**

**Pennoni**

1501 Main Street, Suite 220 | Warrington, PA 18976  
**Direct:** +1 (215) 589-6036 | **Mobile:** +1 (267) 221-6733  
www.pennoni.com | FCiufu@Pennoni.com

**From:** Scott D Fogelsanger <Scott.Fogelsanger@amwater.com>  
**Sent:** Monday, May 11, 2020 1:22 PM  
**To:** Wyatt, Thomas <thomas.wyatt@obermayer.com>  
**Cc:** Brian A Ardire <Brian.A.Ardire@amwater.com>; Susan S Marsh <Susan.Marsh@amwater.com>; Liz R Triscari <Elizabeth.Triscari@amwater.com>; Jerry Weinert (weinertj@AUSWest.net) <weinertj@AUSWest.net>; Walker, Harold, III <hwalker@GFNET.com>; Frank A. Ciufu <FCiufu@Pennoni.com>; Benjamin Kapenstein <KAPENSTEINB@pfm.com>; Scott Shearer <SHEARERS@pfm.com>  
**Subject:** FW: Royersford UVE Appraisal

Tom,

See below a request from our appraiser (AUS). Please provide this info. to both appraisers (AUS & GF).

Thanks,

Scott D. Fogelsanger  
Senior Manager - Business Development  
Pennsylvania-American Water Company

852 Wesley Drive  
Mechanicsburg, PA 17055  
717-550-1509 (office) \*\* New Number \*\*  
717-875-2282 (cell)  
[Scott.Fogelsanger@amwater.com](mailto:Scott.Fogelsanger@amwater.com)

# APPENDIX A-5.1 (AUS)

**From:** Jerry Weinert <[weinertj@auswest.net](mailto:weinertj@auswest.net)>  
**Sent:** Saturday, May 09, 2020 1:14 PM  
**To:** Scott D Fogelsanger <[Scott.Fogelsanger@amwater.com](mailto:Scott.Fogelsanger@amwater.com)>  
**Cc:** Bernard J Grundusky <[Bernie.Grundusky@amwater.com](mailto:Bernie.Grundusky@amwater.com)>  
**Subject:** Royersford UVE Appraisal

**EXTERNAL EMAIL:** The Actual Sender of this email is [weinertj@auswest.net](mailto:weinertj@auswest.net) "Think before you click!".

Scott & Bernie,

Could I get a little more detail related to the Pennoni Engineers Assessment, specifically about the conveyance mains relining detailed in the EA as:

361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING				
361.22	2012 CIPP Lining	2013			\$191,498
361.22	2013 CIPP Lining	2014			\$369,468
361.22	2016 CIPP Lining	2015			\$181,979
361.22	TOTAL COLLECTION SEWERS -GRAVITY MAINS - RELINING				\$742,945

It would be useful to know what mains Installation date, size, type and footages of the original mains which were relined. This is critical as I feel the condition of the relined mains needs to reflect the relining.

Jerry Weinert  
414-698-8371 cell

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error, please notify the sender. Please note that any views or opinions presented in this email are solely those of the author and do not necessarily represent those of American Water Works Company Inc. or its affiliates. The recipient should check this email and any attachments for the presence of viruses. American Water accepts no liability for any damages caused by any virus transmitted by this email. American Water Works Company Inc., 1 Water Street, Camden, NJ 08102  
[www.amwater.com](http://www.amwater.com)

October 31, 2016

ROYR0901.22

Michael A. Leonard, Borough Manager  
Borough of Royersford  
300 Main Street  
Royersford, PA 19468

2016 Pay app #3  
- final.pdf

**RE: Borough of Royersford  
Corrective Action Plan – 2016 Sanitary Sewer Lining  
Contract S16-01 - Payment Application No. 3 (Final Payment)**

Dear Mr. Leonard:

We have reviewed the attached request for payment No. 3 for the subject project submitted by National Water Main Cleaning Co. (NWMCC). We recommend the approval of the Final Payment in the amount of \$33,044.85 as outlined below.

The following is a summary of the status of the account:

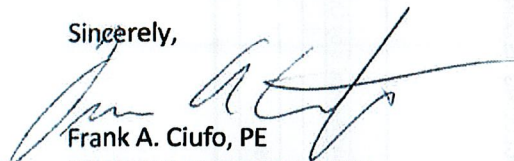
Original Contract Amount.....	\$ 151,289.50
Net Change Orders .....	\$ 456.50
<b>Total Contract to Date .....</b>	<b>\$ 151,746.00</b>
Previous Payments.....	\$ 118,701.15
<b>This Payment .....</b>	<b>\$ 33,044.85</b>
<b>Balance After the Release .....</b>	<b>\$ 0.00</b>
(including retainage)	

Please note that NWMCC submitted an invoice in the amount of \$20,012.00 directly to the Borough in the month of June, 2016. The Borough approved and paid the invoice. We have designated this payment as "Payment #3", there will be no further documentation for Payment 1. We have requested a copy of the invoice from NWMCC for our files.

Also attached are copies of the close out document for Contractor's Release and Statement of Surety.

Should you have any questions, please feel free to contact us.

Sincerely,

  
Frank A. Ciuffo, PE  
**PENNONI ASSOCIATES INC.**  
Senior Engineer

FAC/

Attachments:

cc: Javiel Rivera - NWMCC

AIA Form

**APPLICATION AND CERTIFICATION FOR PAYMENT**

**TO OWNER:** Borough of Royersford  
300 Main Street  
Royersford, PA 19468

**PROJECT:** No. S16-01  
2016 Sanitary Sewer Lining Contract

**FROM CONTRACTOR:** National Water Main Cleaning  
1806 Newark Turnpike  
Kearny, NJ 07032

**APPLICATION NO:** 003

**PERIOD TO:** 7/1-10/15/2016

**CONTRACT FOR:** S16-01

**CONTRACT DATE:** 4/4/2016

**CONTRACTOR'S APPLICATION FOR PAYMENT**

Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet is attached.

1. ORIGINAL CONTRACT SUM.....	\$151,289.50
2. Net change by Change Orders.....	\$456.50
3. CONTRACT SUM TO DATE (Line 1+2).....	\$151,746.00
4. TOTAL COMPLETED AND STORED TO DATE.....	\$ 151,746.00
5. RETAINAGE (5% of completed work) .....	\$ -
6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5) .....	\$ 151,746.00
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT .....	\$118,701.15
8 CURRENT PAYMENT DUE .....	\$ 33,044.85

**CONTRACTOR CERTIFICATION**

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Continuation Sheet is attached.

Application for Payment has been completed in accordance with the Contract Documents. That all amounts have been paid by CONTRACTOR:

National Water Main Cleaning  
1806 Newark Turnpike  
Kearny, NJ 07032  
BY: *Richard Luddy* Date: 10/31/16

**ENGINEER'S CERTIFICATE FOR PAYMENT**

In accordance with the Contract Documents, Based on on-site observations and the data comprising this application, the Engineer certifies to the Owner that to the best of the Engineer's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED ..... **\$33,044.85**

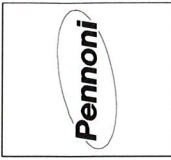
CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$3,850.00	\$0.00
Total approved this Month	\$3,268.50	\$6,662.00
<b>TOTALS</b>	<b>\$7,118.50</b>	<b>\$6,662.00</b>
NET CHANGES by Change Order		\$456.50

(Attach an explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

Engineer:  
BY: \_\_\_\_\_ Date: \_\_\_\_\_

This certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment & acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

# APPENDIX A-5.1 (AUS)



DATE	NO.	REVISIONS
2/2/18	1	CORRECTED SHEETS
APR		

ALL DIMENSIONS MUST BE VERIFIED IN THE FIELD AND DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

2016 SANITARY SEWER LINING  
 CONTRACT S16-01  
 BOROUGH OF ROVERSBORO  
 MONTGOMERY COUNTY, PA

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES INC. SHALL BE THE PROPERTY OF PENNONI ASSOCIATES INC. AND SHALL NOT BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF PENNONI ASSOCIATES INC.

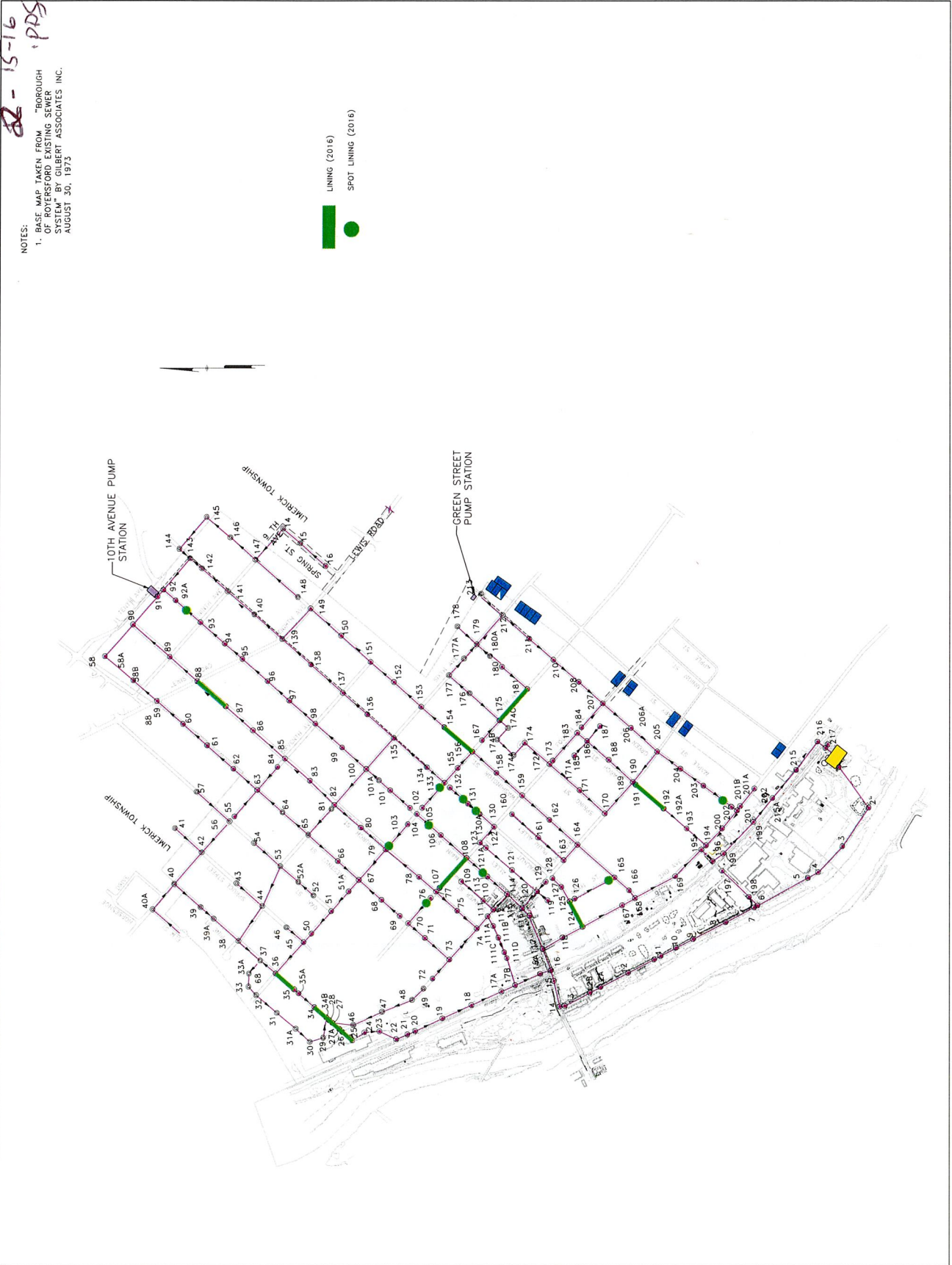
JOB NO. R016-0001-22	SHEET 1 of 1
DRAWING NO.	S-1
DATE	12/01/15
APPROVED	
FAC	

Pennoni Associates Inc. One Drexel Plaza, 3001 Market Street Phila., Pa. 19104 Consulting Engineers

2016 Sewer Lining Map

NOTES:  
 1. BASE MAP TAKEN FROM "BOROUGH OF ROVERSBORO EXISTING STREETS AND SEWER SYSTEM" BY CILBERT ASSOCIATES INC. AUGUST 30, 1973

15-16  
 PPS



APPENDIX A-5.1 (AUS)

# APPENDIX A-5.1 (AUS)

National Water Main Clearing Company  
1808 Newark Turnpike  
Kearny, NJ 07032

Borough of Royersford  
National Water Main Clearing Company  
2018 Sanitary Sewer Lining Contract No. S16-01  
S16-01  
Payment Request No. 3

ITEM NO.	DESCRIPTION OF WORK	BID		PREVIOUS APPLICATION		THIS PERIOD		TOTAL COMPLETED AND STORED TO DATE	TOTAL QUANTITY TO DATE	%	BALANCE TO FINISH	RETAINAGE
		QTY	UNIT PRICE	CONTRACT AMOUNT	QUANTITY	AMOUNT	QUANTITY					
1	5TH AVE - 8" CURED-IN-PLACE PIPE LINING	414	L F \$ 43.50	\$ 18,009.00	414.00	\$ 18,009.00	0	\$ 0.00	414.00	100.00	\$ -	\$ 900.45
2	5TH AVE - LATERAL REINSTATEMENT ALONG B" SEWER	13	EA \$ 50.00	\$ 650.00	14.00	\$ 700.00	0	\$ 0.00	14.00	107.69	\$ (50.00)	\$ 35.00
3	WALNUT ST - 8" CURED-IN-PLACE PIPE LINING	300	L F \$ 43.50	\$ 13,050.00	258.00	\$ 11,196.00	0	\$ 0.00	258.00	86.33	\$ 1,814.00	\$ 658.80
4	WALNUT ST - LATERAL REINSTATEMENT ALONG B" SEWER	2	EA \$ 50.00	\$ 100.00	10.00	\$ 500.00	0	\$ 0.00	10.00	500.00	\$ (400.00)	\$ 25.00
5	WALNUT ST - CUT PROTRUDING LATERAL IN B" SEWER	2	EA \$ 150.00	\$ 300.00	3.00	\$ 450.00	1	\$ 150.00	4.00	200.00	\$ (300.00)	\$ 30.00
6	WASHINGTON ST - 8" CURED-IN-PLACE PIPE LINING	350	L F \$ 43.50	\$ 15,225.00	355.00	\$ 15,442.50	0	\$ 0.00	355.00	101.43	\$ (217.50)	\$ 37.93
7	WASHINGTON ST - LATERAL REINSTATEMENT ALONG B" SEWER	10	EA \$ 50.00	\$ 500.00	16.00	\$ 750.00	0	\$ 0.00	16.00	160.00	\$ (250.00)	\$ 35.00
8	WASHINGTON ST - CUT PROTRUDING LATERAL IN B" SEWER	2	EA \$ 150.00	\$ 300.00	2.00	\$ 300.00	0	\$ 0.00	2.00	100.00	\$ -	\$ 15.00
9	N 4TH AVE - 8" CURED-IN-PLACE PIPE LINING	352	L F \$ 43.50	\$ 15,312.00	360.00	\$ 15,660.00	0	\$ 0.00	360.00	102.27	\$ (48.00)	\$ 783.00
10	N 4TH AVE - LATERAL REINSTATEMENT ALONG B" SEWER	10	EA \$ 50.00	\$ 500.00	11.00	\$ 550.00	0	\$ 0.00	11.00	110.00	\$ (60.00)	\$ 783.00
11	CHURCH ST - 8" CURED-IN-PLACE PIPE LINING	350	L F \$ 43.50	\$ 15,225.00	368.00	\$ 16,008.00	0	\$ 0.00	368.00	105.14	\$ (783.00)	\$ 800.40
12	CHURCH ST - LATERAL REINSTATEMENT ALONG B" SEWER	4	EA \$ 50.00	\$ 200.00	8.00	\$ 400.00	0	\$ 0.00	8.00	200.00	\$ (200.00)	\$ 20.00
13	PINE ST - 8" CURED-IN-PLACE PIPE LINING	577	L F \$ 43.50	\$ 25,066.50	577.00	\$ 25,066.50	0	\$ 0.00	577.00	100.00	\$ -	\$ 1,254.88
14	PINE ST - LATERAL REINSTATEMENT ALONG B" SEWER	12	EA \$ 50.00	\$ 600.00	13.00	\$ 650.00	0	\$ 0.00	13.00	108.33	\$ (50.00)	\$ 32.50
15	PINE ST - 15" CURED-IN-PLACE PIPE LINING	138	L F \$ 43.50	\$ 5,901.00	0.00	\$ 0.00	138	\$ 0.00	138.00	100.00	\$ -	\$ 300.15
16	PINE ST - LATERAL REINSTATEMENT ALONG 15" SEWER	2	EA \$ 50.00	\$ 100.00	0.00	\$ 0.00	2	\$ 100.00	2.00	100.00	\$ -	\$ 5.00
17	MAIN ST - TWO B" CURED-IN-PLACE POINT REPAIRS PIPE LINING	19	L F \$ 254.00	\$ 4,826.00	8.00	\$ 2,032.00	9	\$ 2,288.00	17.00	89.47	\$ 508.00	\$ 213.50
18	MAIN ST - CUT PROTRUDING LATERAL IN B" SEWER	1	EA \$ 150.00	\$ 150.00	0.00	\$ 0.00	1	\$ 150.00	1.00	100.00	\$ -	\$ 7.50
19	WALNUT ST - TWO B" CURED-IN-PLACE REPAIRS PIPE LINING	24	L F \$ 205.00	\$ 4,920.00	18.00	\$ 3,680.00	18.00	\$ 3,680.00	16.00	66.67	\$ 1,840.00	\$ 184.00
20	STHANE - TWO B" CURED-IN-PLACE POINT REPAIRS PIPE LINING	30	L F \$ 150.00	\$ 4,500.00	30.00	\$ 4,500.00	30.00	\$ 4,500.00	30.00	100.00	\$ -	\$ 225.00
21	GREEN ST - 8" CURED-IN-PLACE POINT REPAIRS PIPE LINING	10	L F \$ 300.00	\$ 3,000.00	3.00	\$ 900.00	8.00	\$ 2,400.00	8.00	80.00	\$ 600.00	\$ 120.00
22	4TH AVE - 8" CURED-IN-PLACE POINT REPAIRS PIPE LINING	3	L F \$ 150.00	\$ 450.00	5.00	\$ 750.00	5.00	\$ 750.00	5.00	166.67	\$ (300.00)	\$ 37.50
23	ADAMS ST - 8" CURED-IN-PLACE POINT REPAIRS PIPE LINING	6	L F \$ 400.00	\$ 2,400.00	6.00	\$ 2,400.00	6.00	\$ 2,400.00	6.00	100.00	\$ -	\$ 120.00
24	ARCH ST EASEMENT - 12" CURED-IN-PLACE PIPE LINING	330	L F \$ 54.00	\$ 17,820.00	0.00	\$ 0.00	335	\$ 18,090.00	335.00	101.52	\$ (270.00)	\$ 948.90
25	ARCH ST EASEMENT - LATERAL REINSTATEMENT ALONG 12" SEWER	1	EA \$ 50.00	\$ 50.00	0.00	\$ 0.00	1	\$ 50.00	1.00	100.00	\$ -	\$ 2.50
26	JOINT GROUTING AS DIRECTED BY THE ENGINEER	200	GAL \$ 10.00	\$ 2,000.00	0.00	\$ 0.00	0.00	\$ 0.00	0.00	0.00	\$ 2,000.00	\$ -
27	MAIN ST - REINSTATEMENT ALONG B" SEWER - REINSTATEMENT TAP DID NOT CUT PROTRUDING TAP	1	EA \$ 50.00	\$ 50.00	0.00	\$ 0.00	0	\$ 0.00	0.00	0.00	\$ -	\$ 2.50
28	WASHINGTON ST MH154 - MH156 CIPP - CHANGE ORDER	10	L F \$ 375.00	\$ 3,750.00	10.00	\$ 3,750.00	10.00	\$ 3,750.00	10.00	100.00	\$ -	\$ 187.50
	WASHINGTON ST MH154 - MH158 LATERAL REINSTATEMENTS - CHANGE ORDER	2	EA \$ 50.00	\$ 100.00	2.00	\$ 100.00	2.00	\$ 100.00	2.00	100.00	\$ -	\$ 5.00
				\$ 151,238.50		\$ 124,917.00		\$ 38,321.50			\$ 3,443.50	\$ 7,587.20



APPENDIX A-5.1 (AUS)



PENNONI ASSOCIATES INC.  
CONSULTING ENGINEERS

2012 Lining final  
payment.pdf

May 9, 2013

ROYR0901.06.02

Michael A. Leonard, Borough Manager  
Borough of Royersford  
300 Main Street  
Royersford, PA 19468

**RE: Borough of Royersford  
2012 Corrective Action Plan – Sanitary Sewer Lining  
Payment Application No. 2 (Final Payment)**

Dear Mr. Leonard:

We have reviewed the attached request for payment for the subject project submitted by Allstate Power-Vac, Inc. We recommend the approval of the final payment in the amount outlined below.

The following is a summary of the status of the account:

Original Contract Amount.....	\$ 156,393.00
Net Change Orders .....	\$ <u>(12,856.10)</u>
<b>Total Contract to Date .....</b>	<b>\$ 143,536.90</b>
 Previous Payments .....	 \$ 103,890.06
<b>This Payment .....</b>	<b>\$ <u>39,646.84</u></b>
<b>Balance After the Release .....</b>	<b>\$ 0.00</b>

We trust this information is satisfactory. Should you have any questions, please feel free to give us a call.

Sincerely,

Frank A. Ciufu, P.E.  
PENNONI ASSOCIATES INC.  
Borough Sewer Engineer

FC/  
Attachments

cc: Al Hickson, Allstate Power-Vac, Inc.  
Khal Hassan



**PENNONI ASSOCIATES INC.**  
CONSULTING ENGINEERS

**CERTIFICATE FOR PAYMENT**

Date of Issuance: 04/29/2013 Project No.: ROYR0901.06.02 Contract No.: 12-01  
 Project: 2012 Sanitary Sewer Lining Certificate No.: 002  
 Contractor: Allstate Power-Vac Inc  
 Address: 928 E. Hazelwood Ave., Rayway, NJ 07065  
 For Period:  
 From: 1/31/2013  
 To: 4/15/2013 (final payment)  
 To: Borough of Royersford OWNER

In accordance with the subject contract and the attached Application For Payment named contractor is entitled to payment in the amount stipulated below.

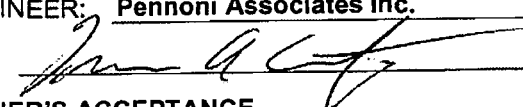
The present status of the account for the subject contract is as follows:

	<b>ORIGINAL CONTRACT SUM</b>	<u>\$156,393.00</u>
	<b>Change Orders</b>	
	Total Additions	<u>\$0.00</u>
	Sub Total	<u>\$156,393.00</u>
	Total Deductions	<u>\$12,856.10</u>
	<b>TOTAL CONTRACT TO DATE</b>	<u>\$143,536.90</u>
	Balance to Finish	<u>\$0.00</u>
	<b>TOTAL COMPLETED TO DATE</b>	<u>\$143,536.90</u>
	Materials Stored	
	Total Completed & Stored	<u>\$143,536.90</u>
	Less <u>0%</u> Retainage	<u>\$0.00</u>
	Total Earned Less Retainage	<u>\$143,536.90</u>
	Less Previous Payments	<u>\$103,890.06</u>
	<b>THIS CERTIFICATE</b>	<u>\$39,646.84</u>

In providing this information as to the status of construction, Pennoni Associates and the municipality make no representations (except where expressly stated herein to the contrary) as to the final quality of the construction to date; its final conformance with applicable plans, specifications or municipal requirements; its ability to pass any final applicable test requirements, or the cost or degree of future work, which will be required to complete the work to conform with final applicable requirements. Pennoni Associates and the municipality expressly disclaim and all liability for claims or damages arising from any construction deficiencies hereafter discovered before final approval.



This certificate is not negotiable, it is payable only to the payee named herein and its issuance, payment and acceptance are without prejudice to any rights of the owner or contractor under their contract.

ENGINEER: Pennoni Associates Inc. DATE: 4/29/2013

BY: 

**OWNER'S ACCEPTANCE**  
OWNER: \_\_\_\_\_ DATE: \_\_\_\_\_

BY: \_\_\_\_\_

<b>APPLICATION AND CERTIFICATE FOR PAYMENT</b>		<b>AIA DOCUMENT G702</b>		Page <b>2</b> of <b>2</b>																																				
<b>TO (OWNER):</b> BOROUGH OF ROYERSFORD 300 MAIN STREET ROYERSFORD, PA 19468		<b>Project:</b> ROYR 0901.06.02		Distribution to: x OWNER x ARCHITECT x CONTRACTOR																																				
<b>FROM (CONTRACTOR):</b> ALLSTATE POWER-VAC 928 EAST HAZELWOOD AVENUE RAHWAY, NJ 07065		<b>APPLICATION NO:</b> 2 <b>FINAL PAYMENT PERIOD TO:</b> 4/15/13 <b>ARCHITECT'S PROJECT NO:</b>																																						
<b>CONTRACT FOR: 2012 SANITARY SEWER LINING</b> <b>CONTRACTOR'S APPLICATION FOR PAYMENT</b>		Application is made for Payment, as shown below, in connection with the Contract Continuation Sheet, AIA Document G703, is attached.																																						
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">CHANGE ORDER SUMMARY</th> </tr> <tr> <th style="width: 60%;">Change Orders approved in previous months by Owner</th> <th style="width: 20%;">ADDITIONS</th> <th style="width: 20%;">DEDUCTIONS</th> </tr> </thead> <tbody> <tr> <td>\$</td> <td style="text-align: right;">\$ 12,856.10</td> <td></td> </tr> <tr> <td><b>TOTAL</b></td> <td style="text-align: right;"><b>\$ 12,856.10</b></td> <td></td> </tr> </tbody> </table>		CHANGE ORDER SUMMARY			Change Orders approved in previous months by Owner	ADDITIONS	DEDUCTIONS	\$	\$ 12,856.10		<b>TOTAL</b>	<b>\$ 12,856.10</b>		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>1. ORIGINAL CONTRACT SUM</td> <td style="text-align: right;">\$ 156,393.00</td> </tr> <tr> <td>2. Net change by Change Orders</td> <td style="text-align: right;">(12,856.10)</td> </tr> <tr> <td>3. CONTRACT SUM TO DATE (Line 1 + or - 2)</td> <td style="text-align: right;">\$ 143,536.90</td> </tr> <tr> <td>4. TOTAL COMPLETED &amp; STORED TO DATE (Column G on G703)</td> <td style="text-align: right;">\$ 143,536.90</td> </tr> <tr> <td>5. RETAINAGE:</td> <td></td> </tr> <tr> <td>    a. 0% of Completed Work (Column D + E G703)</td> <td style="text-align: right;">\$ 0.00</td> </tr> <tr> <td>    b. % of Stored Material (Column F on G703)</td> <td style="text-align: right;">\$ -</td> </tr> <tr> <td>Total Retainage (Line 5a + 5b or Total in Column I on G703)</td> <td style="text-align: right;">\$ 0.00</td> </tr> <tr> <td>6. TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)</td> <td style="text-align: right;">\$ 143,536.90</td> </tr> <tr> <td>7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)</td> <td style="text-align: right;">\$ 103,990.06</td> </tr> <tr> <td>8. CURRENT PAYMENT DUE</td> <td style="text-align: right;">\$ 39,546.84</td> </tr> <tr> <td>9. BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)</td> <td style="text-align: right;">\$ -</td> </tr> </table>			1. ORIGINAL CONTRACT SUM	\$ 156,393.00	2. Net change by Change Orders	(12,856.10)	3. CONTRACT SUM TO DATE (Line 1 + or - 2)	\$ 143,536.90	4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)	\$ 143,536.90	5. RETAINAGE:		a. 0% of Completed Work (Column D + E G703)	\$ 0.00	b. % of Stored Material (Column F on G703)	\$ -	Total Retainage (Line 5a + 5b or Total in Column I on G703)	\$ 0.00	6. TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)	\$ 143,536.90	7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	\$ 103,990.06	8. CURRENT PAYMENT DUE	\$ 39,546.84	9. BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)	\$ -
CHANGE ORDER SUMMARY																																								
Change Orders approved in previous months by Owner	ADDITIONS	DEDUCTIONS																																						
\$	\$ 12,856.10																																							
<b>TOTAL</b>	<b>\$ 12,856.10</b>																																							
1. ORIGINAL CONTRACT SUM	\$ 156,393.00																																							
2. Net change by Change Orders	(12,856.10)																																							
3. CONTRACT SUM TO DATE (Line 1 + or - 2)	\$ 143,536.90																																							
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)	\$ 143,536.90																																							
5. RETAINAGE:																																								
a. 0% of Completed Work (Column D + E G703)	\$ 0.00																																							
b. % of Stored Material (Column F on G703)	\$ -																																							
Total Retainage (Line 5a + 5b or Total in Column I on G703)	\$ 0.00																																							
6. TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)	\$ 143,536.90																																							
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	\$ 103,990.06																																							
8. CURRENT PAYMENT DUE	\$ 39,546.84																																							
9. BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)	\$ -																																							
<b>CONTRACTOR:</b>  Louis Galasso IV CONTROLLER		State of: New Jersey      County of: Union Subscribed and sworn to before me this 22nd day of April, 2013 Notary Public:  My Commission Expires: 5/31/2016																																						
<b>ARCHITECT'S CERTIFICATE FOR PAYMENT</b> In accordance with the Contract Documents, based on on-site observations and the data comprising the above application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.		<b>AMOUNT CERTIFIED</b> (\$39,546.84)																																						
By: _____ Date: _____ This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.		ARCHITECT: _____ (Attach explanation if amount certified differs from the amount applied for.)																																						

# APPENDIX A-5.1 (AUS)

## CONTINUATION SHEET

AIA Document G703 Application and Certificate for Payment, containing Contractor's Affidavit of Completion is attached.										AIA DOCUMENT G703		APPLICATION NUMBER: 2 FINAL PAYMENT		APPLICATION DATE: 4/23/13		PERIOD TO: 12/31/12		ARCHITECT'S PROJECT NO: R078 0901.06.02		Page 2 of 2	
A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D QUANTITY	E UOM	F UNIT PRICE	G WORK COMPLETED THROUGH APPLICATION PERIOD	H WORK COMPLETED THIS PERIOD	I QUANTITY THIS PERIOD	J QUANTITIES TO DATE	K TOTAL COMPLETED AND STORED TO DATE (G+I)	L %	M BALANCE TO FINISH (C-D)	N RETAINAGE								
1A	2ND AVE - 8" CIPP LINING	\$11,660.00	220.0	LF	\$ 53.00	\$ 11,077.00	\$ 0.00	0.00	209.00	\$ 11,077.00	95%	\$ 583.00	\$ 0.00								
1B	2ND AVE - LATERAL REINSTATEMENT	\$2,394.00	7.0	EA	\$ 342.00	\$ 0.00	\$ 2,394.00	7.00	7.00	\$ 2,394.00	100%	\$ 0.00	\$ 0.00								
2A	3RD AVE - 8" CIPP LINING	\$10,915.00	295.0	LF	\$ 37.00	\$ 10,781.80	\$ 0.00	0.00	291.40	\$ 10,781.80	99%	\$ 133.20	\$ 0.00								
2B	3RD AVE - LATERAL REINSTATEMENT	\$3,762.00	11.0	EA	\$ 342.00	\$ 342.00	\$ 342.00	1.00	1.00	\$ 342.00	9%	\$ 3,420.00	\$ 0.00								
3A	ARCH ST - 8" CIPP LINING	\$14,976.00	468.0	LF	\$ 32.00	\$ 7,059.20	\$ 0.00	0.00	220.60	\$ 7,059.20	47%	\$ 7,916.80	\$ 0.00								
3B	ARCH ST - LATERAL REINSTATEMENT	\$342.00	1.0	EA	\$ 342.00	\$ 342.00	\$ 342.00	1.00	1.00	\$ 342.00	100%	\$ 0.00	\$ 0.00								
4A	MAIN ST - 8" CIPP LINING	\$19,600.00	560.0	LF	\$ 35.00	\$ 19,635.00	\$ 0.00	0.00	561.00	\$ 19,635.00	100%	\$ (35.00)	\$ 0.00								
4B	MAIN ST - LATERAL REINSTATEMENT	\$8,550.00	25.0	EA	\$ 342.00	\$ 8,892.00	\$ 8,892.00	26.00	26.00	\$ 8,892.00	100%	\$ (342.00)	\$ 0.00								
5A	PLUM ST - 8" LATERAL LINING	\$11,951.00	323.0	LF	\$ 37.00	\$ 11,943.60	\$ 0.00	0.00	322.80	\$ 11,943.60	100%	\$ 7.40	\$ 0.00								
5B	PLUM ST - LATERAL REINSTATEMENT	\$4,446.00	13.0	EA	\$ 342.00	\$ 4,104.00	\$ 0.00	12.00	12.00	\$ 4,104.00	92%	\$ 342.00	\$ 0.00								
6A	WASHINGTON ST - 8" CIPP LINING	\$22,560.00	752.0	LF	\$ 30.00	\$ 11,943.00	\$ 0.00	0.00	398.10	\$ 11,943.00	53%	\$ 10,617.00	\$ 0.00								
6B	WASHINGTON ST - 10" CIPP LINING	\$25,311.00	767.0	LF	\$ 33.00	\$ 36,897.30	\$ 0.00	0.00	1118.10	\$ 36,897.30	146%	\$ (11,586.30)	\$ 0.00								
6C	WASHINGTON ST - LATERAL REINSTATEMENT	\$18,126.00	53.0	EA	\$ 342.00	\$ 18,126.00	\$ 18,126.00	53.00	53.00	\$ 18,126.00	100%	\$ 0.00	\$ 0.00								
7A	JOINT GROUING AS DIRECTED	\$1,800.00	200.0	GAL	\$ 9.00	\$ 0.00	\$ 0.00	0.00	0.00	\$ 0.00	0%	\$ 1,800.00	\$ 0.00								
8A	CLEAN, FLUSH, TV 8" PIPE AS DIRECTED																				
8B	CLEAN, FLUSH, TV 10" PIPE AS DIRECTED																				
8C	CLEAN, FLUSH, TV 12" PIPE AS DIRECTED																				
<b>Totals</b>		\$156,393.00				\$109,336.90	\$34,200.00			\$143,536.90	6.81779919	\$12,856.10	\$ 0.00								

2012 SANITARY SEWER LINING  
 CONTRACT 12-01  
 BOROUGH OF ROYERSFORD  
 PENNSYLVANIA

DATE NO. REVISIONS

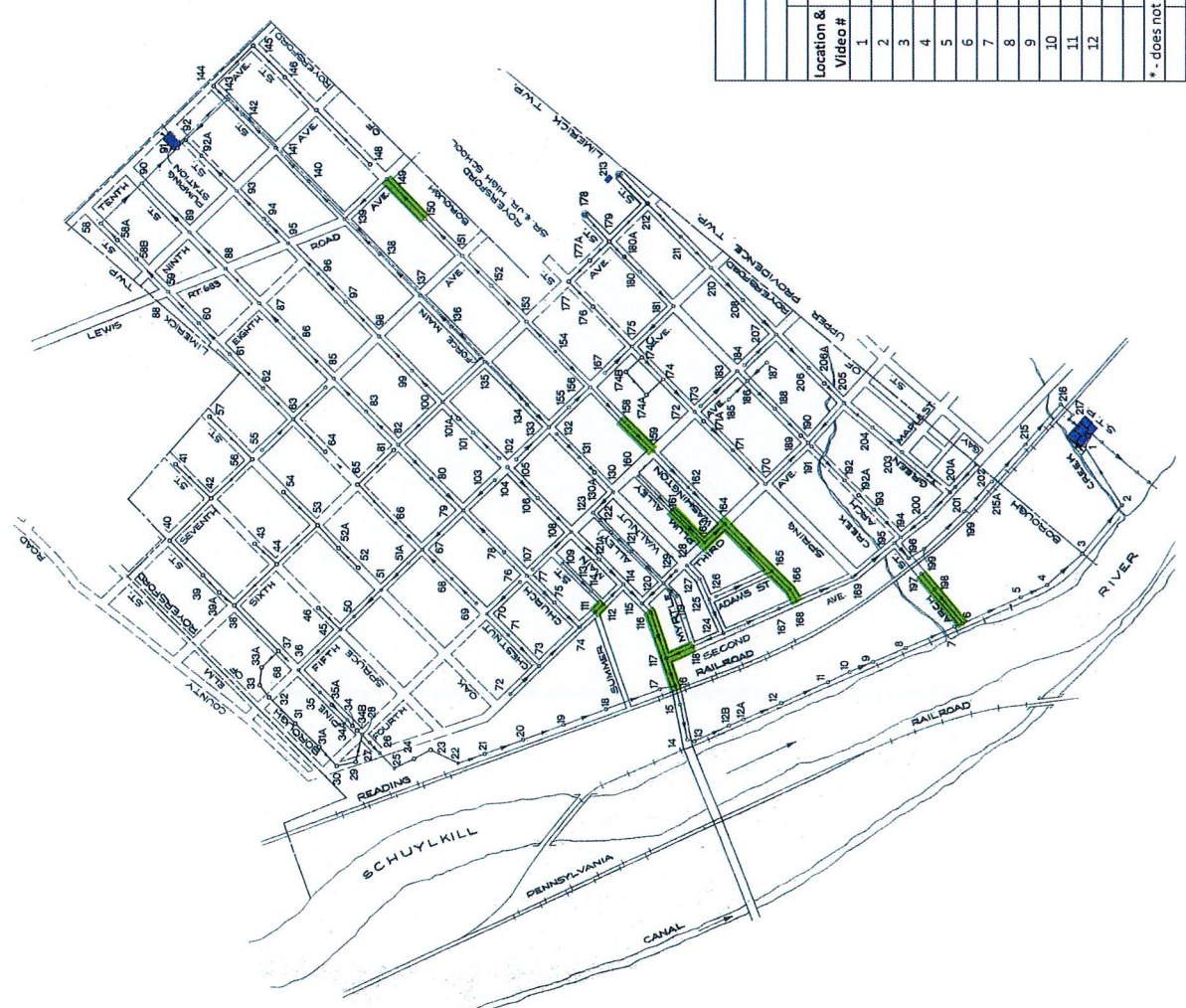
DATE

1-4007  
 SCALE: 1"=400'  
 I.D.  
 DATE: 7/23/12  
 APPROVED: P.A.C.



Pennoni Associates Inc. One Drexel Plaza, 3001 Market Street, Philadelphia, Pa. 19104 Consulting Engineers

NOTES:  
 1. BASE MAP TAKEN FROM  
 1973 AERIAL PHOTOGRAPHY AND  
 EXISTING SEWER SYSTEM BY  
 GILBERT ASSOCIATES INC. AUGUST  
 30, 1973



**ATTACHMENT A**  
 BOROUGH OF ROYERSFORD  
 2012 SANITARY SEWER LINING

Location & Video #	Street Name	Upstream MH	Downstream MH	Pipe Size (In)	Section Length	No. of laterals*
1	Second Ave.	118	117	8	220	7
2	Third Ave.	163	164	8	206	10
3	Third Ave.	111	112	8	89	1
4	Arch St.	197	6	8	468	1
5	Main St.	116	117	8	340	21
6	Main St.	117	16	8	220	4
7	Plum St.	161	163	8	323	13
8	Washington St.	150	149	8	399	7
9	Washington St.	158	159	8	353	15
10	Washington St.	164	165	10	482	23
11	Washington St.	165	166	10	217	8
12	Washington St.	166	168	10	68	0
	Total				3385	110

\* - does not include capped laterals which will not be reinstated.





PENNONI ASSOCIATES INC.  
CONSULTING ENGINEERS

May 9, 2013

ROYR0901.06.02

Michael A. Leonard, Borough Manager  
Borough of Royersford  
300 Main Street  
Royersford, PA 19468

**RE: Borough of Royersford  
2012 Corrective Action Plan – Sanitary Sewer Lining  
Change Order No. 1, Contract 12-01**

Dear Mr. Leonard:

Enclosed for your signature, are three (3) copies of Change Order No. 1 for Contract No. 12-01 for a credit amount of \$12,856.10. We have reviewed the contractor's estimate for the work and find it acceptable. Please sign all three (3) copies. Keep one (1) copy for your records and return two (2) to this office for further distribution.

Sincerely,

Frank A. Ciuffo, P.E.  
**PENNONI ASSOCIATES INC.**  
Borough Sewer Engineer

FC/  
Attachments

cc: Al Hickson, Allstate Power-Vac, Inc.  
Khal Hassan





**CONTRACT CHANGE ORDER**

Contract No. 12-01

Date 04/19/2013

Change Order No. 1

Project No. ROYR0901.06.02

Location Royersford, PA

To: (Contractor) Allstate Power-Vac

You are hereby requested to comply with the following changes from the contract plans and specifications:

Item No. (1)	Description of changes – quantities, units, unit prices, change in completion schedule, etc. (2)	Decrease in Contract Price (3)	Increase in Contract Price (4)
1	Field adjustment of lining quantities. See attached spreadsheet.	\$12,856.10	
	Change in contract price due to this Change Order:		
	<b>Total decrease</b>	\$12,856.10	
	<b>Total increase</b>		
	Difference between Col. (3) and (4)	\$12,856.10	
	Net (increase/decrease) contract price	\$12,856.10	

The sum of \$12,856.10 is hereby  added to,  deducted from, the total contract price and the total adjusted contract price to date thereby \$143,536.90.

The time provided for completion in the contract is  unchanged,  increased,  decreased, by 90 calendar days. This document shall become an amendment to the contract and all provisions of the contract will apply hereto.

Accepted by: [Signature] CONTRACTOR 4/22/13 DATE

Recommended by: [Signature] ENGINEER 5/7/13 DATE

Approved by: \_\_\_\_\_ OWNER \_\_\_\_\_ DATE

# APPENDIX A-5.1 (AUS)

## REQUEST AND JUSTIFICATION OF CHANGE

Project No.: ROYR0901.06.02

Contract No.: 12.01

Change Order No.: 1

### NECESSITY FOR CHANGE:

Total quantities for length of liner installed and laterals reinstated were adjusted for field conditions.

Borough of Royersford

**2012 Sanitary Sewer Lining  
Contract No. 12-01  
Allstate Power Vac, Inc.**

**SUMMARY OF ACTUAL CHARGES**

Internal Ref. Number	Type	Description	Bid Quantity	Unit Of Measure	Bid Prices		Actual Constructed Quantities		Difference
					Unit Price	Total Amount	Quantity	Total Amount	
1.A	BASE	2nd Ave - 8 inch CIPP Lining	220	L.F.	\$53.00	\$11,660.00	209	\$11,077.00	(\$583.00)
1.B	BASE	2nd Ave. - Lateral Reinstatement	7	EA.	\$342.00	\$2,394.00	7	\$2,394.00	\$0.00
2.A	BASE	3rd Ave - 8 inch CIPP Lining	295	L.F.	\$37.00	\$10,915.00	291.4	\$10,781.80	(\$133.20)
2.B	BASE	3rd Ave. - Lateral Reinstatement	11	EA.	\$342.00	\$3,762.00	1	\$342.00	(\$3,420.00)
3.A	BASE	Arch Street - 8 inch CIPP Lining	468	L.F.	\$32.00	\$14,976.00	220.6	\$7,059.20	(\$7,916.80)
3.B	BASE	Arch Street - Lateral Reinstatement	1	EA.	\$342.00	\$342.00	1	\$342.00	\$0.00
4.A	BASE	Main Street - 8 inch CIPP Lining	560	L.F.	\$35.00	\$19,600.00	561	\$19,635.00	\$35.00
4.B	BASE	Main Street - Lateral Reinstatement	25	EA.	\$342.00	\$8,550.00	26	\$8,892.00	\$342.00
5.A	BASE	Plum Street - 8 inch CIPP Lining	323	L.F.	\$37.00	\$11,951.00	322.8	\$11,943.60	(\$7.40)
5.B	BASE	Plum Street - Lateral Reinstatement	13	EA.	\$342.00	\$4,446.00	12	\$4,104.00	(\$342.00)
6.A	BASE	Washington Street - 8 inch CIPP Lining	752	L.F.	\$30.00	\$22,560.00	398.1	\$11,943.00	(\$10,617.00)
6.B	BASE	Washington Street - 10 inch CIPP Lining	767	L.F.	\$33.00	\$25,311.00	1118.1	\$36,897.30	\$11,586.30
6.C	BASE	Washington Street - Lateral Reinstatement	53	EA.	\$342.00	\$18,126.00	53	\$18,126.00	\$0.00
7.A	BASE	Joint Gouting as directed by the Engineer	200	Gal	\$9.00	\$1,800.00	0	\$0.00	(\$1,800.00)
<b>Total Bid for Contract No. 12-01</b>						<b>\$156,393.00</b>		<b>\$143,536.90</b>	<b>(\$12,856.10)</b>



PENNONI ASSOCIATES INC.  
CONSULTING ENGINEERS

November 2, 2015

ROYR0901.06.04

Michael A. Leonard, Borough Manager  
Borough of Royersford  
300 Main Street  
Royersford, PA 19468

**RE: Borough of Royersford  
2013 Corrective Action Plan – Sanitary Sewer Lining  
Contract 13-03 - Payment Application No. 2**

Dear Mr. Leonard:

We have reviewed the attached request for payment No. 2 (final) for the subject project submitted by IPR Northeast, LLC. We recommend the approval of final payment in the amount of \$30,233.80 as outlined below.

The following is a summary of the status of the account:

Original Contract Amount.....	\$ 303,288.00
Net Change Orders .....	\$ <u>(950.00)</u>
<b>Total Contract to Date .....</b>	<b>\$ 302,338.00</b>
 Previous Payments .....	 \$ 272,104.20
<b>This Payment .....</b>	<b>\$ <u>30,233.80</u></b>
<b>Balance After the Release .....</b>	<b>\$ 0.00</b>

Please note that the project is completed and all close out documents have been reviewed and approved. Also attached for you records are the following close out documents:

- Statement of Surety
- Contractor's Release

Should you have any questions, please feel free to contact us.

Sincerely,

Frank A. Ciufu, PE  
**PENNONI ASSOCIATES INC.**  
Borough Sewer Engineer

FAC/

Attachments:

cc: Kevin Toomey, IPR Northeast  
Dan Malloy

\\PHL-SVR-02\Collaboration\Projects\Royersford WWTP\06 - I&I Study and CAP\2013 lining\Payments to Contractor\CFP #2 LTR 11022015.doc



**PENNONI ASSOCIATES INC.**  
**CONSULTING ENGINEERS**

# APPENDIX A-5.1 (AUS)

## CERTIFICATE FOR PAYMENT

Date of Issuance: 10/30/2015 Project No.: ROYR0901.06.04 Contract No.: 13-03  
 Project: 2013 Sanitary Sewer Lining Certificate No.: 002  
 Contractor: IPR Northeast LLC  
 Address: 10555 Tucker Street, Beltsville, MD 20705

For Period:  
 From: 4/30/2014  
 To: 4/06/2015

To: Borough of Royersford OWNER

In accordance with the subject contract and the attached Application For Payment named contractor is entitled to payment in the amount stipulated below.

**The present status of the account for the subject contract is as follows:**

In providing this information as to the status of construction, Pennoni Associates and the municipality make no representations (except where expressly stated herein to the contrary) as to the final quality of the construction to date; its final conformance with applicable plans, specifications or municipal requirements; its ability to pass any final applicable test requirements, or the cost or degree of future work, which will be required to complete the work to conform with final applicable requirements. Pennoni Associates and the municipality expressly disclaim and all liability for claims or damages arising from any construction deficiencies hereafter discovered before final approval.

<b>ORIGINAL CONTRACT SUM</b>	<u>\$303,288.00</u>
<b>Change Orders</b>	
Total Additions	<u>\$0.00</u>
Sub Total	<u>\$303,288.00</u>
Total Deductions	<u>\$950.00</u>
<b>TOTAL CONTRACT TO DATE</b>	<u>\$302,338.00</u>
Balance to Finish	<u>\$0.00</u>
<b>TOTAL COMPLETED TO DATE</b>	<u>\$302,338.00</u>
Materials Stored	
Total Completed & Stored	<u>\$302,338.00</u>
Less <u>0%</u> Retainage	<u>\$0.00</u>
Total Earned Less Retainage	<u>\$302,338.00</u>
Less Previous Payments	<u>\$272,104.20</u>
<b>THIS CERTIFICATE</b>	<u>\$30,232.80</u>

This certificate is not negotiable, it is payable only to the payee named herein and its issuance, payment and acceptance are without prejudice to any rights of the owner or contractor under their contract.

ENGINEER: Pennoni Associates Inc. DATE: 10/30/2015  
 BY: [Signature]

**OWNER'S ACCEPTANCE**

OWNER: \_\_\_\_\_ DATE: \_\_\_\_\_

BY: \_\_\_\_\_

**APPLICATION AND CERTIFICATE FOR PAYMENT**

AIA DOCUMENT G702

PAGE ONE OF TWO PAGES

TO: Borough of Royersford  
 Royersford, Montgomery County, PA

PROJECT: 2013 Sanitary Sewer Lining

FROM: IPR Northeast, LLC  
 10555 Tucker Street  
 Beltsville, MD 20705

APPLICATION NO: 2  
 INVOICE NO: 2 (FINAL)  
 PERIOD TO: 04/06/2015  
 ARCHITECT'S PROJECT NO: 13-03

DISTRIBUTION TO:  
 OWNER  
 ARCHITECT  
 CONTRACTOR

CONTRACT NO. 13-03

CONTRACT DATE:

**CONTRACTOR'S APPLICATION FOR PAYMENT**

Application is made for Payment, as shown below, in connection with the Contract Continuation Sheet, AIA Document G703, is attached.

**ORIGINAL CONTRACT SUM** \$ 303,288.00  
**NET CHANGE BY CHANGE ORDERS** \$ -950.00  
**CONTRACT SUM TO DATE** \$ 302,338.00

**TOTAL COMPLETED & STORED TO DATE** (Column G on G703) \$ 302,338.00  
**RETAINAGE** \$ 0.00  
 Total in Column I of G703  
**TOTAL EARNED LESS RETAINAGE** \$ 302,338.00  
**LESS PREVIOUS CERTIFICATES FOR PAYMENT**  
**CURRENT PAYMENT DUE** \$ 272,104.20  
 \$ 30,233.80  
**BALANCE TO FINISH, PLUS RETAINAGE** \$ 0.00

CHANGE ORDER SUMMARY			
Change Orders approved in previous months by Owner	ADDITIONS	DEDUCTIONS	
TOTAL	0.00	0.00	0.00
Approved this Month			
CO1 (Final Close Out)	0.00		950.00
<b>TOTALS</b>	<b>0.00</b>	<b>0.00</b>	<b>950.00</b>
<b>Net change by Change Orders</b>			<b>-950.00</b>

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR: INLAND WATERS POLLUTION CONTROL, INC.

State of: Maryland County of: Anne Arundel  
 Subscribed and sworn to before me this 16 day of October  
 Notary Public: C. Walsh

BY: [Signature] DATE: 10/26/15  
 Kevin Toomey

My Commission Expires: **CHRISTINA WALSH**  
 AMOUNT CERTIFIED **NOTARY PUBLIC** \$  
 ARCHITECT: **ANNE ARUNDEL COUNTY MARYLAND**  
 BY: [Signature] DATE: NOVEMBER 26, 2016  
 This Certificate is not negotiable. The amount certified is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

**ARCHITECT'S CERTIFICATE FOR PAYMENT**  
 In accordance with the Contract Documents, based on on-site observations and the data comprising the above application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AIA Document G702, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor's signed certification is attached  
 In tabulations below, amounts are stated to the nearest dollar  
 Use Column I on Contracts where variable retainage for line items may apply

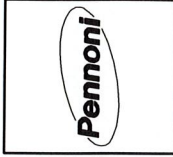
A ITEM NO	B DESCRIPTION OF WORK	UNIT	EST QTY	QTY TO DATE	UNIT PRICE	C SCHEDULED VALUE	E WORK COMPLETED		F MATERIALS PRESENTLY STORED (NOT IN D.O.R.E.)	G TOTAL COMPLETED AND STORED TO DATE (D+E+F)	H BALANCE TO FINISH (C-G)	I RETAINAGE (IF VARIABLE RATE)
							D FROM PREVIOUS APPLICATION (D+E)	THIS PERIOD				
1	Railroad Easement: 15-inch CIPP	LF	1,638.00	1,642.00	\$95.00	\$155,610.00	\$155,990.00	\$0.00	0	\$155,990.00	0	\$0.00
2	Lateral Reinstatement: 15-inch Sewer	EA	2.00	2.00	\$300.00	\$600.00	\$600.00	\$0.00	0	\$600.00	0	\$0.00
3	Bypass Pumping: 15-inch Sewer	LS	1.00	1.00	\$75,000.00	\$75,000.00	\$75,000.00	\$0.00	0	\$75,000.00	0	\$0.00
4	Second Avenue: 8-inch Sewer CIPP	LF	1,021.00	1,024.30	\$38.00	\$38,798.00	\$38,923.40	\$0.00	0	\$38,923.40	0	\$0.00
5	Lateral Reinstatement: 8-inch Sewer	EA	60.00	69.00	\$150.00	\$9,000.00	\$10,350.00	\$0.00	0	\$10,350.00	0	\$0.00
6	Bypass Pumping: 8-inch Sewer	LS	1.00	1.00	\$3,000.00	\$3,000.00	\$3,000.00	\$0.00	0	\$3,000.00	0	\$0.00
7	Joint Grouting	GAL	200.00	0.00	\$20.00	\$4,000.00	\$0.00	\$0.00	0	\$0.00	4,000	\$0.00
8	Cleaning & Televising: 15-inch Sewer	LF	108.00	3.00	\$540.00	\$540.00	\$15.00	\$0.00	0	\$15.00	525	\$0.00
9	Cleaning & Televising: 10-inch Sewer	LF	400.00	413.20	\$3.00	\$1,200.00	\$1,239.60	\$0.00	0	\$1,239.60	0	\$0.00
10	Second Avenue: 10-inch Sewer CIPP	LF	410.00	410.00	\$42.00	\$17,220.00	\$17,220.00	\$0.00	0	\$17,220.00	0	\$0.00
GRAND TOTALS						\$304,968.00	302,338	0	0	\$302,338.00	4,525	\$0.00

2013 Wnstr w nter for LITCS  
MAP.pdf

Consulting Engineers

One Brexel Plaza, 3001 Market Street Phila. Pa. 19104

Pennoni Associates Inc.



DATE	NO.	REVISIONS

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SPECIFIED.  
CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH THE WORK.

2013 SANITARY SEWER LINING  
CONTRACT 13-03  
BOROUGH OF ROYERSFORD  
MONTGOMERY COUNTY, PA

ALL DIMENSIONS SHOWN IN THESE DOCUMENTS ARE BASED ON THE RECORD DRAWINGS AND FIELD SURVEY DATA. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH THE WORK.

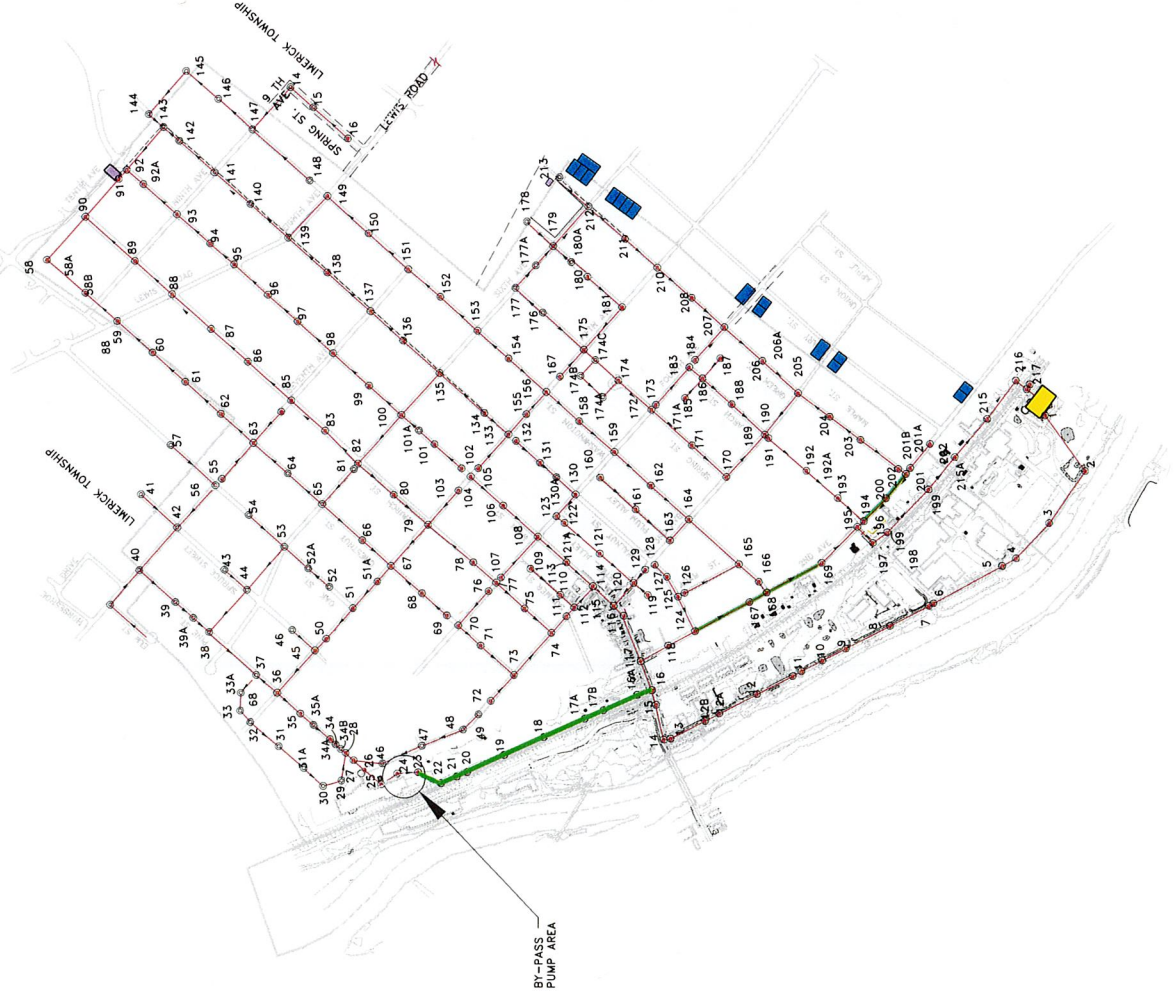
JOB NO. R0701 0901	SHEET 1 OF 1
DATE: 9/15/13	APPROVED: S-1
DRAWN BY: [Signature]	F.A.C.

# APPENDIX A-5.1 (AUS)

- NOTES:
1. BASE MAP TAKEN FROM "BOROUGH MAP OF ROYERSFORD EXISTING SEWER SYSTEM" BY ROBERT ASSOCIATES INC. AUGUST 30, 1973



LINING (2013)



ATTACHMENT A						
BOROUGH OF ROYERSFORD						
2013 SANITARY SEWER LINING						
Item / Video #	Street Name	Upstream MH	Downstream MH	Pipe Size (in)	Section Length (ft)	No. of laterals*
1	R.R. Essement	23 (5)	22 (6)	15	141	0
2	R.R. Essement	22	20 (7.6)	15	58	0
3	R.R. Essement	20	19 (7.6)	15	303	0
4	R.R. Essement	19	18 (10.5)	15	299	0
5	R.R. Essement	18	17A (11.7)	15	160	0
6	R.R. Essement	17A	16A (12)	15	239	2
7	R.R. Essement	16B (7.2)	167 (5.5)	8	147	6
8	2nd Avenue	168	169 (8.2)	8	410	16
9	2nd Avenue**	124 (6.2)	200 (5.4)	8	430	25
10	2nd Avenue	201 (5.3)	194 (5.5)	8	216	4
11	2nd Avenue	200	194 (5.5)	8	228	9
12	2nd Avenue	200	194 (5.5)	8	2069	62
13	2nd Avenue	200	194 (5.5)	8	2069	62
<b>Total</b>						
<b>Add Alternates</b>						
1A	Main Street**	16 (10.2)	15 (11.6)	15	108	0

\* - does not include capped laterals which will not be reinstated.  
\*\* - Complete length was not televised, quantities are estimated.  
( ) - Manhole Depth in Feet



# APPENDIX A-5.1 (AUS)

# APPENDIX A-5.1 (AUS)

## Jerry Weinert

---

**From:** Frank A. Ciufu <FCiufu@Pennoni.com>  
**Sent:** Tuesday, May 19, 2020 9:12 AM  
**To:** Jerry Weinert; Walker, Harold, III  
**Cc:** Scott Shearer; Scott D Fogelsanger; Wyatt, Thomas; Khaled R. Hassan; 'mleonard@royersfordborough.org'  
**Subject:** RE: Royersford UVE Appraisal  
**Attachments:** WWTP equipment details.pdf; 10th ave PS Template.pdf; Green St PS Template.pdf

It came to my attention yesterday that the attached documents were omitted from the final copy of the Asset report.

The "WWTP Equipment details" PDF should be inserted after Page 13.

The "10<sup>th</sup> ave PS Template" PDF should be inserted after Page 16.

The "Green St PS Template" PDF should be inserted after Page 19.

I apologize for this omission and any confusion it may have caused.

Let me know if you have any further comments.

## Frank A. Ciufu, PE

### Pennoni

1501 Main Street, Suite 220 | Warrington, PA 18976  
**Direct:** +1 (215) 589-6036 | **Mobile:** +1 (267) 221-6733  
www.pennoni.com | FCiufu@Pennoni.com

**From:** Frank A. Ciufu  
**Sent:** Wednesday, May 13, 2020 12:05 PM  
**To:** Jerry Weinert (weinertj@AUSWest.net) <weinertj@AUSWest.net>; Walker, Harold, III <hwalker@GFNET.com>  
**Cc:** Scott Shearer <SHEARERS@pfm.com>; Scott D Fogelsanger <Scott.Fogelsanger@amwater.com>; Wyatt, Thomas <thomas.wyatt@obermayer.com>; Khaled R. Hassan <KHassan@Pennoni.com>; 'mleonard@royersfordborough.org' <mleonard@royersfordborough.org>  
**Subject:** RE: Royersford UVE Appraisal

Jerry, Harold,

Mike Leonard provided me with some additional records. In the course of reviewing them, I found that the sewer main on Forth Avenue was installed in 1994 not 1985 as first thought.

In order to stay consistent with some other data lists we have generated, attached is the Asset list marked up with the new year and cost estimate.

If you have any questions, let me know.

# APPENDIX A-5.1 (AUS)

**Frank A. Ciufu, PE**

**Pennoni**

1501 Main Street, Suite 220 | Warrington, PA 18976  
**Direct:** +1 (215) 589-6036 | **Mobile:** +1 (267) 221-6733  
[www.pennoni.com](http://www.pennoni.com) | [FCiufu@Pennoni.com](mailto:FCiufu@Pennoni.com)

**From:** Frank A. Ciufu  
**Sent:** Monday, May 11, 2020 5:18 PM  
**To:** Jerry Weinert ([weinertj@AUSWest.net](mailto:weinertj@AUSWest.net)) <[weinertj@AUSWest.net](mailto:weinertj@AUSWest.net)>; Walker, Harold, III <[hwalker@GFNET.com](mailto:hwalker@GFNET.com)>  
**Cc:** Brian A Ardire <[Brian.A.Ardire@amwater.com](mailto:Brian.A.Ardire@amwater.com)>; Susan S Marsh <[Susan.Marsh@amwater.com](mailto:Susan.Marsh@amwater.com)>; Liz R Triscari <[Elizabeth.Triscari@amwater.com](mailto:Elizabeth.Triscari@amwater.com)>; Benjamin Kapenstein <[KAPENSTEINB@pfm.com](mailto:KAPENSTEINB@pfm.com)>; Scott Shearer <[SHEARERS@pfm.com](mailto:SHEARERS@pfm.com)>; Scott D Fogelsanger <[Scott.Fogelsanger@amwater.com](mailto:Scott.Fogelsanger@amwater.com)>; Wyatt, Thomas <[thomas.wyatt@obermayer.com](mailto:thomas.wyatt@obermayer.com)>; Khaled R. Hassan <[KHassan@Pennoni.com](mailto:KHassan@Pennoni.com)>  
**Subject:** RE: Royersford UVE Appraisal

Attached are the final pay applications and the system sewer map that was used for bidding for each of the project. I also included the change order for the 2012 project since there was a significant change.

Let me know if you need anything else.

**Frank A. Ciufu, PE**

**Pennoni**

1501 Main Street, Suite 220 | Warrington, PA 18976  
**Direct:** +1 (215) 589-6036 | **Mobile:** +1 (267) 221-6733  
[www.pennoni.com](http://www.pennoni.com) | [FCiufu@Pennoni.com](mailto:FCiufu@Pennoni.com)

**From:** Scott D Fogelsanger <[Scott.Fogelsanger@amwater.com](mailto:Scott.Fogelsanger@amwater.com)>  
**Sent:** Monday, May 11, 2020 1:22 PM  
**To:** Wyatt, Thomas <[thomas.wyatt@obermayer.com](mailto:thomas.wyatt@obermayer.com)>  
**Cc:** Brian A Ardire <[Brian.A.Ardire@amwater.com](mailto:Brian.A.Ardire@amwater.com)>; Susan S Marsh <[Susan.Marsh@amwater.com](mailto:Susan.Marsh@amwater.com)>; Liz R Triscari <[Elizabeth.Triscari@amwater.com](mailto:Elizabeth.Triscari@amwater.com)>; Jerry Weinert ([weinertj@AUSWest.net](mailto:weinertj@AUSWest.net)) <[weinertj@AUSWest.net](mailto:weinertj@AUSWest.net)>; Walker, Harold, III <[hwalker@GFNET.com](mailto:hwalker@GFNET.com)>; Frank A. Ciufu <[FCiufu@Pennoni.com](mailto:FCiufu@Pennoni.com)>; Benjamin Kapenstein <[KAPENSTEINB@pfm.com](mailto:KAPENSTEINB@pfm.com)>; Scott Shearer <[SHEARERS@pfm.com](mailto:SHEARERS@pfm.com)>  
**Subject:** FW: Royersford UVE Appraisal

Tom,

See below a request from our appraiser (AUS). Please provide this info. to both appraisers (AUS & GF).

Thanks,

Scott D. Fogelsanger  
Senior Manager - Business Development  
Pennsylvania-American Water Company

852 Wesley Drive  
Mechanicsburg, PA 17055  
717-550-1509 (office) **\*\* New Number \*\***

# APPENDIX A-5.1 (AUS)

717-875-2282 (cell)

[Scott.Fogelsanger@amwater.com](mailto:Scott.Fogelsanger@amwater.com)

**From:** Jerry Weinert <[weinertj@auswest.net](mailto:weinertj@auswest.net)>  
**Sent:** Saturday, May 09, 2020 1:14 PM  
**To:** Scott D Fogelsanger <[Scott.Fogelsanger@amwater.com](mailto:Scott.Fogelsanger@amwater.com)>  
**Cc:** Bernard J Grundusky <[Bernie.Grundusky@amwater.com](mailto:Bernie.Grundusky@amwater.com)>  
**Subject:** Royersford UVE Appraisal

**EXTERNAL EMAIL:** The Actual Sender of this email is [weinertj@auswest.net](mailto:weinertj@auswest.net) "Think before you click!".

Scott & Bernie,

Could I get a little more detail related to the Pennoni Engineers Assessment, specifically about the conveyance mains relining detailed in the EA as:

361.22	COLLECTION SEWERS -GRAVITY MAINS - RELINING				
361.22	2012 CIPP Lining	2013			\$191,498
361.22	2013 CIPP Lining	2014			\$369,468
361.22	2016 CIPP Lining	2015			\$181,979
361.22	TOTAL COLLECTION SEWERS -GRAVITY MAINS - RELINING				\$742,945

Jerry Weinert  
414-698-8371 cell

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error, please notify the sender. Please note that any views or opinions presented in this email are solely those of the author and do not necessarily represent those of American Water Works Company Inc. or its affiliates. The recipient should check this email and any attachments for the presence of viruses. American Water accepts no liability for any damages caused by any virus transmitted by this email. American Water Works Company Inc., 1 Water Street, Camden, NJ 08102  
[www.amwater.com](http://www.amwater.com)

# APPENDIX A-5.1 (AUS)

# APPENDIX A-5.1 (AUS)

## Pump Station Information Sheet

CODE	SUBCODE	PUMP STATION	DESCRIPTION	YEAR INSTALLED	COMMENTS
		<b>HVAC</b>			
		Type/Manf./Model #	ventilation fan inserted in 8" diameter duct		
364		flow meter	ISCO 4501	2011	Pump Station Monitor
364		chart recorder	totalizer		
		Hydrants			
354		Fence (length and type)	100' cyclone, galv., with barb wire.		
354		paving and walkways			
		<b>ODOR CONTROL</b>			
		Manufacturer	N/A		
		Type			
		<b>MISCELLANEOUS</b>			
		storage building	N/A		
		spare parts			
<b>OVERALL BUILDING AND FACILITY ASSESSMENT</b>					
Overall facility condition is good. Electrical controls were elevated from below grade to deck of PS. Generator is 8 years old.					

APPENDIX A-5.1 (AUS)

Pump Station Information Sheet

		<b>PUMP STATION</b>			
		<b>Station Name - Green Street</b>		Phone #	
		Location - End of Green street (adjacent to 611 Green St.)			
		Start Up Date - Circa 1958			
CODE	SUBCODE	PUMP STATION	DESCRIPTION	YEAR INSTALLED	COMMENTS
354		Pump Manufacturer	Vaughan Chopper Pumps	1989	
		Pump Model Number	P4L6		
		Type	centrifugal chopper		
		Pump GPM	350		
		Pump TDH Ft.			
		Pump Size	4 inch		
		Motor HP	15		
		Motor Voltage	230		
		Wet Well Size	8' x 9' x 12.5' deep		3' x 3' hatch over dry pit and 30" diameter plate over wetwell
		Dry Pit Size	8' x 12' x 12.5' deep		
		Pump Control	floats		
354		<b>CONTROL PANEL</b>			
		Manufacturer	Selectric, Inc	1989	
		Model/serial number			
361		<b>INFLUENT PIPING</b>			
		material	VCP		
		size	8 inch		
		length			
		<b>MANHOLES (number)</b>			
		material			
		size			
		depth			
		<b>GRINDER</b>			
		manuf./model	N/A		
		HP			
		<b>CRAIN/HOIST</b>			
		Manuf./model	overhead I-Beam		
360		<b>VALVES</b>			
		Type/Manf./size/#	4 - 6" swing check 4- 6" gate		
355		<b>GENERATOR</b>			
		Manufacturer	Baldor TS60S	2012	
		Generator KW	49		
		Generator HP			
		Fuel Tank (Gals)	80		
355		ATS (manf/model #)	ASCO 728647		
360		<b>FORCE MAIN</b>			
		Force Main Size	6 inch	1958	
		Force Main Mat.	CIP		
		Length in Feet	680		
354		<b>BUILDING</b>			
		SIZE	N/A		
		Main Structure Material			
		Roof type			
		Doors (number /material)			
		lighting			
		<b>ELECTRICAL</b>			
354		MCC	Cutler-Hammer 225 A breaker box 100 AMP sub-panel		
		Alarm System (manf/ model)			

# APPENDIX A-5.1 (AUS)

## Pump Station Information Sheet

CODE	SUBCODE	PUMP STATION	DESCRIPTION	YEAR INSTALLED	COMMENTS
		<b>HVAC</b>			
		Type/Manf./Model #	Unit Heater		
364		flow meter	ISCO 4501	2011	
364		chart recorder	totalizer		
		Hydrants			
		Fence (length and type)	200 ft., 6' H cyclone		
		paving and walkways			
		<b>ODOR CONTROL</b>			
		Manufacturer	N/A		
		Type			
		<b>MISCELLANEOUS</b>			
354		Drainage Improvements		2011	
<b>OVERALL BUILDING AND FACILITY ASSESSMENT</b>					
Building and roof are in good condition; generator showing some minor wear; pumps and controls in good very good condition.					



Pump Station Information Sheet **APPENDIX A-5.1 (AUS)**

		<b>PUMP STATION</b>			
		<b>Station Name - 10th Ave.</b>		Phone #	
		Location - 10th Ave. and Main St.			
		Start Up Date - circa 1935			
CODE	SUBCODE	PUMP STATION	DESCRIPTION	YEAR INSTALLED	COMMENTS
354		Pump Manufacturer	Gorman Rupp	2000	
		Pump Model Number	T4A3-B		
		Type	Self Priming centrifugal		
		Pump GPM	450		
		Pump TDH Ft.	85		
		Pump Size	4"		
		Motor HP	20		
		Motor Voltage	230		
		Wet Well Size			
354		Pump Control	Air Bubbler/ Elec Press switch	2000	
354		<b>CONTROL PANEL</b>			
		Manufacturer	Gorman Rupp	2000	
		Model/serial number	EPS2000		
361		<b>INFLUENT PIPING</b>			
		material	CIP		
		size	12"		
		length			
361		<b>MANHOLES (number)</b>			
		material			
		size			
		depth			
354		<b>GRINDER</b>			
		manuf./model	JWC Muffin Monster	2000	
		HP	3		
		<b>CRAIN/HOIST</b>			
		Manuf./model			
360		<b>VALVES</b>			
		Type/Manf./size/#	Val-Matic 6" Plug		
			Val-Matic 6" Check		
355		<b>GENERATOR</b>			
		Manufacturer	Onan	2000	
		Generator KW	82		
		Generator HP			
		Fuel Tank (Gals)	180		
355		ATS (manf/model #)	Onan 2250TB		
360		<b>FORCE MAIN</b>			
		Force Main Size	8 inch		
		Force Main Mat.	CIP		
		Length in Feet	3,500		
354		<b>BUILDING</b>			
		SIZE	12' x 12'	1935	
		Main Structure Material	concrete block with Stucco		
		Roof type	ashalt shingle		
		Doors (number /material)	3' x 7' steel		
		lighting	florescent		
		<b>ELECTRICAL</b>			
		MCC	200 Amp Service Connection		
		Transformer	3 KVA - Federal Pacific		
			3 KVA - Dongan		
		Alarm System (manf/ model)	Gemini		

# APPENDIX A-5.1 (AUS)

CODE	UNIT	DESCRIPTION	YEAR INSTALLED	COMMENTS
380.4	Discharge Flow Meter	Eastech Vantage 2220 Ultrasonic w/ Chesell Chart recorder	2015	House in Lower level of treatment building
	Discharge Sampler	ISCO 3710		
	Discharge Sampler Building	8' x 8' prefab fiberglass	2007	
	Dechlorination Tank	350 gallon, heat traced and insulated w/ HDPE containment tank.	2007	
380.4	Sludge Holding Tanks	concrete, with 4 chambers; approx. 400,000 gallons	1936	
354.7	Storage Building	43'x50'x8' high wood frame on 8' high concrete walls (total height 16') ; metal siding and roof	2015	

# APPENDIX A-5.1 (AUS)

ROYERSFORD WWTP				
CODE	UNIT	DESCRIPTION	YEAR INSTALLED	COMMENTS
<b>TREATMENT PROCESSES</b>				
	<b>FACILITY DESCRIPTION</b>			
380.4	Headworks	Concrete Chamber with grinder and 2 influent pumps	1998	
371.4	Influent Pumps	Two Fairbanks-Morse 6-inch centrifugal pumps, Model No. D5433MV, 20 HP, 1185 RPM, 3 PH, 60 HZ, 230 V. 1,250 GPM @ 38 TDH.	2010	
	Influent Pumps VFD	Yaskawa P1000 and Yaskawa P7	P7 - 2010, P1000 - 2018	
	Wetwell Size	17' x 12'-4"		
380.4	Influent PS Grinder	Influent Grinder is a 5 HP hydraulic Muffin Monster Model 30001-18	2010	refurbished 2016
	Influent Structure Crane	Coffing - 1 ton	1998	
	lighting	Florescent indoors, outdoor		
	doors	4-Steel Mandoors, (3x7),		
	HVAC	Unit heaters, wall airconditioner		
	roof	Flat, single ply membrane	1998	
	Electrical Control Room	flowmeter totalizer and chart; influent pump VFDs; transformer		
	Other	Eye Wash and Shower	1998	located outside upper entry door
	<b>Treatment Plant Lab building</b>			
	Dimensions	20 x 35 - 2 stories		Building is divided into the office laboratory; the generator/ maintenance / Electrical room; the compressor room and a UV disinfection area on the lower level.
	Main Structure Material	Concrete block with stucco exterior		
	Roof type	flat, single ply membrane		
	Doors	2 - 3' x 7' steel mandoors		
	lighting	interior florescent lighting for all rooms, exterior wall packs		
	HVAC	Gibson Electric hot air	2014	
	Alarm System	Verbatim/RACO Series VSS Alarm		
	Laboratory Equipment	The laboratory is equipped with lab tables with sinks; refrigerator; various lab glassware, testing equipment, scales, oven, reagents and microscopes.		
380.4	Primary Settling Tanks 1 & 2	16 ft. wide x 72 ft. long concrete structures with Polychem chain and scrapper mechanisms; SEW-Eurodrive 2.0 drive motor	1951, upgraded in 1996	
380.4	Primary Settling Tank 3	16 ft. wide x 72 ft. long concrete structure with Polychem chain and scrapper mechanism; SEW-Eurodrive 2.0 drive motor	1951, upgraded in 1998 and 2010	
380.4	Final Settling Tank 1	16 ft. wide x 72 ft. long concrete structure with Polychem chain and scrapper mechanism; SEW-Eurodrive 2.0 drive motor	1951, upgraded in 1998 and 2010	
380.4	Final Settling Tank 2 & 3	16 ft. wide x 72 ft. long concrete structure with Polychem chain and scrapper mechanism; SEW-Eurodrive 0.75 HP drive motor	2010	
371.4	Primary Recirculation Pumps	Fairbanks-Morse 6-inch dry pit centrifugal pumps, Model No. D5434WD, 30 HP, 1200 RPM, 3 PH, 60 HZ, 230 V. 1,944 GPM @ 38 TDH.	2010	
380.4	Primary Recirculation Pumps VFD	Yaskawa P1000	2010, replaced 2018	
371.4	Secondary Recirculation Pumps	Fairbanks-Morse 6-inch centrifugal pumps, Model No. D5434MV, 30 HP, 1200 RPM, 3 PH, 60 HZ, 230 V. 1,944 GPM @ 33 TDH.	2010	
380.4	Secondary Recirculation Pumps VFD	Yaskawa P1000	2010, replaced 2018	
380.4	Trickling Filters	54 ft. diameter, concrete walls with plastic media	1951, upgraded in 1998	
380.4	Headworks Screen Unit	Lakeside Raptor Model 31FS-0.250-115, 2.0 HP rated for 3.0 MGD	2009	
	Headworks Sampler	Sigma 900		
354.3	Diesel Generator	MTU/Detroit Diesel Model 250-JC6DT3, 312.5 KVA, 250 KW diesel unit with 455 gallon integral fuel tank. Engine - John Deere 384 HP.	2010	
	Transfer Switch		2010	
380.4	Sludge Pumps	Penn Valley Double Disc model 4DD and 3 DD, 3 HP	2003	Lab Building basement
380.4	Anerobic Digester			
	Furnace / Boiler	Weil-McLain Model P-WGO-4, 145,000 BTU oil fired	1951	
	Sludge Pump	Vaughn Chopper Pump, 5 HP	1951	
	Digester Chamber	Concrete with a floating roof, total sludge holding capacity of 40,000 gallons	1951	
	Fuel Tank	Propane	2020	
380.4	PAC Stoarge Tank	3000 Gallon HDPE double wall	2011	
	PAC Metering Pump	Flexflo A1N10F-3T, 65.8 GPD max.	2011	
380.4	Chlorine Meter	Pulsatron A Plus - LB645A-VVC9-U03	2006	
380.4	Chlorine Tanks	2 - 150 gallons each	2006	

EXECUTION COPY

**ASSET PURCHASE AGREEMENT**

**By and Between**

**Royersford Borough, Montgomery County**

**As Seller**

**and**

**Pennsylvania-American Water Company**

**As Buyer**

**Dated as of December 10, 2019**

**TABLE OF CONTENTS**

	<b><u>Page</u></b>
Article I DEFINITIONS .....	1
Article II TERMS OF PURCHASE AND ASSUMPTION OF LIABILITIES .....	11
<b>Section 2.01. Purchase and Sale of Acquired Assets .....</b>	<b>11</b>
<b>Section 2.02. Excluded Assets .....</b>	<b>12</b>
<b>Section 2.03. Sale Free of Liens .....</b>	<b>13</b>
<b>Section 2.04. Assumption of Liabilities .....</b>	<b>13</b>
<b>Section 2.05. Further Assurances .....</b>	<b>14</b>
<b>Section 2.06. Certain Transfers; Assignment of Contracts .....</b>	<b>14</b>
Article III PURCHASE PRICE .....	15
<b>Section 3.01. Purchase Price .....</b>	<b>15</b>
<b>Section 3.02. Fair Consideration .....</b>	<b>16</b>
<b>Section 3.03. Allocation of the Purchase Price .....</b>	<b>16</b>
<b>Section 3.04. Transfer Taxes .....</b>	<b>16</b>
<b>Section 3.05. Capital Improvements .....</b>	<b>16</b>
Article IV REPRESENTATIONS AND WARRANTIES OF SELLER .....	17
<b>Section 4.01. Organization .....</b>	<b>17</b>
<b>Section 4.02. Power and Authority .....</b>	<b>17</b>
<b>Section 4.03. Enforceability .....</b>	<b>17</b>
<b>Section 4.04. No Conflict or Violation .....</b>	<b>17</b>
<b>Section 4.05. Consents and Approvals .....</b>	<b>17</b>
<b>Section 4.06. Undisclosed Liabilities .....</b>	<b>18</b>
<b>Section 4.07. Absence of Certain Changes or Events .....</b>	<b>18</b>
<b>Section 4.08. Tax Matters .....</b>	<b>18</b>
<b>Section 4.09. Real Property and Easements .....</b>	<b>18</b>
<b>Section 4.10. Equipment and Machinery .....</b>	<b>18</b>
<b>Section 4.11. Employee Benefit Plans .....</b>	<b>18</b>
<b>Section 4.12. Seller's Personnel .....</b>	<b>19</b>
<b>Section 4.13. Environmental Compliance .....</b>	<b>20</b>
<b>Section 4.14. Authorizations and Permits .....</b>	<b>21</b>
<b>Section 4.15. System Contracts .....</b>	<b>21</b>
<b>Section 4.16. Compliance with Law; Litigation .....</b>	<b>21</b>
<b>Section 4.17. Broker's and Finder's Fees .....</b>	<b>22</b>
<b>Section 4.18. Title to the Acquired Assets; Sufficiency .....</b>	<b>22</b>
<b>Section 4.19. Pending Development Plans .....</b>	<b>22</b>
<b>Section 4.20. Land Development Agreements/Financial Security Agreements .....</b>	<b>23</b>

# APPENDIX A-5.1 (AUS)

Article V REPRESENTATIONS AND WARRANTIES OF BUYER .....	23
<b>Section 5.01. Organization</b> .....	23
<b>Section 5.02. Authorization and Validity of Agreement</b> .....	23
<b>Section 5.03. No Conflict or Violation</b> .....	23
<b>Section 5.04. Consents and Approvals</b> .....	23
<b>Section 5.05. Broker's and Finder's Fees</b> .....	23
<b>Section 5.06. Financial Wherewithal</b> .....	24
<b>Section 5.07. Sufficient Funds</b> .....	24
<b>Section 5.08. Independent Decision</b> .....	24
<b>Section 5.09. Scheduled Matters</b> .....	24
<b>Section 5.10. Independent Investigation</b> .....	24
<b>Section 5.11. Litigation</b> .....	24
Article VI TITLE TO REAL PROPERTY; EASEMENTS .....	25
<b>Section 6.01. Evidence of Title</b> .....	25
<b>Section 6.02. Objections to Title</b> .....	25
<b>Section 6.03. Title Expenses</b> .....	26
<b>Section 6.04. UCC Search; Releases</b> .....	26
<b>Section 6.05. Easements</b> .....	26
<b>Section 6.06. Unscheduled Property</b> .....	27
Article VII OTHER AGREEMENTS .....	28
<b>Section 7.01. Taxes</b> .....	28
<b>Section 7.02. Cooperation on Tax Matters</b> .....	28
<b>Section 7.03. Rates</b> .....	28
<b>Section 7.04. Buyer Taxpayer</b> .....	28
<b>Section 7.05. PaPUC Approval</b> .....	28
<b>Section 7.06. Remedies for Breach of Article VII Agreements</b> .....	29
<b>Section 7.07. Operation and Maintenance of the MS4 System</b> .....	29
<b>Section 7.08. Utility Valuation Experts</b> .....	29
<b>Section 7.09. Restoration of Property</b> .....	29
<b>Section 7.10. EDU Allocations</b> .....	29
<b>Section 7.11. Personnel Matters</b> .....	29
Article VIII INDEMNIFICATION .....	31
<b>Section 8.01. Survival</b> .....	31
<b>Section 8.02. Indemnification by Seller</b> .....	31
<b>Section 8.03. Indemnification by Buyer</b> .....	32
<b>Section 8.04. Indemnification Procedure</b> .....	32
<b>Section 8.05. Limitations on Indemnification Obligations</b> .....	34
<b>Section 8.06. Knowledge of Breach</b> .....	35

# APPENDIX A-5.1 (AUS)

Article IX PRE-CLOSING COVENANTS OF SELLER .....	35
<b>Section 9.01. Operation of the System .....</b>	<b>35</b>
<b>Section 9.02. Cooperation .....</b>	<b>36</b>
<b>Section 9.03. Supplements and Updates .....</b>	<b>36</b>
<b>Section 9.04. Consents and Approvals.....</b>	<b>36</b>
<b>Section 9.05. Pending Development Plan Agreements / Future Developments .....</b>	<b>36</b>
Article X PRE-CLOSING COVENANTS OF BUYER.....	37
<b>Section 10.01. Actions Before the Closing Date .....</b>	<b>37</b>
<b>Section 10.02. Consents and Approvals.....</b>	<b>37</b>
<b>Section 10.03. Cooperation .....</b>	<b>37</b>
<b>Section 10.04. Supplements and Updates .....</b>	<b>37</b>
Article XI CONDITIONS PRECEDENT TO OBLIGATIONS OF SELLER.....	37
<b>Section 11.01. Consents and Approvals.....</b>	<b>37</b>
<b>Section 11.02. Representations and Warranties of Buyer .....</b>	<b>38</b>
<b>Section 11.03. PaPUC Approval.....</b>	<b>38</b>
<b>Section 11.04. No Injunctions .....</b>	<b>38</b>
<b>Section 11.05. Performance of the Obligations of Buyer .....</b>	<b>38</b>
<b>Section 11.06. Deliveries by Buyer .....</b>	<b>38</b>
<b>Section 11.07. No Material Adverse Effect.....</b>	<b>38</b>
Article XII CONDITIONS PRECEDENT TO OBLIGATIONS OF BUYER .....	38
<b>Section 12.01. Consents and Approvals.....</b>	<b>38</b>
<b>Section 12.02. Representations and Warranties of Seller .....</b>	<b>39</b>
<b>Section 12.03. PaPUC Approval.....</b>	<b>39</b>
<b>Section 12.04. No Injunctions .....</b>	<b>39</b>
<b>Section 12.05. No Material Adverse Effect.....</b>	<b>39</b>
<b>Section 12.06. Deliveries by Seller.....</b>	<b>39</b>
<b>Section 12.07. Performance of the Obligations of Seller.....</b>	<b>39</b>
Article XIII CLOSING .....	40
<b>Section 13.01. Closing Date.....</b>	<b>40</b>
<b>Section 13.02. Deliveries by Seller.....</b>	<b>40</b>
<b>Section 13.03. Deliveries by Buyer .....</b>	<b>41</b>
Article XIV TERMINATION.....	41
<b>Section 14.01. Events of Termination .....</b>	<b>41</b>
<b>Section 14.02. Effect of Termination .....</b>	<b>42</b>
<b>Section 14.03. Damages for Willful Breach.....</b>	<b>42</b>

Article XV MISCELLANEOUS .....42

**Section 15.01. Confidentiality**.....42

**Section 15.02. Public Announcements** .....42

**Section 15.03. Notices** .....42

**Section 15.04. Headings**.....43

**Section 15.05. Severability** .....43

**Section 15.06. Entire Agreement**.....43

**Section 15.07. Amendments; Waivers** .....44

**Section 15.08. Parties in Interest; Third Party Beneficiary** .....44

**Section 15.09. Successors and Assigns** .....44

**Section 15.10. Governing Law; Jurisdiction** .....44

**Section 15.11. Specific Performance** .....45

**Section 15.12. Counterparts; Facsimile Execution**.....45



# APPENDIX A-5.1 (AUS)

## Exhibits

Exhibit A	Bill of Sale
Exhibit B	Assignment and Assumption Agreement

## Schedules

Schedule 2.02(h)	Excluded Assets
Schedule 3.03	Allocation Schedule
Schedule 4.05	Consents and Approvals
Schedule 4.06	Undisclosed Liabilities
Schedule 4.07	Events Having a Material Adverse Effect
Schedule 4.08	Tax Matters
Schedule 4.09	Real Property and Easements; Liens
Schedule 4.10	Equipment and Machinery
Schedule 4.11(a)	Plans and Benefit Obligations
Schedule 4.11(b)	Multiemployer Plans
Schedule 4.11(c)	Benefit Obligations of Terminated or Retired Personnel
Schedule 4.11(e)	Severance Agreements
Schedule 4.12(a)	Exceptions to Personnel Payments
Schedule 4.13	Environmental Compliance
Schedule 4.14	Authorizations and Permits
Schedule 4.15	Assigned Contracts
Schedule 4.16	Seller Litigation
Schedule 4.18(a)	Exception to Title to Acquired Assets
Schedule 4.18(b)	Sufficiency
Schedule 4.19	Pending Development Plans
Schedule 4.20	Land Development/Financial Security Agreements
Schedule 5.04	Consents and Approvals
Schedule 5.11	Buyer Litigation
Schedule 7.03(a)	Rates
Schedule 7.11(a)	Personnel

# APPENDIX A-5.1 (AUS)

## ASSET PURCHASE AGREEMENT

THIS ASSET PURCHASE AGREEMENT (“Agreement”), dated as of December 10 2019 (the “Effective Date”), is made and entered into by and between ROYERSFORD BOROUGH, Montgomery County, a body corporate and politic, organized and existing under the laws of the Commonwealth of Pennsylvania (the “Seller”), and PENNSYLVANIA-AMERICAN WATER COMPANY (the “Buyer”), a corporation organized and existing under the laws of the Commonwealth of Pennsylvania.

### RECITALS:

**WHEREAS**, Seller, acting by and through the Borough Council of Royersford Borough, Montgomery County (the “Borough Council”) owns and operates a sanitary wastewater collection and treatment system (the “System”) that provides sanitary wastewater service to various customers in Royersford Borough, Pennsylvania and small portions of Limerick Township (pursuant to a service agreement) and Upper Providence Township (the “Service Area”); and

**WHEREAS**, Buyer is a regulated public utility organized and existing under the laws of the Commonwealth of Pennsylvania that furnishes wastewater service to the public in several counties, including Montgomery County, Pennsylvania; and

**WHEREAS**, Buyer, in reliance upon the representations, warranties and covenants of Seller herein, desires to purchase and acquire from Seller, and Seller, in reliance upon the representations, warranties and covenants of Buyer herein, desires to sell, transfer and convey to Buyer all of the assets of the System (other than the Excluded Assets), and in connection therewith, Buyer has agreed to assume certain ongoing obligations and liabilities of Seller related to the acquired assets, all on the terms and conditions set forth in this Agreement.

**NOW, THEREFORE**, in consideration of the mutual representations, warranties, covenants, and agreements stated in this Agreement, the receipt and sufficiency of which hereby are acknowledged, intending to be legally bound, the Parties agree as follows:

### ARTICLE I.

#### DEFINITIONS

In addition to the capitalized terms defined elsewhere in this Agreement, the following terms, as used in this Agreement (unless otherwise specified herein), have the meanings set forth in this Article I:

“**Acquired Assets**” has the meaning specified in Section 2.01.

“**Affiliate**” means, when used to indicate a relationship with a specified Person, a Person that, directly or indirectly, through one or more intermediaries, has a 10% or more voting or economic interest in such specified Person or controls, is controlled by or is under common control with (which includes, with respect to a managed fund or trust, the right to direct or cause the direction of the management and policies of such managed fund or trust as manager, advisor,

## APPENDIX A-5.1 (AUS)

supervisor, sponsor or trustee pursuant to relevant contractual arrangements) such specified Person, and a Person is deemed to be controlled by another Person if controlled in any manner whatsoever that results in control in fact by that other Person (or that other Person and any Person or Persons with whom that other Person is acting jointly or in concert), whether directly or indirectly and whether through share ownership, a trust, a contract or otherwise (and for purposes of this definition, a managed fund or trust is deemed to be an Affiliate of the Person managing, supervising, sponsoring or advising such fund or trust and a limited partner in a managed fund or trust is deemed to be an Affiliate of such fund or trust and of the Person managing, supervising, sponsoring or advising such fund or trust).

“**Agreement**” has the meaning ascribed thereto in the Preamble to this Agreement (and includes all Schedules and Exhibits referred to herein), as amended, modified and supplemented from time to time in accordance with the terms hereof.

“**Allocation Schedule**” has the meaning specified in Section 3.03.

“**Assigned Contracts**” has the meaning specified in Section 2.01(c).

“**Assignment and Assumption Agreement**” has the meaning specified in Section 13.02(c).

“**Assumed Liabilities**” has the meaning specified in Section 2.04(a).

“**Authorizations and Permits**” mean all licenses, permits, franchises, authorizations, certificates, registrations, consents, orders, adjudications, variances, waivers and approvals currently in effect issued or granted by Governmental Authorities, including without limitation, environmental permits, operating permits and approvals that are held by Seller that primarily relate directly or indirectly to the operation of the System, including those described in Schedule 4.14.

“**Borough Council**” the meaning specified in the recitals of this Agreement.

“**Borough Senior Staff**” means the Borough Manager, Assistant Manager, Superintendent of Public Works and the Borough Engineer.

“**Business Day**” means any day that is neither a Saturday, Sunday nor a day observed as a holiday by either the Commonwealth of Pennsylvania or the United States government.

“**Buyer**” has the meaning specified in the Preamble of this Agreement.

“**Buyer Fundamental Representations**” has the meaning specified in Section 8.01.

“**Buyer Indemnified Persons**” has the meaning specified in Section 8.02.

“**CERCLA**” means the Comprehensive Environmental Response Compensation and Liability Act of 1980, 42 U.S.C. §9601 et seq., as amended.

## APPENDIX A-5.1 (AUS)

“**Closing**” means the consummation of the sale and purchase of the Acquired Assets and assumption of the Assumed Liabilities, the release/waiver of liabilities and the other transactions contemplated by this Agreement, all in accordance with the terms and conditions of this Agreement and as provided for in Article XIII.

“**Closing Date**” has the meaning specified in Section 13.01.

“**Closing Effective Time**” has the meaning specified in Section 13.01.

“**Code**” means the Internal Revenue Code of 1986, as amended.

“**Confidential Information**” means any information about Buyer, Seller or the System related to the transactions contemplated by this Agreement, except that such term does not include information which the receiving Party can demonstrate (a) is generally available to or known by the public other than as a result of improper disclosure by the receiving Party, (b) is obtained by the receiving Party from a source other than the disclosing Party, and that source was not bound by a duty of confidentiality to the disclosing Party with respect to such information, or (c) is legally in the public domain.

“**Customer Sewer Laterals**” has the meaning specified in Section 2.02(k).

“**Direct Claim**” has the meaning specified in Section 8.05(a).

“**Easements**” means all easements, rights of way, licenses, use agreements, occupancy agreements, leases and other agreements and appurtenances for and over the real property of third parties that are necessary for or used in connection with the operation of the System or to provide continuous and unimpeded rights of way for the Acquired Assets (including access thereto).

“**EDU**” means equivalent dwelling unit and having a use rate of 228 gallons per day.

“**Effective Date**” has the meaning specified in the Preamble.

“**Environment**” means soil, surface waters, ground waters, land, stream sediments, flora, fauna, surface or subsurface strata and ambient air.

“**Environmental Claims**” means all notices of investigations, warnings, notice letters, notices of violations, Liens, orders, claims, demands, suits or administrative or judicial actions for any injunctive relief, fines, penalties, third party claims, or other claims asserting violations of Environmental Requirements or responsibility for Environmental Liabilities.

“**Environmental Conditions**” means the Release of Hazardous Materials or the presence of Hazardous Materials on, in, under or within any property (including the presence in the Environment), other than the presence of Hazardous Materials in locations and at concentrations that are naturally occurring.

“**Environmental Liabilities**” means any legal obligation or liability arising under Environmental Requirements or related to or arising out of any Environmental Condition,

## APPENDIX A-5.1 (AUS)

including those consisting of or relating to any (a) duty imposed by, breach of or noncompliance with any Environmental Requirements; (b) environmental, health or safety matters or conditions (including on-site or off-site contamination, occupational safety and health and regulation of Hazardous Materials); (c) Remedial Action undertaken by any Person; (d) bodily injury (including illness, disability and death, and regardless of when any such bodily injury occurred, was incurred or manifested itself), property damage (including trespass, nuisance, wrongful eviction and deprivation of the use of real or personal property), or other losses or damages incurred by any other Person (including any employee or former employee of such Person); (e) any injury to, destruction of, or loss of natural resources, or costs of any natural resource damage assessments; (f) exposure of any Person to any Hazardous Materials; and (g) the presence or Release of any Hazardous Materials.

“**Environmental Requirements**” mean all present Laws (including common law), regulations, legally binding or otherwise enforceable requirements and Authorizations and Permits relating to human health, pollution, or protection of the Environment (including ambient air, surface water, ground water, land surface or surface strata), including (i) those relating to emissions, discharges, Releases, or threatened Releases of Hazardous Materials, and (ii) those relating to the identification, generation, manufacture, processing, distribution, use, treatment, storage, disposal, release, recovery, transport or other handling of Hazardous Materials. Without limiting the previous, the term “**Environmental Requirements**” includes (1) CERCLA; the Superfund Amendments and Reauthorization Act, Public Law 99-499, 100 Stat. 1613; the Emergency Planning and Community Right to Know Act, 42 U.S.C. Sections 11001-11050; the Resource Conservation and Recovery Act, 42 U.S.C. Sections 6901-6992k (“**RCRA**”); the Safe Drinking Water Act, 42 U.S.C. Sections 300f to 300j-26; the Toxic Substances Control Act, 15 U.S.C. Sections 2601-2692; the Hazardous Materials Transportation Act, 49 U.S.C. Sections 5101-5127; the Federal Water Pollution Control Act, 33 U.S.C. Sections 1251-1387; the Oil Pollution Act of 1990, 33 U.S.C. Sections 2701--2761; the Clean Air Act, 42 U.S.C. Sections 7401-7671q; the Atomic Energy Act of 1954, as amended, 42 U.S.C. Sections 2011 et seq.; the Low Level Radioactive Waste Policy Act, as amended, 42 U.S.C. Section 2021b et seq.; the Occupational Safety and Health Act, 29 U.S.C. Sections 651-678, and the regulations promulgated pursuant to the above-listed federal statutes, and (2) counterpart Laws and regulations promulgated or issued by any state or local Governmental Authority, specifically including the Pennsylvania Storage Tank and Spill Prevention Act of 1989 (35 Pa. C.S.A. § 6021.101 *et. seq.*).

“**EPA**” means the United States Environmental Protection Agency, or a successor Governmental Authority with substantially similar power and authority thereto.

“**Equipment and Machinery**” means (i) all the equipment, tangible personal property, machinery, office furniture and equipment, fixtures, tooling, spare maintenance or replacement parts, environmental testing equipment, and vehicles owned or leased by Seller (including all leases of such property), which are primarily used in the operation of the System, (ii) any rights of Seller to warranties applicable to the foregoing (to the extent assignable), and licenses received from manufacturers and Seller of any such item, and (iii) any related claims, credits, and rights of recovery with respect thereto, as listed in Schedule 4.10.

“**Excluded Assets**” has the meaning specified in Section 2.02.

## APPENDIX A-5.1 (AUS)

“**Excluded Liability**” or “**Excluded Liabilities**” means all liabilities other than Assumed Liabilities.

“**Files and Records**” means all files and records of Seller primarily relating to the System and the Acquired Assets, whether in hard copy, digital, or magnetic or other format including data, geographic information system data, plans, contracts and recorded knowledge relating to the Acquired Assets (including property records, related to the foregoing), customer and supplier records, customer lists (both current and prospective), records of sales calls, manuals, books, files, records, engineering data, procedures, systems, instructions, drawings, blueprints, plans, designs, specifications, equipment lists, parts lists, equipment maintenance records, equipment warranty information, plant plans, specifications and drawings, sales and advertising material, and computer software, whether stored on-site or off-site.

“**Final Order**” means a Governmental Approval by a Governmental Authority as to which (a) no request for stay of the action is pending, no such stay is in effect and if any time period is permitted by statute or regulation for filing any request for such stay, such time period has passed, (b) no petition for rehearing or reconsideration of the action is pending and the time for filing any such petition has passed, (c) such Governmental Authority does not have action under consideration on its own motion and (d) no appeal to a court or administrative tribunal or a request for stay by a court or administrative tribunal of the Government Authority’s action is pending or in effect and the deadline for filing any such appeal or request for stay has passed.

“**Governmental Approval**” means any consent, approval, authorization, notice, filing, registration, submission, reporting, order, adjudication or similar item of, to or with any Governmental Authority.

“**Governmental Authority**” or “**Governmental Authorities**” means any court, department, commission, board, bureau, municipality, municipal authority (established pursuant to the Municipal Authorities Act of the Commonwealth of Pennsylvania), agency or instrumentality of the United States, any state, county, city or political subdivision thereof, or any foreign governmental body, including without limitation, the PaPUC, the EPA, PaDEP and the Borough Council.

“**Hazardous Materials**” means any solid, liquid, gas, odor, heat, sound, vibration, radiation or other substance or emission which is a contaminant, pollutant, dangerous substance, toxic substance, hazardous waste, residual waste, solid waste, hazardous material or hazardous substance which is or becomes regulated by applicable Environmental Laws or which is classified as hazardous or toxic under applicable Environmental Laws (including gasoline, diesel fuel or other petroleum hydrocarbons, polychlorinated biphenyls, asbestos and urea formaldehyde foam insulation).

“**Indemnified Party**” means any Buyer Indemnified Persons or Seller Indemnified Persons, as applicable, entitled to indemnification pursuant to Article VIII.

“**Indemnifying Party**” means a Party which is obligated to indemnify the Buyer Indemnified Persons or the Seller Indemnified Persons, as applicable, pursuant to Article VIII.

## APPENDIX A-5.1 (AUS)

“**Knowledge**” means either (i) the actual knowledge of a Representative of Buyer and the knowledge that each such person would reasonably be expected to obtain in the course of diligently performing his or her duties for Buyer or (ii) the actual knowledge of the Borough Council and the Borough Senior Staff, and, in the case of the Borough Senior Staff, the knowledge that each such person would reasonably be expected to obtain in the course of diligently performing his or her duties for Seller, as applicable based on the context in which the term is used.

“**Land Development Agreement / Financial Security Agreement**” means any agreement between Seller and an applicant for subdivision and/or land development approval pursuant to the Pennsylvania Municipalities Planning Code, pursuant to which applicant is required to construct public improvements and required to post financial security, for the benefit of Seller, to secure applicant’s obligations under such agreement.

“**Law**” means any applicable law, statute, regulation, ordinance, rule, order, judicial, administrative and regulatory decree, judgment, adjudication, consent decree, settlement agreement or governmental requirement enacted, promulgated, entered into, agreed or imposed by any Governmental Authority, as may be in effect at the relevant time or times in the context in which the term is used.

“**Liability Cap**” has the meaning specified in Section 8.05(c).

“**Lien**” means any lien in a fixed and ascertainable monetary sum, or any pledge, mortgage, deed of trust or security interest securing a fixed and ascertainable monetary sum, or any charge or claim in a fixed and ascertainable monetary sum. In addition, in connection with Real Property, any item otherwise falling within the definition of a “Lien” must be filed of record by the responsible Party in accordance with the terms of this Agreement.

“**Loss**” means any and all losses, liabilities, obligations, damages, penalties, interest, Taxes, claims, actions, demands, causes of action, judgments, reasonable attorneys’, consultants’ and other professional fees, and all other reasonable costs and expenses sustained or incurred in investigating, preparing or defending or otherwise incident to any such claim, action, demand, cause of action or judgment or the enforcement of a Party’s rights under Article VIII; *provided, however,* that “**Losses**” shall not include punitive, incidental, consequential, special or indirect damages, including loss of future revenue or income, loss of business reputation or opportunity relating to the breach or alleged breach of this Agreement, or diminution of value or any damages based on any type of multiple, except in the case of fraud or to the extent actually awarded to a Governmental Authority or other third party in respect of a Third Party Claim.

“**Material Adverse Effect**” means any result, occurrence, fact, change, event or effect that has a materially adverse effect on the business, financial condition or results of operations of the System, except that no effect arising out of or in connection with or resulting from any of the following is deemed, either alone or in combination, to constitute or contribute to a Material Adverse Effect: (i) general economic conditions or changes in those conditions; (ii) financial, banking, currency or capital markets fluctuations or conditions (either in the United States or any international market and including changes in interest rates); (iii) conditions affecting the real estate, financial services, construction, water utility or sewer utility industries generally; (iv) any

## APPENDIX A-5.1 (AUS)

existing event, circumstance, condition or occurrence of which Buyer has Knowledge as of the Effective Date; (v) any action, omission, change, effect, circumstance or condition contemplated by this Agreement or attributable to the execution, performance or announcement of this Agreement or the transactions contemplated hereby; and (vi) negligence, intentional misconduct or bad faith of Buyer or its Representatives.

**“Missing Easements”** means, as of any particular date, each material Easement that is for or used in connection with the operation of the System or to provide continuous and unimpeded rights of way for the Acquired Assets (including access thereto) that either (a) has not been obtained by Seller as of such date or (b) if such Easement has been obtained by Seller as of such date, such Easement is unrecorded or such Easement is not sufficient to operate the System as currently conducted.

**“MS4 System”** or **“Municipal Separate Storm Sewer System”** means the current and any future assets and facilities, built, operated or maintained, or real property (**“MS4 System Real Property”**) and Stormwater System Assets owned by Seller and used for the purpose of capturing, conveying and discharging stormwater separate from the System.

**“Outside Date”** means 365 days after the date the application to the PaPUC is accepted as complete by the PaPUC and the statutory 6-month consideration period is initiated.

**“Outstanding Indebtedness”** means the Seller’s 2008 Series Guaranteed Sewer Revenue Notes.

**“PaDEP”** means the Pennsylvania Department of Environmental Protection, or any successor Governmental Authority with substantially similar powers thereto.

**“PaPUC”** means the Pennsylvania Public Utility Commission, or any successor Governmental Authority with substantially similar powers thereto.

**“Party”** means Buyer or Seller and the term **“Parties”** means collectively Buyer and Seller.

**“PCB Equipment”** means PCB equipment as defined in 40 C.F.R. Part 761.

**“Pending Development Plan”** means any subdivision or land development plan that has been submitted to Seller for approval pursuant to the Pennsylvania Municipal Planning Code.

**“Permitted Liens”** means (a) Liens for Taxes not yet due and payable or being contested in good faith by appropriate procedures; (b) easements, rights of way, zoning ordinances and other similar encumbrances affecting Owned Real Property and Easements as disclosed on Schedule 4.09; (c) other than with respect to Real Property owned by Seller, Liens arising under original purchase price conditional sales contracts and equipment leases with third parties entered into in the ordinary course of business; and (d) other imperfections of title or Liens, if any, that have not had, and would not have, a Material Adverse Effect.

**“Person”** means any individual (including, the heirs, beneficiaries, executors, legal representatives or administrators thereof), corporation, partnership, joint venture, trust, limited



## APPENDIX A-5.1 (AUS)

liability company, limited partnership, joint stock company, unincorporated association or other entity or a Governmental Authority.

“**Personnel**” means the employees of Seller.

“**Purchase Price**” has the meaning specified in Section 3.01.

“**Real Property**” means those certain parcels of land, with the buildings, improvements, and Equipment and Machinery thereon or therein, that are part of the System and fee simple title to which is to be conveyed by Seller to Buyer as part of the Acquired Assets.

“**Regulated Asbestos Containing Material**” means regulated asbestos containing material as defined by 40 C.F.R. § 61.141.

“**Release**” means any actual or threatened spilling, leaking, pumping, pouring, injecting, emptying, discharging, emitting, escaping, leaching, dumping, disposal, or release or migration of Hazardous Materials into the Environment, including the abandonment or discarding of barrels, containers and other receptacles containing any Hazardous Materials.

“**Remedial Action**” means any and all actions to (a) investigate, clean up, remediate, remove, treat, contain or in any other way address any Hazardous Materials in the Environment, (b) prevent the Release or threat of Release or minimize the further Release of any Hazardous Materials so it does not migrate or endanger public health or welfare or the indoor or outdoor Environment, and (c) perform pre-remedial studies and investigations and post-remedial monitoring, maintenance and care. The term “**Remedial Action**” includes any action which constitutes (i) a “removal”, “remedial action” or “response” as defined by Section 101 of CERCLA, 42 U.S.C. §§ 9601(23), (24), and (25); (ii) a “corrective action” as defined in RCRA, 42 U.S.C. § 6901 et seq.; or (iii) a “response” or “interim response” as defined in the Pennsylvania Hazardous Sites Cleanup Act, 35 P.S. §6020.103.

“**Representative**” means, with respect to any Person, any director, officer, employee, official, lender mortgagee, financier, provider of any financial instrument (or any agent or trustee acting on their behalf), partner, member, owner, agent, lawyer, accountant, auditor, professional advisor, consultant, engineer, contractor, other Person for whom such Person is at law responsible or other representative of such Person and any professional advisor, consultant or engineer designated by such Person as its “Representative.”

“**Schedules**” means the disclosure schedules delivered by Seller and Buyer, respectively, concurrently with the execution and delivery of this Agreement, and as may be supplemented and updated pursuant to Sections 9.03 and 10.04. Any disclosure set forth on any particular Schedule is deemed disclosure in reference to all Schedules comprising the Schedules to which such disclosure is reasonably apparent.

“**Seller**” has the meaning specified in the Preamble of this Agreement.

“**Seller Fundamental Representations**” has the meaning specified in Section 8.01.

“**Seller Indemnified Persons**” has the meaning specified in Section 8.03.

## APPENDIX A-5.1 (AUS)

“**Seller NPDES Permits**” means the National Pollutant Discharge Elimination System Permits/Water Quality Management Permits set forth on Schedule 4.14, each issued by PaDEP to Seller with respect to the System, including any revisions or amendments thereto. This definition shall not include any permit issued and related to the Stormwater System Assets.

“**Seller’s Benefit Obligations**” means all material obligations, arrangements, or practices, whether or not legally enforceable, to provide benefits, other than salary or wages to present or former directors, employees or agents, (other than obligations, arrangements and practices that are Seller’s Plans), that are owed, adopted or followed by the Seller. Seller’s Benefit Obligations also include consulting agreements under which the compensation paid does not depend upon the amount of service rendered, sabbatical policies, severance payment policies and fringe benefits within the meaning of Code §132.

“**Seller’s Plans**” means each voluntary employees’ beneficiary association under Section 501(c)(9) of the Code whose members include any Personnel and any employee benefit plans or any other retirement, profit sharing, stock option, stock bonus, deferred compensation (including any “nonqualified deferred compensation plan” within the meaning of Section 409A of the Code), severance, sick leave or other material plan or arrangement providing benefits to current or former Personnel, in each case, if either currently in effect or terminated within the last six (6) years, to which the Seller is a plan sponsor or to which the Seller otherwise contributes or has contributed within the last six (6) years, or in which the Seller otherwise participates or has participated within the last six (6) years.

“**Service Area**” has the meaning set forth in the recitals to this Agreement.

“**Stormwater System Assets**” means all assets owned by Seller, and used exclusively in the operation or maintenance of the MS4 System, including (i) drains, pipes and collection basins and all other stormwater drainage assets used exclusively for stormwater collection, conveyance and discharge; (ii) catch basins, inlets, pipes and all other stormwater lateral facilities (the “**Stormwater Lateral Facilities**”) that connect surface stormwater drains to storm conveyances which discharge to surface waters; (iii) interest in real estate directly associated with (i) and (ii); and (iv) any related permits.

“**Supplies**” means all lubricants, spare parts, fuel, chemicals, raw materials, and other supplies and inventory, and all rights to warranties received from suppliers with respect to the foregoing, and related claims, credits, and rights of recovery with respect thereto.

“**System**” has the meaning specified in the recitals to this Agreement and shall include the Acquired Assets and exclude the Excluded Assets.

“**Taxes**” means any federal, state, local or foreign income, gross receipts, license, payroll, employment, excise, severance, stamp, occupation, premium, windfall profits, environmental, customs duties, permit fees, capital stock, franchise, profits, withholding, social security, unemployment, disability, real property, personal property, parking, sales, use, transfer, registration, value added, alternative or add-on minimum, estimated or other tax, levy, impost, stamp tax, duty, fee, withholding or similar imposition of any kind payable, levied, collected,

## APPENDIX A-5.1 (AUS)

withheld or assessed at any time, including any interest, penalty or addition thereto, whether disputed or not.

“**Third Party Claim**” has the meaning specified in Section 8.05(a).

“**Threshold Amount**” has the meaning specified in Section 8.05(a).

“**Title Commitment**” has the meaning specified in Section 6.01.

“**Title Company**” has the meaning specified in Section 6.01.

“**Title Policy**” has the meaning specified in Section 2.03.

“**Transferred Personnel**” has the meaning specified in Section 7.11(a).

“**UCC Search**” has the meaning specified in Section 6.04.

“**Unscheduled Real Property**” has the meaning specified in Section 6.06.

“**Utility Valuation Expert**” means an expert that has applied and has been approved by the PaPUC and is currently, at the time of this Agreement, on the list of approved appraisers maintained by the PaPUC.

ARTICLE II.

**TERMS OF PURCHASE AND ASSUMPTION OF LIABILITIES**

**Section 2.01. Purchase and Sale of Acquired Assets.** Subject to the terms and conditions set forth in this Agreement, at Closing, Buyer shall purchase from Seller and Seller shall sell, transfer, assign and deliver to Buyer, free and clear of all Liens except for Permitted Liens, all of Seller's right, title and interest in and to all assets, facilities, business, goodwill, properties and rights of Seller of every kind and description, whether tangible or intangible, real, personal or mixed, wherever situated, in each case used in, held for use in, or acquired or developed for use in, the System, or otherwise related to, or arising out of the operation or conduct of the System (whether or not any such assets have any value for accounting purposes or are carried or reflected on the books or financial records of Seller), including any of the foregoing in which Seller is entitled to acquire rights in the future pursuant to Pending Development Plans (other than the rights of Seller pursuant to Section 2.02(d)) or development plans approved pursuant to this Agreement, but in all cases other than the Excluded Assets (collectively referred to as the "Acquired Assets"), including:

(a) all real property and appurtenant interests used in the operation of the System, including without limitation (i) good and marketable fee simple title to the Real Property described and identified on Schedule 4.09 hereof, and (ii) all Easements, including without limitation those identified on Schedule 4.09;

(b) all sanitary wastewater related treatment, disposal and conveyance facilities, including but not limited to the Seller's wastewater treatment plant located near Royersford Borough, and all collection system mains (whether gravity or force mains), laterals (from the collection system main to the edge-of-road or curb-line when the main is located within a public right-of-way or the edge of an easement where the main is located within private property), pumping stations, generators, manholes, and other related appurtenances and any billing and collections related assets necessary to run the System;

(c) all contracts, licenses, and leases to which Seller is a party, including without limitation, all construction contracts, surety bonds, operation and maintenance agreements, management agreements, reserved capacity agreements (including the rights set forth in Section 7.14 hereof), architect agreements and consultant agreements, and agreements relating to vehicles and other items of personal property as set forth on Schedule 4.15 (the "Assigned Contracts");

(d) all Supplies;

(e) all personal property and fixed assets, including all Equipment and Machinery, auxiliary equipment and plant equipment, including without limitation those items listed on Schedule 4.10 hereof;

(f) all expenses prepaid by Seller and security deposits paid by Seller;

## APPENDIX A-5.1 (AUS)

(g) all Files and Records;

(h) all Authorizations and Permits of or held by Seller (to the extent transferrable to Buyer under Law), including all Authorizations and Permits which are environmental permits, Seller NPDES Permits other than those NPDES permits that relate to the Stormwater System Assets, other operating permits and those items listed or described on Schedule 4.14; and

(i) all goodwill of the System.

SELLER MAKES NO EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES OF ANY KIND WHATSOEVER REGARDING THE VALUE OF ANY OF THE ACQUIRED ASSETS OR THE SYSTEM, OR THE FUTURE PROFITABILITY OR FUTURE EARNINGS PERFORMANCE OF THE ACQUIRED ASSETS OR THE SYSTEM OR ANY FUTURE RATEMAKING THAT MAY BE ALLOWED BY THE PAPUC FOR ANY OF THE ACQUIRED ASSETS.

**Section 2.02. Excluded Assets.** Notwithstanding anything herein to the contrary, the Acquired Assets shall not include the following (the “Excluded Assets”):

(a) the Stormwater System Assets, including any related NPDES permits;

(b) all contracts, licenses and leases that are not Assigned Contracts;

(c) the seals, organizational documents, minute books, Tax Returns, books of account or other records having to do with the organization of Seller;

(d) cash and cash equivalents, including (i) accounts receivable and amounts earned by Seller but not yet billed attributable to services rendered by Seller as of or before the Closing Date and (ii) EDU fees owed to Seller at or before the Closing Date for any Pending Development Plan but not yet paid to Seller;

(e) all insurance policies of Seller and all rights to applicable claims and proceeds thereunder;

(f) all rights to any outstanding lien related to non-payment by a System customer existing at or before the Closing Date and all actions, suits or claims of any nature available to or being pursued by Seller, whether arising by way of counterclaim or otherwise;

(g) all assets, properties and rights used by Seller other than those which primarily relate to the operations of the System;

(h) the assets, properties and rights specifically set forth on Schedule 2.02(h);

(i) the MS4 System Real Property;

(j) the rights which accrue or will accrue to Seller under this Agreement and any related agreement, exhibit or schedule; and

(k) any and all connecting facilities originating from Seller's terminus point of the collection facilities at the main or edge-of-road to and throughout the customer's property, including grinder pumps, if any (the "Customer Sewer Laterals").

**Section 2.03. Sale Free of Liens.** After Buyer fulfills its obligations pursuant to Section 3.01(a), on the Closing Date, the Acquired Assets will be free and clear of all Liens other than Permitted Liens. Seller shall convey the Acquired Assets by appropriate special warranty or other deed (subject to Section 6.02(c)), bills of sale, endorsements, assignments and other instruments of transfer or conveyance described herein, and if not expressly described herein, then by transfer documents satisfactory in form and substance reasonably acceptable to Buyer and Seller and their counsel in their reasonable, good faith discretion. At Closing, title to the Real Property shall be good and marketable and insured by the Title Company, at the Title Company's filed rates, as a good and marketable title, free and clear of all Liens and exceptions to coverage, except for the Permitted Liens, pursuant to an owner's policy of title insurance on the American Land Title Association's ("ALTA") Owner's Form 2006, subject to the terms of Section 6.02 (the "Title Policy").

**Section 2.04. Assumption of Liabilities.**

(a) On the terms and conditions set forth in this Agreement and excluding the Excluded Liabilities, Buyer shall assume and pay, perform and discharge when due any and all liabilities and obligations of Seller both (1) arising under Seller NPDES Permits (arising from, related to, or based on events or circumstances occurring on or after the Closing Date), and (2) arising out of or relating to the System or the Acquired Assets on or after the Closing, including the following:

(i) all liabilities and obligations under the Assigned Contracts and Authorizations and Permits resulting from events that occur or conditions that arise on or after the Closing;

(ii) any litigation initiated against Seller related to the System or the Acquired Assets resulting from events that occur on or after Closing or conditions that arise on or after the Closing;

(iii) all liabilities and obligations for Taxes relating to the System, its operation, the Acquired Assets and the Assumed Liabilities attributable to the period after the Closing Date; and

(iv) all other liabilities and obligations arising out of or relating to Buyer's ownership or operation of the System and the Acquired Assets on or after the Closing (all of the aforementioned liabilities in this Section 2.04(a) are referred to as the "Assumed Liabilities").

(b) At the Closing, to the extent Seller is not released therefrom, Buyer shall indemnify Seller against any Loss relating to the Assumed Liabilities in accordance with Section 8.03.

(c) Buyer shall not assume or be liable to pay any liabilities or obligations relating to the Excluded Liabilities or any other liabilities or obligations that are not Assumed Liabilities.

**Section 2.05. Further Assurances.** At any time and from time to time after the Closing Date, Seller shall, upon the request of Buyer, and Buyer shall, upon the request of Seller, at the cost of requesting Party, promptly execute, acknowledge and deliver, or cause to be executed, acknowledged and delivered, such other instruments of conveyance and transfer and other documents, and perform or cause to be performed such further acts, as may be reasonably required to evidence or effectuate, or more fully evidence or effectuate, (a) the sale, conveyance, transfer, assignment and delivery hereunder of the Acquired Assets to Buyer, (b) the assumption by Buyer of any of the Assumed Liabilities, (c) performance by the Parties of any of their other respective obligations under this Agreement, (d) the vesting in Buyer of all right, title and interest in the Acquired Assets and the System as provided herein, and (e) any other matters reasonably requested by a Party to carry out the provisions, purposes and intent of this Agreement.

**Section 2.06. Certain Transfers; Assignment of Contracts.**

(a) Notwithstanding anything to the contrary in this Agreement, and subject to the provisions of this Section 2.06(a) and Section 2.06(b), to the extent that the sale, transfer, assignment, conveyance and delivery, or attempted sale, transfer, assignment, conveyance and delivery, to Buyer of any Assigned Contract or other Acquired Asset would result in a violation of Law, or would require the consent, authorization, approval or waiver of any Person (other than the Parties), including any Governmental Authority, and such consent, authorization, approval or waiver shall not have been obtained before the Closing, this Agreement shall not constitute a sale, transfer, assignment, conveyance and delivery, or an attempted sale, transfer, assignment, conveyance and delivery, thereof (any such Acquired Asset, a "Nonassignable Asset"). Following the Closing, Seller and Buyer shall use its commercially reasonable efforts (at the cost and expense of the Party that is responsible for compliance with such Law or obtaining such consent, authorization, approval or waiver), and shall cooperate with each other, to obtain any such required consent, authorization, approval or waiver, or any release, substitution, novation or amendment required to sell, transfer, assign, convey and deliver any such Nonassignable Asset to Buyer and in no event will Buyer be required to pay any consideration therefor. Once such consent, authorization, approval, waiver, release, substitution or amendment is obtained, Seller shall sell, transfer, assign, convey and deliver to Buyer the relevant Acquired Asset to which such consent, authorization, approval, waiver, release, substitution or amendment relates for no additional consideration. Any applicable sales, transfer and other similar Taxes in connection with such sale, transfer, assignment, conveyance and delivery shall be paid fifty percent (50%) by Buyer and fifty percent (50%) by Seller.

(b) Until such time as a Nonassignable Asset is transferred to Buyer pursuant to this Article II, Buyer and Seller shall cooperate in any commercially reasonable and economically feasible arrangements (such as subleasing, sublicensing or subcontracting) to provide to the Parties the economic and, to the extent permitted under Law, operational equivalent of the transfer of such Nonassignable Asset to Buyer at the Closing and the performance by Buyer of its obligations with respect thereto, and so long as Seller transfers and turns over all economic and beneficial rights with respect to each such Nonassignable Asset, Buyer shall, to the extent

permitted under Law and the terms of any applicable contract that is a Nonassignable Asset, as agent or subcontractor for Seller, pay, perform and discharge the liabilities and obligations of Seller thereunder from and after the Closing Date, but only to the extent that such liabilities and obligations would be Assumed Liabilities if the applicable consent or approval had been obtained on or before the Closing Date and such Nonassignable Asset had been assigned to Buyer at Closing. To the extent permitted under Law, Seller shall hold in trust for and pay to Buyer promptly upon receipt thereof, such Nonassignable Asset and all income, proceeds and other monies received by Seller with respect to such Nonassignable Asset in connection with the arrangements under this Article II.

(c) If, following the Effective Date and before the Closing, Buyer identifies any contract to which Seller is a party which is not set forth on Schedule 4.15, and Buyer reasonably determines such contract is necessary or useful to the operation of the System, Buyer shall notify Seller of such determination and Seller shall, promptly following receipt of such notice, deliver to Buyer an updated Schedule 4.15 reflecting the addition of such contract, and such contract will be an "Assigned Contract" for all purposes hereunder.

(d) If during the twelve (12) month period following the Closing, Buyer identifies any contract to which Seller was a party as of the Closing and which (i) was not set forth on Schedule 4.15 (as may be updated pursuant to (c)) and (ii) Buyer reasonably believes is necessary or useful to the operation of the System, Seller shall, promptly following Buyer's written request therefor, execute, acknowledge and deliver, or cause to be executed, acknowledged and delivered, such other instruments of conveyance and transfer and other documents, and perform or cause to be performed such further acts, as may be reasonably required to evidence or effectuate, or more fully evidence or effectuate the assignment of such contract to Buyer for no additional consideration, and upon such assignment, such contract is deemed an Assigned Contract for all purposes hereunder.

### ARTICLE III.

#### PURCHASE PRICE

**Section 3.01. Purchase Price.** The purchase price for the Acquired Assets is Thirteen Million Dollars (\$13,000,000) (the "Purchase Price") which Buyer shall pay as follows at Closing:

(a) Buyer shall provide for payment in full of the total amount of Outstanding Indebtedness directly to Seller's obligees on account of the Purchase Price;

(b) Buyer shall pay, subject to any adjustment pursuant to Section 3.01(c), to Seller by wire transfer of immediately available funds the balance of the Purchase Price (remaining after the debt repayment pursuant to Section 3.01(a)) to one or more accounts that Seller designates and provides to Buyer at least three (3) Business Days before the Closing Date; and

(c) Final Billing: The Buyer is entitled to all customer billings with respect to sanitary wastewater customers services for the period on or after the Closing Effective Time, and Seller is entitled to all such billings for the period before the Closing Effective Time. The Parties



shall cooperate to calculate an agreed upon proration of billing amounts and to the extent that either Party collects billings that are attributable to service provided by the other Party, the Party holding the other Party's billing collections shall pay such amount to the other Party.

**Section 3.02. Fair Consideration.** The consideration provided for in this Article III represents fair consideration and reasonable equivalent value for the sale and transfer of the Acquired Assets and the transactions, covenants and agreements set forth in this Agreement, which consideration was agreed upon as the result of arm's-length good faith negotiations between the Parties and their respective Representatives.

**Section 3.03. Allocation of the Purchase Price.** At Buyer's request and Seller shall agree that the Purchase Price (which for purposes of this Section 3.03 shall include any liabilities required to be treated as part of the Purchase Price for federal income tax purposes), as may be adjusted pursuant to this Section 3.03, shall be allocated among the Acquired Assets in accordance with the allocation reflected in a schedule prepared by Buyer in accordance with this Section 3.03 (the "Allocation Schedule"). Within sixty (60) days following the final determination of the Purchase Price pursuant to Section 3.01, Buyer shall deliver to Seller a draft of the Allocation Schedule setting forth Buyer's proposed allocation for Seller's review. Seller may review and reasonably comment upon Buyer's proposed Allocation Schedule, *provided*, that (a) such proposed Allocation Schedule shall be deemed approved by Seller and shall be final and binding upon the Parties unless Seller provides notice of Seller's comments to one or more items reflected in the proposed Allocation Schedule within twenty (20) Business Days after delivery of the proposed Allocation Schedule to Seller, and (b) upon receipt of any such written comments from Seller with respect to the proposed Allocation Schedule, Buyer may make such adjustments or revisions to the proposed Allocation Schedule based on Seller's comments as Buyer determines in good faith to be necessary and appropriate, *provided further*, that Buyer shall have no obligation to make any such adjustments or revisions absent manifest error. The Parties shall adhere to the Allocation Schedule (as finally determined pursuant to this Section 3.03) for all purposes relevant to the calculation of federal or state Taxes, and will report the transactions contemplated herein in a manner consistent with such Allocation Schedule. Except as required by Law, Buyer and Seller shall not take any position on their respective Tax Returns that is inconsistent with the Allocation Schedule.

**Section 3.04. Transfer Taxes.** Any and all deed stamps or transfer Taxes which may be due the Commonwealth of Pennsylvania or any political subdivision in connection with the sale, transfer, assignment, conveyance and delivery hereunder of the Acquired Assets to Buyer (collectively, "Transfer Taxes"), shall be paid fifty percent (50%) by Buyer and fifty percent (50%) by Seller. The terms hereof survive Closing.

**Section 3.05. Capital Improvements.** Buyer shall undertake a total of One Million Dollars (\$1,000,000) in capital improvements to the wastewater and/or water infrastructure located within the Service Area over the five (5) year period immediately following the Closing Date (the "Capital Improvements"), subject to the timely receipt of all Governmental Approvals. Buyer and Seller agree to meet periodically to discuss and cooperate (without cost to either Seller or Buyer) with respect to the identification and completion of the Capital Improvements. Seller shall request specific projects or provide information regarding planned projects so that Buyer and Seller can identify opportunities to coordinate Capital

Improvements. The computation of the dollar amount of the Capital Improvements will be consistent with the way Buyer calculates the cost of capital projects and reports to the PaPUC. Buyer shall pay all costs associated with obtaining the applicable Governmental Approvals for the Capital Improvements.

## ARTICLE IV.

### **REPRESENTATIONS AND WARRANTIES OF SELLER**

Seller makes only the representations and warranties which are set forth in this Article IV.

As a material inducement to Buyer to enter into this Agreement and to consummate the transactions contemplated by this Agreement, Seller represents and warrants, as of the Effective Date and as of the Closing Date (except to the extent any of the following representations and warranties specifically apply to or relate to another date, in which event such representations and warranties shall be true and correct as of such other date), as follows:

**Section 4.01. Organization.** Seller is a body corporate and politic, organized and existing under the Borough Code of the Commonwealth of Pennsylvania.

**Section 4.02. Power and Authority.** Seller has (i) duly adopted an authorizing ordinance authorizing the transactions contemplated herein, which remains in full force and effect, (ii) duly authorized and approved the execution and delivery of this Agreement and (iii) duly authorized and approved the performance by Seller of its obligations contained in this Agreement. Seller has all requisite power and authority to own, lease and operate the Acquired Assets and the System and has the power and authority to enter into this Agreement and to do all acts and things and execute and deliver all other documents as are required hereunder to be done, observed or performed by it in accordance with the terms hereof.

**Section 4.03. Enforceability.** This Agreement has been duly authorized, executed and delivered by Seller and is a valid and legally binding obligation of Seller, enforceable against Seller in accordance with the terms hereof, subject only to applicable bankruptcy, insolvency and similar laws affecting the enforceability of the rights of creditors generally and to general principles of equity.

**Section 4.04. No Conflict or Violation.** The execution and delivery of this Agreement by Seller, the consummation of the transactions contemplated by this Agreement and the performance by Seller of the terms, conditions and provisions hereof has not and will not contravene or violate or result in a breach of (with or without the giving of notice or lapse of time, or both) or acceleration of any material obligations of Seller under (i) any Law or (ii) any agreement, instrument or document to which Seller is a party or by which it is bound.

**Section 4.05. Consents and Approvals.** Schedule 4.05 sets forth a list of each consent, waiver, authorization or approval of any Governmental Authority, or of any other Person, and

each declaration to or filing or registration with any Governmental Authority required in connection with the execution and delivery of this Agreement by Seller or the performance by Seller of its obligations hereunder.

**Section 4.06. Undisclosed Liabilities** Except as set forth in Schedule 4.06, there are no liabilities or obligations of Seller, either accrued, absolute, contingent or otherwise, relating to the Acquired Assets, other than liabilities incurred in the ordinary course, that could not reasonably be expected to have a Material Adverse Effect on Buyer.

**Section 4.07. Absence of Certain Changes or Events**. Except as set forth on Schedule 4.07, since December 31, 2015, there has not been any transaction or occurrence that has resulted or is reasonably likely to result in a Material Adverse Effect and Seller has operated and maintained the System since that date in the ordinary course.

**Section 4.08. Tax Matters**. Except as set forth in Schedule 4.08 or as would not have a Material Adverse Effect, (i) Seller has timely paid all Taxes that may have been or may be due and payable by Seller on or before the Closing Date, arising from the ownership or operation of the Acquired Assets or the System on or before the Closing Date (ii) no taxing authority has asserted any claim against the Seller for the assessment of any additional tax liability or initiated any action or proceeding which could result in such an assertion; and (iii) the Seller has made all withholding of Taxes required to be made under all Laws and regulations, including without limitation, withholding with respect to compensation paid to employees, and the amounts withheld have been properly paid over to the appropriate taxing authorities.

**Section 4.09. Real Property and Easements**. Schedule 4.09 identifies all Real Property of Seller and separately identifies all Easements. Seller does not lease (as lessee) any real property that is used in the operation of the System. There are no pending condemnation proceedings relating to any of the Real Property or Easements nor has Seller actually received any written threats of any condemnation proceedings and, to the Knowledge of Seller, no such proceedings are threatened. Seller has not received any written notices of any violations of any Law from any Governmental Authority with respect to the Real Property or the Easements which has not been cured in all material respects and, to Seller's Knowledge, no such violations of Law exist. With respect to the Real Property, (i) there are no leases, options, rights of reversions or other rights of use or rights to acquire the Real Property held by third parties, (ii) Seller is in sole possession of the Real Property, and (iii) to Seller's Knowledge there are no encroachments either way across the boundary of the Real Property, nor any dispute with adjacent property owners over the location of boundaries or potential claims adverse to title.

**Section 4.10. Equipment and Machinery**. All Equipment and Machinery included in the Acquired Assets is set forth and otherwise described on Schedule 4.10. Except as set forth in Schedule 4.10, Seller has good title, free and clear of all Liens (other than the Permitted Liens and Liens that will be released on or before Closing) to the Equipment and Machinery owned by Seller. Except as specifically disclosed on Schedule 4.10, all the Equipment and Machinery is owned by Seller, and none is leased or used under any conditional sales, title-retention, lease, license or similar arrangement.

**Section 4.11. Employee Benefit Plans**.

(a) Schedule 4.11(a) contains a true and complete list of all Seller's Plans and Seller's Benefit Obligations with respect to Personnel, including amounts owed to current or past employees for severance, unpaid and unused vacation pay or sick leave, or similar obligations. All such Seller's Plans and Seller's Benefit Obligations are in full force and effect and are in material compliance both as to form and operation, with applicable provisions of the Code, and any other Laws. To Seller's Knowledge, no event has occurred which has resulted or is likely to result in the imposition of any liability on the Seller under the Code or other Law with respect to any Seller's Plans or Seller's Benefit Obligations;

(b) Except as set forth in Schedule 4.11(b), with respect to the System, the Seller does not sponsor, maintain, contribute to, nor is it required to contribute to, any "multiemployer plan" within the meaning of Section 14(f) of the Code, and has no liability of any nature, whether known or unknown, fixed or contingent, with respect to any such multiemployer plan;

(c) Except as set forth on Schedule 4.11(c), Seller does not sponsor, maintain, contribute to, nor is it required to contribute to, any medical, health, life or other welfare plan or benefits for present or future terminated or current or future retired Personnel or their spouses or dependents, other than as required by COBRA, or any comparable state law, and has no liability of any nature, whether known or unknown, fixed or contingent, with respect to any such post-termination welfare benefits;

(d) The Seller is and has been in material compliance with the requirements of COBRA and is not subject to any excise tax under Code Section 4980B for the current or any prior taxable year; and

(e) Except as set forth in Schedule 4.11(e), Seller has not entered into any severance or similar arrangement with respect to any present or former Personnel that will result in any obligation (absolute or contingent) of Buyer to make any payment to any present or former Personnel following termination of employment, including the termination of employment effected by the transactions contemplated by this Agreement. The consummation of the transactions contemplated by this Agreement will not trigger any severance or other obligation of Seller for which Buyer will have any liability.

### **Section 4.12. Seller's Personnel.**

(a) Except as set forth on Schedule 4.12(a), Seller shall timely pay, or cause to be timely paid, to the Personnel as required under its policies and/or by Law for accrued but unused and unpaid vacation, sick leave and other benefits accrued as of the Closing Date.

(b) Seller has not, in the past five (5) years, effectuated:

(i) a "plant closing" (as defined in the Worker Adjustment and Retraining Notification Act ("WARN Act")) affecting any site of employment or one or more facilities or operating units within any site of employment or facility of the System; or

(ii) a "mass layoff" (as defined in the WARN Act) affecting any site of employment or facility of the System; nor has the System been affected by any

## APPENDIX A-5.1 (AUS)

transaction or engaged in layoffs or employment terminations sufficient in number to trigger application of any similar state or local Law.

(c) None of the Personnel has suffered an “employment loss” (as defined in the WARN Act) during the previous six months.

**Section 4.13. Environmental Compliance.** Except as set forth in Schedule 4.13 or that otherwise could not be expected to have a Material Adverse Effect:

(a) The System as currently operated by Seller and all operations and activities conducted by Seller with respect to the System are in compliance in all material respects with all applicable Environmental Requirements.

(b) Seller has generated, used, handled, treated, stored and disposed of all Hazardous Materials in (i) compliance in all material respects with all applicable Environmental Requirements and (ii) a manner that has not given, and could not reasonably be anticipated to give, rise to Environmental Liabilities.

(c) Seller has not received notice of any Environmental Claims related to the System that have not been fully and finally resolved, and to the Knowledge of Seller no claims of Environmental Liabilities have been threatened allegedly arising from or relating to the System that have not been fully and finally resolved.

(d) Hazardous Materials are not present at or on the System or Acquired Assets, there has been no Release of Hazardous Materials at, on or from any part of the System or the Acquired Assets, in each case in a manner that violates any Environmental Requirements or has resulted in, or could reasonably be anticipated to give rise to, Environmental Liabilities.

(e) No Lien or activity use limitation or institutional control has been recorded affecting any Acquired Assets by any Governmental Authority due to either the presence of any Hazardous Material on or off the Acquired Assets or a violation of any Environmental Requirement.

(f) There are no underground storage tanks on or at any of the Acquired Assets. Any underground storage tanks previously located at the Acquired Assets have been removed or otherwise closed, plugged and abandoned in compliance with applicable Environmental Requirements in effect at the time of such closure.

(g) No PCB Equipment is on or at any of the Acquired Assets. Any PCB Equipment that previously existed at the Acquired Assets has been flushed of polychlorinated byphenyls or has been removed and properly disposed of, in compliance with applicable Environmental Requirements, and any remaining PCB Equipment is labeled to the extent required under applicable Environmental Requirements and being managed in compliance with applicable Environmental Requirements.

(h) No Regulated Asbestos Containing Material exists in or on the Acquired Assets in an aggregate amount that would reasonably be expected to result in an

Environmental Liability; and any Regulated Asbestos Containing Material is being managed in compliance with all applicable Environmental Requirements.

(i) Seller has delivered to Buyer (1) all material environmental site assessments or reasonable and accurate summaries thereof pertaining to the System, (2) all material compliance audits or compliance assurance reviews prepared within the previous five (5) years or reasonable and accurate summaries thereof relating to compliance with Environmental Requirements by the System, and (3) reasonable and accurate summaries of, or all material documents pertaining to, any known and unresolved Environmental Liabilities incurred in relation to the System, to the extent possessed by or under the reasonable control of Seller.

**Section 4.14. Authorizations and Permits.** (i) Schedule 4.14 lists or describes the Authorizations and Permits of Seller that are currently in full force and effect; (ii) Seller has made true and complete copies of all Authorizations and Permits available to Buyer; and (iii) except as set forth on Schedule 4.14, Seller is in compliance with all material terms, conditions and requirements of all Authorizations and Permits, except in each case where such violation or failure, individually or in the aggregate, would not have a Material Adverse Effect, and no proceeding is pending or, to the Knowledge of Seller threatened relating to the revocation or limitation of any of the Authorizations or Permits, other than those revocations or limitations which do not individually or in the aggregate have a Material Adverse Effect.

**Section 4.15. System Contracts.**

(a) Schedule 4.15 contains a complete and accurate list of all the Assigned Contracts.

(b) Seller has made available to Buyer true and complete copies of all of the Assigned Contracts.

(c) All of the Assigned Contracts specified in Schedule 4.15 are in full force and effect. Seller has not, nor to the Knowledge of Seller has any other party thereto, breached any material provision of or defaulted under the material terms of, nor does any condition exist which, with notice or lapse of time, or both, would cause Seller, or to the Knowledge of Seller, any other party, to be in default under any Assigned Contract.

**Section 4.16. Compliance with Law; Litigation.**

(a) Seller has operated and is operating the System in compliance, in all material respects, with all Laws, Authorizations and Permits and is not in breach of any Law, Authorization or Permit that would have a Material Adverse Effect on the operations of the System or on Buyer. There are no Authorizations or Permits from any Governmental Authority necessary for the operation of the System as currently being operated except for those Authorizations and Permits listed in Schedule 4.14.

(b) Except as set forth on Schedule 4.16, there are no facts, circumstances, conditions or occurrences regarding the System that could reasonably be expected to give rise to any environmental claims or governmental enforcement actions that could reasonably be expected to

have a Material Adverse Effect, and there are no past, pending or threatened environmental claims or governmental enforcement actions against Seller that individually or in the aggregate could reasonably be expected to have a Material Adverse Effect.

(c) Except as set forth on Schedule 4.16, no action, suit or proceeding, at law or in equity, or before or by any Governmental Authority, is pending nor, to the Knowledge of Seller, threatened against Seller before or at the time of Closing that could reasonably be expected to have a Material Adverse Effect on the operations of the System. As of the Effective Date, no action, suit or proceeding, at Law or in equity, or before or by any Governmental Authority, is pending nor, to the Knowledge of Seller, threatened against Seller which could materially affect the validity or enforceability of this Agreement.

**Section 4.17. Broker's and Finder's Fees.** No broker, finder, or Person is entitled to any commission or finder's fee by reason of any agreement or action of Seller in connection with this Agreement or the transactions contemplated by this Agreement. Seller shall pay when due the fees and expenses of their financial and technical advisors. Seller has employed Public Financial Management, Inc., as municipal advisor to provide transaction structuring advice and to provide Seller with municipal advice relating to the sale of the System. Seller shall pay all fees owed to Public Financial Management, Inc. in connection with the transactions contemplated by this Agreement.

**Section 4.18. Title to the Acquired Assets; Sufficiency.**

(a) Except as set forth on Schedule 4.18(a), Seller has good and marketable title to, all Real Property, and valid leasehold interest in or valid licenses or Easements to use and access, all of the Acquired Assets, free and clear of all Liens, other than Permitted Liens and Liens which will be fully and unconditionally released at or before Closing. The use of the Acquired Assets is not subject to any Liens, other than Permitted Liens, and such use does not encroach on the property or the rights of any Person.

(b) Except as set forth on Schedule 4.18(b), the Acquired Assets are sufficient for, and constitute all the assets, properties, business, goodwill and rights of every kind and description, and services required for, the continued conduct and operation of the System by Buyer in substantially the same manner as currently conducted and operated by Seller. Except for the Excluded Assets and except as set forth on Schedule 4.18(b), (i) the Acquired Assets, taken as a whole, comprise all the assets, properties, business, goodwill and rights of every kind and description used or held for use in, or useful or necessary to the operation of the System as currently operated by Seller, and (ii) there are no assets, properties, business, goodwill, rights or services used in the conduct or operation of the System that are owned by any Person other than Seller that will not be licensed or leased to Buyer under valid, current license arrangements or leases. None of the Excluded Assets are material to the System.

**Section 4.19. Pending Development Plans.** Schedule 4.19 sets forth a full and complete list of all Pending Development Plans as of the Effective Date. Each Pending Development Plan, if consummated could result in the expansion of the Service Area. Seller provides no assurances whatsoever that any development or expansion of the Service Area associated with any Pending Development Plan will actually be undertaken or completed. The

Parties expect that Schedule 4.19 will change from time to time between the Effective Date and Closing, and the Seller shall provide updates to Schedule 4.19 pursuant to Section 9.03.

**Section 4.20. Land Development Agreements/Financial Security Agreements.** Schedule 4.20 sets forth a list of all Land Development / Financial Security Agreements existing as of the Effective Date between Seller and any third party.

## ARTICLE V.

### **REPRESENTATIONS AND WARRANTIES OF BUYER**

Buyer makes only the representations and warranties which are set forth in this Article V.

As a material inducement to Seller to enter into this Agreement and to consummate the transactions contemplated by this Agreement, Buyer represents and warrants to Seller, as of the Effective Date and as of the Closing Date (except to the extent any of the following representations and warranties specifically apply or relate to another date, in which event such representations and warranties shall be true and correct as of such other date), as follows:

**Section 5.01. Organization.** Buyer is duly organized, validly existing and in good standing under the laws of the state of its organization.

**Section 5.02. Authorization and Validity of Agreement.** Buyer has the power and authority to enter into this Agreement and to do all acts and things and execute and deliver all other documents as are required hereunder to be done, observed or performed by it in accordance with the terms hereof. This Agreement has been duly authorized, executed and delivered by Buyer and is a valid and legally binding obligation of Buyer, enforceable against it in accordance with the terms hereof, subject only to applicable bankruptcy, insolvency and similar laws affecting the enforceability of the rights of creditors generally and to general principles of equity.

**Section 5.03. No Conflict or Violation.** The execution and delivery of this Agreement by Buyer, the consummation of the transactions contemplated hereby and the performance by Buyer of the terms, conditions and provisions hereof has not and will not contravene or violate or result in a material breach of (with or without the giving of notice or lapse of time, or both) or acceleration of any material obligations of Buyer under (i) any Law, (ii) any material agreement, instrument or document to which Buyer is a party or by which it is bound or (iii) the articles, bylaws or governing documents of Buyer.

**Section 5.04. Consents and Approvals.** Schedule 5.04, sets forth a list of each consent, waiver, authorization or approval of any Governmental Authority, or of any other Person, and each declaration to or filing or registration with any Governmental Authority required in connection with the execution and delivery of this Agreement by Buyer or the performance by Buyer of its obligations hereunder.

**Section 5.05. Broker's and Finder's Fees.** No broker, finder or third party is entitled to any commission or finder's fee in connection with this Agreement or the transactions contemplated by this Agreement.



**Section 5.06. Financial Wherewithal.** Upon Closing, and after giving effect to the consummation of the transactions contemplated hereby and the incurrence of any indebtedness in connection therewith, Buyer shall have the financial ability and will have sufficient working capital for its needs and anticipated needs to operate the System as a certificated public utility system regulated by the PaPUC, authorized, among things, to provide wastewater utility services to retail residential, commercial and industrial customers in the System.

**Section 5.07. Sufficient Funds.** Buyer shall have sufficient funds available at Closing to consummate the transactions contemplated by this Agreement, to pay the Purchase Price in accordance with Article III and expenses related to the transactions contemplated by this Agreement, and on and after Closing, to generally provide ownership, operation and capital for the operations and capital needs of the System following the Closing, and assuring that the customers of the System will receive safe, adequate and reliable wastewater service equal to or better than such customers would have received without the transactions contemplated by this Agreement and at all times consistent with the provisions of the Pennsylvania Public Utility Code, 66 Pa. C. S. § 101 *et seq.*, and Law.

**Section 5.08. Independent Decision.** Except as expressly set forth in this Agreement, or any of the related agreements, Buyer acknowledges that (a) neither Seller nor any other Person has made any representation or warranty, express or implied, as to the accuracy or completeness of the System or information provided to Buyer, and (b) neither Seller nor any other Person shall have or be subject to any liability to Buyer or any other Person resulting from the distribution to Buyer, or Buyer use of, any information regarding the System or Acquired Assets that has been furnished or made available to Buyer and its Representatives. Buyer acknowledges that other than as expressly set forth in this Agreement or any related agreement, Seller expressly disclaims any warranty of income potential, operating expenses or costs of operation of the System.

**Section 5.09. Scheduled Matters.** Buyer acknowledges that: (a) the inclusion of any matter on any Schedule shall not be deemed an admission by Seller that such listed matter is material or that such listed matter has or could have a material adverse effect or constitutes a material liability with respect to the Acquired Assets; (b) matters reflected in the Schedules are not necessarily limited to matters required by this Agreement to be reflected in such Schedules; and (c) such additional matters are set forth for informational purposes only and do not necessarily include other matters of a similar nature.

**Section 5.10. Independent Investigation.** Buyer acknowledges that it has conducted an independent investigation of the financial condition, assets, liabilities, properties and projected capital needs and operations of the System in making its determination as to the propriety of the transaction contemplated by this Agreement and, in entering into this Agreement and related agreements, has relied solely on the results of its investigation and on the representations and warranties of Seller expressly contained in Article IV of this Agreement.

**Section 5.11. Litigation.** Buyer is not in breach of any Law that could have a material adverse effect on the operations of the System or Buyer. Neither Buyer nor any Affiliate of Buyer is listed on any of the following lists maintained by the Office of Foreign Assets Control of the United States Department of the Treasury, the Bureau of Industry and Security of the United States Department of Commerce or their successors, or on any other list of Persons with

which Seller may not do business under Law: the Specially Designated Nationals List, the Denied Persons List, the Unverified List, the Entity List and the Debarred List. Except as set forth on Schedule 5.11, no action, suit or proceeding, at law or in equity, or before or by any Governmental Authority, is pending nor, to the Knowledge of Buyer, threatened against Buyer before or at the time of Closing, which will have a material adverse effect on (i) the transactions contemplated by this Agreement or (ii) the validity or enforceability of this Agreement.

## ARTICLE VI.

### TITLE TO REAL PROPERTY; EASEMENTS

**Section 6.01. Evidence of Title.** Subject to Section 6.06, with respect to all Real Property, Buyer shall obtain at its at its sole cost and expense a commitment for a Title Policy (the "Title Commitment"), issued by a title insurance company selected by Buyer and licensed to insure title to real property by the Commonwealth of Pennsylvania (the "Title Company"). Promptly following the Effective Date, Buyer shall order the Title Commitment from the Title Company and shall provide Seller evidence of the order. Notwithstanding anything to the contrary in Section 6.02(a), a purported Objection Notice is void with respect to any parcel of Real Property if, within thirty (30) Business Days after the Effective Date, Buyer has not ordered the Title Commitment from the Title Company for such parcel of Real Property and provided Seller with evidence of the order.

### **Section 6.02. Objections to Title.**

(a) Notice of Objections. Within thirty (30) Business Days of Buyer's receipt of the Title Commitment for any of the parcels of Real Property, Buyer shall deliver to Seller a true, correct and complete copy of the Title Commitment and true, correct, complete and legible copies of all exception documents listed in the Title Commitment, along with Buyer's notice to Seller of any exceptions to title set forth on Schedule B of the Title Commitment to which Buyer objects (the "Objection Notice"). The exceptions listed in the Title Objection Notice are referred to as the "Title Objection Items." None of the following are Title Objection Items: (a) Permitted Liens, (b) items that pertain to Buyer or any requirements, conditions or obligations of Buyer, (c) matters of record that are set forth in the Title Commitment and adversely restrict or prevent the use of the Real Property in the operation of the System and (d) standard Title Company exceptions (such as the "survey" exception). Any Objection Notice which does not include a true, correct and complete copy of the Title Commitment and true, correct, complete and legible copies of any and all exception documents listed in the Title Commitment is void. If Buyer provides Seller with an Objection Notice, Seller shall use its commercially reasonable efforts to have all of the Title Objection Items cured, satisfied or released of record, or insured over, by the Title Company ("Cure" or "Cured") before or as of the Closing. At or before the Closing, Seller shall deliver written evidence to Buyer, in form and substance reasonably satisfactory to Buyer and at Seller's cost and expense, evidencing that Seller has Cured all Title Objection Items.

(b) Liens. Without limiting Seller's obligations pursuant to Section 6.02(a), before or as of the Closing, Seller shall, at its sole cost and expense, Cure any Lien encumbering the Real Property which can be Cured by the payment of money (other than Permitted Liens).

## APPENDIX A-5.1 (AUS)

(c) Title Endorsements/Survey. Buyer shall pay for any endorsements required by Buyer or any mortgagee of Buyer to Buyer's Title Policy. If any survey is required by Buyer or its mortgagee, either as a condition to any endorsement or otherwise, Buyer shall pay to obtain the survey and all related costs and expenses. If Buyer obtains a survey of any Real Property and wants the deed to contain the legal description based on a survey, if the same is not identical to the legal description contained in Seller's deed of record, Seller is not obligated to include the same in the deed to Buyer unless the survey is certified to Seller and such description is included in the deed on a "quitclaim" basis only and without warranty of title.

(d) Insurable Claims. To the extent any Claim for Losses under Article VIII is an Insurable Claim, Buyer shall assert and pursue with reasonable diligence the Insurable Claim against the Title Company (which includes commencing litigation and diligently prosecuting the Insurable Claim to judgment) before pursuing a Claim for Losses under Article VIII. Following a non-favorable judgment that substantially denies the relief sought by Buyer from the Title Company in connection with the Insurable Claim (each a "Non-Favorable Judgment"), Buyer may, following such Non-Favorable Judgment, pursue Seller with a Claim for Losses under Article VIII (any Claim against Seller following an attempted Insurable Claim against the Title Company is a "Residual Title Claim"). Notwithstanding anything to the contrary in Article VIII, Buyer must assert a Claim for Losses based upon a Residual Title Claim within sixty (60) day of the Non-Favorable Judgment. For purposes of this Section 6.02(d), an "Insurable Claim" means a Claim that: (i) arises out of Buyer's discovery of a title defect or encumbrance with respect to any of the Real Property following the Closing Date that materially restricts or prevents the use of such Real Property in the operation of the System; and (ii) is a claim against the Title Company under the Title Policy. Buyer acknowledges that any Claims that it could otherwise bring as a breach of a covenant of title under the special warranty deed to the Real Property is included within the Claim for Losses under Article VIII and is subject to the terms of this Section 6.02(d) of first pursuing the same as an Insurable Claim.

**Section 6.03. Title Expenses.** Irrespective of whether Closing occurs, Buyer shall pay all costs and expenses for obtaining the Title Commitment, Title Policy and any survey. Seller shall pay for all expenses to release, satisfy or bond over any Liens, and to effect the Cure of any Title Objection Items that Seller undertakes to Cure, including the cost of any title endorsement to insure Buyer against any adverse effect of such Title Objection Items.

**Section 6.04. UCC Search; Releases.** Not later than sixty (60) Business Days after the Effective Date, Buyer shall obtain at its sole cost and expense a Uniform Commercial Code search against Seller covering any of the personal property or fixtures included among the Acquired Assets from the Office of the Secretary of the Commonwealth of Pennsylvania and the Recorder of Montgomery County, Pennsylvania (the "UCC Search"). On or before the Closing, Seller shall obtain at its sole cost and expense releases of any and all security interests in any of the Acquired Assets which are not Permitted Liens. Seller shall provide the form of the releases of any security interests to Buyer on or before the Closing Date.

**Section 6.05. Easements.**

(a) Promptly after the Effective Date and before the Closing, Seller shall, at its sole cost and expense, cause an abstractor selected by Seller and reasonably acceptable to Buyer and

## APPENDIX A-5.1 (AUS)

the Title Company (the "Abstractor"), to perform a search of the public land records of Montgomery County, based on Seller's records and plans of the System (and such other sources of information as are reasonably related thereto), by means of searching the grantee index in the names of Seller and such other searches as the Abstractor may reasonably make, to (i) identify and provide Buyer with title information on all recorded Easements, and (ii) together with Seller, identify all Missing Easements. During this process, as the Abstractor provides written search results to Seller (including updated versions of the Abstractor search result chart), Seller will promptly provide the same to Buyer for its review, and Seller shall, or shall cause the Abstractor to, provide Buyer with periodic updates (which shall occur no less frequently than bi-weekly) on the status of the activities set forth in the previous sentence.

(b) Notice of Objections. Within forty five (45) days of Buyer's receipt from the Seller (or the Abstractor) of the information described in subsection (a) above, Buyer shall deliver to Seller written notice identifying the encumbrances on the Easements that, in Buyer's reasonable opinion, could materially and adversely restrict or prevent the use of the Easements in the operation of the System, (an "Easement Objection Notice"). Buyer shall not be permitted to include in its Easement Objection Notice any encumbrances that: (a) are Permitted Liens, (b) pertain to the Buyer or any requirements, conditions or obligations of the Buyer, or (c) are matters of record and set forth in the Abstractor's search results that do not, in Buyer's reasonable opinion, materially and adversely restrict or prevent the use of the Easements in the operation of the System (specifically including mortgages or other instruments securing indebtedness incurred by the owner of the land burdened by the Easement) (such exceptions objected to in the Objection Notice, the "Easement Objection Items". In the event that Buyer provides the Seller with an Easement Objection Notice, the Seller shall use commercially reasonable efforts to have the Easement Objection Items Cured, prior to or as of the Closing.

(c) If during the process of Abstractor's review and investigation of the Montgomery County land records, Seller determines, based on the Abstractor's investigation, that there is a Missing Easement, Seller shall take any and all actions (including the use of its power of condemnation) to obtain any Missing Easements so that the same may be sold, assigned, transferred and conveyed to Buyer at the Closing pursuant to the terms and conditions of this Agreement. All costs and expenses incurred in connection with obtaining each Missing Easement (including any payment to a landowner in connection with condemnation, in lieu of condemnation or otherwise) shall be paid by Seller and no additional consideration shall be payable by Buyer for any Missing Easement. If Seller has not obtained all Missing Easements by the date that is sixty (60) Business Days after the date that Abstractor has completed its review of the County land records and delivered the last results to Seller (the "Abstract Completion Date"), then, no later than thirty (30) Business Days after the Abstract Completion Date (but in any event no later than thirty (30) days before the Closing), Seller shall commence and file in the Court of Common Pleas, Montgomery County, a condemnation or eminent domain proceeding to obtain any and all such Missing Easements. For the purposes of clarity, upon obtaining each Missing Easement (including upon the final resolution of a condemnation proceeding), each Missing Easement that has been acquired or obtained by Seller will be considered an Easement.

**Section 6.06. Unscheduled Property.** The Parties acknowledge that Seller may own interests in or have the legal right to use or occupy the Real Property and Easements that is necessary or essential to the operation of the System and that is not specifically identified in

Schedule 4.09 (the “Unscheduled Real Property”). If the Parties discover before or after the Closing Date, one or more parcels of Unscheduled Real Property, the discovering Party shall notify the non-discovering Party of the discovery. In addition to its obligations in Section 2.03, Seller shall convey, assign or otherwise transfer any rights to each parcel of Unscheduled Real Property, without additional consideration payable by Buyer, in such a manner as to provide Buyer with reasonable assurances that Buyer may use or occupy the Unscheduled Real Property as it was used by Seller as of the Effective Date.

## ARTICLE VII.

### OTHER AGREEMENTS

**Section 7.01. Taxes.** Seller shall pay any and all Taxes, if any, arising out of the ownership of the Acquired Assets and out of the operation of the System before the Closing.

**Section 7.02. Cooperation on Tax Matters.** Seller shall furnish or cause to be furnished to Buyer, as promptly as practicable, whether before or after the Closing Date, such information and assistance relating to the System as is reasonably necessary for the preparation and filing by Buyer of any filings relating to any Tax matters.

**Section 7.03. Rates.**

(a) Rates. Buyer shall implement the Seller’s sanitary wastewater rates then in effect at Closing, as set forth on Schedule 7.03(a), and inclusive of any PaPUC permitted or required surcharges or pass-through costs (the “Base Rate”) as Buyer’s effective sanitary wastewater rates, provided that the rates reflected on Schedule 7.03(a) (at Closing) shall not be lower than those in effect on the date the Effective Date. The Base Rate shall not be increased until after the second anniversary of the Closing Date. Buyer intends to bill customers on a monthly basis instead of annual billing, which Buyer will prorate accordingly. Buyer shall apply, at and after Closing, its then-existing miscellaneous fees and charges, rules and regulations for wastewater service as set forth in the Buyer’s tariff within the Service Area.

(b) PaPUC Approval. The Buyer shall include the rate provisions of Sections 7.03(a) in its requested PaPUC Governmental Approval.

**Section 7.04. Buyer Taxpayer.** From and after the Closing Date, Buyer acknowledges that, upon conveyance of the Acquired Assets to Buyer, Buyer will be subject to, among other Taxes, real estate Taxes, which Buyer shall pay when due.

**Section 7.05. PaPUC Approval.**

(a) Promptly after the Effective Date, Buyer shall timely initiate and faithfully prosecute the necessary proceedings to obtain from the PaPUC (i) the issuance of certificates of public convenience to Buyer to provide wastewater services in the Service Area and (ii) the approval of the acquisition of the System by Buyer under terms and conditions that are reasonably acceptable to Seller and Buyer. Seller shall cooperate with and assist Buyer in proceedings before the PaPUC.

## APPENDIX A-5.1 (AUS)

(b) Buyer and Seller hereby agree that the procedures for determining fair market value of the System and Acquired Assets outlined in subsection (a) of Section 1329 of Title 66 of the Pennsylvania Consolidated Statutes (“Section 1329”) shall be utilized and filed with the PaPUC as contemplated by Section 1329.

(c) The fees and expenses related to engaging the licensed engineer for such Section 1329 determination shall be paid fifty percent (50%) by Buyer and fifty percent (50%) by Seller.

(d) To the extent requested by Buyer, Seller shall participate in any proceedings before the PaPUC as an intervenor and active party. Seller shall pay the fees and expenses directly related to such intervention, including legal expenses that are reasonably incurred up to a cap of \$20,000. Buyer shall pay any such costs reasonably incurred in excess of the cap up to an amount not to exceed \$25,000. Seller may be represented by the counsel of its choice in any such proceedings.

(e) Buyer, in Buyer’s first base rate proceeding with respect to the System following the Closing, shall propose the use of statutory and regulatory mechanisms available to benefit the Buyer’s acquired customers for ratemaking purposes.

**Section 7.06. Remedies for Breach of Article VII Agreements.** If Buyer breaches of any of the covenants and agreements set forth in this Article VII following Closing, in addition to all other rights and remedies available at law or in equity, including specific performance and/or injunctive relief, Seller may commence proceedings before the PaPUC seeking enforcement of such covenants and agreements.

**Section 7.07. Operation and Maintenance of the MS4 System.** Subject to Law, Seller, shall at all times maintain ownership of its MS4 System and Stormwater System Assets. Seller will maintain any NPDES permits related to the Stormwater System Assets.

**Section 7.08. Utility Valuation Experts.** Buyer and Seller shall each be responsible for the costs associated with their respective Utility Valuation Expert for the preparation and completion of their respective Utility Valuation Expert’s appraisal report and any additional work by their respective Utility Valuation Expert necessary to assist in the processing and prosecution of the application to the PaPUC in regard to this transaction under Section 1329.

**Section 7.09. Restoration of Property.** Buyer shall at all times act in accordance with all requirements imposed by the PaPUC and with the terms of any permits or approvals issued by Seller with regard to restoration of property on which construction or repair and replacement work is undertaken.

**Section 7.10. EDU Allocations.** In connection with EDU allocations, Buyer shall at all times act in compliance with Seller’s ordinances, including those with respect to zoning and land use, the Seller’s Act 537 plan and the Seller’s comprehensive plans.

**Section 7.11. Personnel Matters.**

(a) Subject to Law, Buyer shall, or shall cause an Affiliate of Buyer to, offer employment effective on the Closing Date, to the Personnel set forth in Schedule 7.11(a), subject

## APPENDIX A-5.1 (AUS)

to Buyer's existing standard hiring policies and procedures applicable to new employees, except with respect to benefits as otherwise provided in Section 7.11(c). The Personnel who accept such employment and commence employment on the Closing Date, are referred to in this Agreement as the "Transferred Personnel." Buyer may make the required offer of employment at a reasonable time prior to the Closing Date to ensure there will be adequate staffing on the Closing Date.

(b) Subject to Law, Transferred Personnel will be employees-at-will of Buyer. Buyer shall provide each of the Transferred Personnel compensation and benefits which are at least substantially comparable to, in the aggregate, to Seller's compensation and benefits as of the Effective Date (including paid vacation and sick time benefits). Nothing contained in this Section 7.11(b) is an amendment of, or an undertaking to amend, any employee benefit plans, programs or arrangements maintained by Buyer or its Affiliates or is intended to prevent Buyer or its Affiliates from amending or terminating any such employee benefit plan, program or arrangement in accordance with the terms thereof.

(c) Subject to the obligations of Seller under Law, Buyer's rights and obligations set forth in Section 7.11. and the Buyer's applicable employee benefit plan documents, with respect to employee benefit plans maintained by Buyer for the benefit of its employees (*i.e.*, paid vacation leave, Buyer's 401k savings plan), effective as of the Closing, Buyer shall recognize the Transferred Personnel's length of service with the Seller as if such service were with Buyer for eligibility and vesting under Buyer's then existing employee benefit plans and programs.

(d) Subject to Law, effective as of the Closing, the Transferred Personnel shall cease active participation in the Seller's Plans. Seller shall remain liable for all eligible claims for benefits under the Seller's Plans that are incurred by Transferred Personnel before the Closing Date. Subject to Law, Seller shall remain liable to make any contributions to Seller's Plans related to, and/or to fund any retirement benefits accrued by, the Transferred Personnel before Closing.

(e) This Section 7.11 is binding upon and inures solely to the benefit of each of the Parties to this Agreement, and nothing in this Section 7.11, express or implied, confers upon any other Person any rights or remedies of any nature whatsoever under or by reason of this Section 7.11. The terms set forth in this Section 7.11 do not create any right in any Transferred Personnel or any other Person to any continued employment with Buyer or any of its Affiliates or compensation or benefits of any nature or kind whatsoever, and do not restrict Buyer in the exercise of its independent business judgment in establishing or modifying any of the terms or conditions of the employment of the Transferred Personnel. Nothing contained in this Section 7.11 is an amendment of, or an undertaking to amend, any employee benefit plan, program or arrangement maintained by Buyer or its Affiliates or is intended to prevent Buyer or its Affiliates from amending or terminating any such employee benefit plan, program or arrangement in accordance with its terms.

(f) Notwithstanding anything in this Agreement to the contrary, Buyer will not acquire any asset, or assume any liability or obligation in connection with the transactions contemplated by this Agreement relating to any of the Seller's Plans, Seller's Benefit Obligations. Seller is solely responsible for any liability, funding obligation, claim or expense

arising from the Seller's Plans, Seller's Benefit Obligations, both before, and after, the Closing Date, except as provided in Section 7.11(c).

(g) No later than the Closing Date, Seller shall transfer all records pertaining to the employment of the Transferred Personnel to Buyer including, but not limited to, all personnel and human resources Files and Records.

### ARTICLE VIII.

#### INDEMNIFICATION

**Section 8.01. Survival.** All representations and warranties contained in this Agreement shall survive until twelve (12) months following the Closing Date, except that (a) the representations and warranties of Seller set forth in Section 4.01 (Organization), Section 4.02 (Power and Authority), Section 4.03 (Enforceability) and Section 4.15 (Brokers' and Finders' Fees) (collectively, the "Seller Fundamental Representations") shall survive the Closing indefinitely or until the latest date permitted by Law, and (b) the representations and warranties of Buyer set forth in Section 5.01 (Organization), Section 5.02 (Authorization and Validity of Agreement), and Section 5.05 (Brokers' and Finders' Fees) (collectively, the "Buyer Fundamental Representations") shall survive the Closing indefinitely or until the latest date permitted by Law. The covenants and agreements of the Parties contained in this Agreement survive the Closing indefinitely or for the shorter period explicitly specified therein, except that for those covenants and agreements that survive for a shorter period, breaches thereof survive indefinitely or until the latest date permitted by Law. Notwithstanding the preceding sentences, (x) any breach of representation, warranty, covenant or agreement in respect of which indemnity may be sought under this Agreement shall survive the time at which it would otherwise terminate pursuant to the preceding sentences, if notice of the inaccuracy or breach thereof giving rise to such right of indemnity shall have been given to the Party against whom such indemnity may be sought before such time, and (y) nothing contained in this Section 8.01 shall limit in any way any rights a Party may have to bring claims grounded in fraud, intentional misrepresentation or willful misconduct, which rights shall survive the Closing indefinitely.

**Section 8.02. Indemnification by Seller.** To the maximum extent permitted by Law and subject to the terms and conditions of this Article VIII, Seller shall indemnify, defend and hold harmless, Buyer and its successors and Affiliates and their respective employees, officers, directors, trustees and agents (the "Buyer Indemnified Persons"), from and against any and all claims for Losses arising from or relating to: (a) any misrepresentation as to, or any material inaccuracy in, any of the representations and warranties of Seller contained in this Agreement or in any exhibit, schedule, certificate or other instrument or document furnished or to be furnished by Seller before the Closing pursuant to this Agreement (without regard to any materiality, Material Adverse Effect or related qualifications in the relevant representation or warranty (except where such provision requires disclosure of lists of items of a material nature or above a specified threshold)); (b) any breach or nonfulfillment of any of the covenants or agreements of Seller contained in this Agreement or in any exhibit, schedule, certificate or other instrument or document furnished or to be furnished by Seller before the Closing pursuant to this Agreement; or (c) any Excluded Liability or Excluded Asset.



**Section 8.03. Indemnification by Buyer.** To the maximum extent permitted by Law and subject to the terms and conditions of this Article VIII, Buyer shall defend, indemnify and hold harmless Seller and its successors and Affiliates and each of their respective employees, officers, directors and agents (the “Seller Indemnified Persons”) from and against any and all claims for Losses arising from or relating to: (a) any material misrepresentation as to, or any material inaccuracy in, any of the representations and warranties of Buyer contained in this Agreement or in any exhibit, schedule, certificate or other instrument or document furnished or to be furnished by Buyer pursuant to this Agreement; (b) any material breach of any of the covenants or agreements of Buyer contained in this Agreement or in any exhibit, schedule certificate or other instrument or document furnished or to be furnished by Buyer pursuant to this Agreement; (c) any Assumed Liability as and when payment and performance is due, including without limitation any liability related to any claims by any Governmental Authority; (d) Buyer’s actions involving Environmental Laws, Hazardous Materials or environmental claims from and after the Closing Date; or (e) the ownership, operation or control of the Acquired Assets or the System from and after the Closing Date.

**Section 8.04. Indemnification Procedure.**

(a) Third Party Claims. If any Indemnified Party receives notice of the assertion or commencement of any action, suit, claim or other legal proceeding made or brought by any Person who is not a party to this Agreement or an Affiliate of a party to this Agreement or a representative of the foregoing (a “Third Party Claim”) against such Indemnified Party with respect to which the Indemnifying Party may be obligated to provide indemnification under this Agreement, the Indemnified Party shall promptly notify the Indemnifying Party thereof. The failure to give such prompt notice shall not, however, relieve the Indemnifying Party of its indemnification obligations, except and only to the extent that the Indemnifying Party forfeits material rights or material defenses by reason of such failure. Such notice by the Indemnified Party shall describe the Third Party Claim in reasonable detail and shall indicate the estimated amount, if reasonably practicable, of the Loss that has been or may be sustained by the Indemnified Party. The Indemnifying Party may participate in, or by giving notice to the Indemnified Party (and subject to the other requirements herein) to assume the defense of any Third Party Claim at the Indemnifying Party’s expense and by the Indemnifying Party’s own counsel (which counsel shall be reasonably acceptable to the Indemnified Party), so long as (i) the Indemnifying Party notifies the Indemnified Party, within ten (10) Business Days after the Indemnified Party has given notice of the Third Party Claim to the Indemnifying Party (or by such earlier date as may be necessary under applicable procedural rules in order to file a timely appearance and response) that the Indemnifying Party is assuming the defense of such Third Party Claim, *provided*, that if the Indemnifying Party assumes control of such defense it must first agree and acknowledge in such notice that the Indemnifying Party is fully responsible (with no reservation of any rights other than the right to be subrogated to the rights of the Indemnified Party) for all Losses relating to such Third Party Claim, (ii) the Indemnifying Party conducts the defense of the Third Party Claim actively and diligently and at its own cost and expense, and (iii) the Third Party Claim (A) does not involve injunctive relief, specific performance or other similar equitable relief, any claim in respect of Taxes, any Governmental Authority, any criminal allegations, or any potential damage to the goodwill, reputation or overriding commercial interests of Buyer or its Affiliates, (B) is not one in which the Indemnifying Party is also a party

## APPENDIX A-5.1 (AUS)

and joint representation would be inappropriate or there may be legal defenses available to the Indemnified Party which are different from or additional to those available to the Indemnifying Party, or (C) does not involve a claim which, upon petition by the Indemnified Party, the appropriate court rules that the Indemnifying Party failed or is failing to vigorously prosecute or defend. The Indemnified Party shall reasonably cooperate in good faith in such defense. If the Indemnifying Party assumes the defense of any Third Party Claim, subject to Section 8.04(b), it may take such action as it deems necessary to avoid, dispute, defend, appeal or make counterclaims pertaining to any such Third Party Claim in the name and on behalf of the Indemnified Party. The Indemnified Party may, at its own cost and expense, to participate in the defense of any Third Party Claim with counsel selected by it subject to the Indemnifying Party's right to control the defense thereof. If the Indemnifying Party elects not to compromise or defend such Third Party Claim or fails to promptly notify the Indemnified Party in writing of its election to defend as provided in this Agreement, the Indemnified Party may, subject to Section 8.04(b), pay, compromise, defend such Third Party Claim and seek indemnification for any and all Losses based upon, arising from or relating to such Third Party Claim. Seller and Buyer shall reasonably and in good faith cooperate with each other in all reasonable respects in connection with the defense of any Third Party Claim, including making available records relating to such Third Party Claim and furnishing, without expense (other than reimbursement of actual out-of-pocket expenses) to the defending party, management employees of the non-defending party as may be reasonably necessary for the preparation of the defense of such Third Party Claim.

(b) Settlement of Third Party Claims. Notwithstanding any other provision of this Agreement, the Indemnifying Party shall not enter into settlement of any Third Party Claim without the prior written consent of the Indemnified Party (which consent shall not be unreasonably withheld or delayed), except as provided in this Section 8.04(b). If a firm offer is made to settle a Third Party Claim without leading to liability or the creation of a financial or other obligation on the part of the Indemnified Party and provides, in customary form, for the unconditional release of each Indemnified Party from all liabilities and obligations in connection with such Third Party Claim and the Indemnifying Party desires to accept and agree to such offer, the Indemnifying Party shall promptly notify the Indemnified Party. If the Indemnified Party fails to consent to such firm offer within fifteen (15) days after its receipt of such notice, the Indemnified Party may continue to contest or defend such Third Party Claim and in such event, the maximum liability of the Indemnifying Party as to such Third Party Claim shall not exceed the amount of such settlement offer. If the Indemnified Party fails to consent to such firm offer and also fails to assume defense of such Third Party Claim, the Indemnifying Party may settle the Third Party Claim upon the terms set forth in such firm offer to settle such Third Party Claim. If the Indemnified Party has assumed the defense pursuant to Section 8.04(a), it shall not agree to any settlement without the written consent of the Indemnifying Party (which consent shall not be unreasonably withheld or delayed).

(c) Direct Claims. Any claim by an Indemnified Party with respect to any Loss which does not arise or result from a Third Party Claim (a "Direct Claim") shall be asserted by the Indemnified Party giving the Indemnifying Party prompt notice thereof. The failure to give such prompt notice shall not, however, relieve the Indemnifying Party of its indemnification obligations, except and only to the extent that the Indemnifying Party forfeits material rights or material defenses by reason of such failure. Such notice by the Indemnified Party shall describe

the Direct Claim in reasonable detail and shall indicate the estimated amount, if reasonably practicable, of the Losses that have been or may be sustained by the Indemnified Party. The Indemnifying Party shall have thirty (30) days after its receipt of such notice to respond in writing to such Direct Claim. During such thirty (30) day period, the Indemnified Party shall reasonably cooperate and assist the Indemnifying Party in determining the validity and amount of such Direct Claim. If the Indemnifying Party does not so respond within such thirty (30) day period, by delivery of notice disputing the basis or amount of the Direct Claim, the Indemnifying Party shall be deemed to have rejected such claim, in which case the Indemnified Party shall be free to pursue such remedies as may be available to the Indemnified Party on the terms and subject to the provisions of this Agreement. If the Indemnifying Party has timely disputed its indemnity obligation for any Losses with respect to such Direct Claim, the Parties shall proceed in good faith to negotiate a resolution of such dispute and, if not resolved through negotiations, such dispute may be resolved by litigation in an appropriate court of jurisdiction determined pursuant to this Agreement.

### **Section 8.05. Limitations on Indemnification Obligations.**

(a) Subject to the other limitations contained in this Section 8.05, neither Buyer nor Buyer Indemnified Persons shall seek indemnification pursuant to Section 8.02(a) (other than for an intentional breach of any agreement or covenant contained in this Agreement or for breach of Seller's Fundamental Representations) unless the aggregate amount of Losses incurred by Buyer and Buyer Indemnified Persons under this Agreement exceeds \$750,000 in the aggregate (the "Threshold Amount"), in which case Seller will then be liable only for Losses in excess of the Threshold Amount, except that the limitations contained in this Section 8.05(a) shall not apply to any claims for indemnification based on fraud, intentional misrepresentation or willful misconduct.

(b) Subject to the other limitations contained in this Section 8.05 neither Seller nor the Seller Indemnified Persons shall seek indemnification pursuant to Section 8.03(a) (other than for an intentional breach of any agreement or covenant contained in this Agreement) unless the aggregate amount of Losses incurred by Seller and Seller Indemnified Persons under this Agreement exceeds the Threshold Amount, in which case Buyer will then be liable only for Losses in excess of the Threshold Amount, except that the limitations contained in this Section 8.05(a) shall not apply to any claims for indemnification based on fraud, intentional misrepresentation or willful misconduct.

(c) Except in the case of fraud, intentional misrepresentation or willful misconduct (for which all applicable legal and equitable remedies will be available to Buyer), the Buyer Indemnified Parties shall only be entitled to assert claims under Section 8.02(a) (other than claims with respect to breaches of any of the Seller Fundamental Representations, which shall not be limited by this Section 8.05(c)) up to the aggregate amount of 5% of Purchase Price (the "Liability Cap"), which shall represent the sole and exclusive remedy of Buyer and the other Buyer Indemnified Parties for any such claims under Section 8.02(a) (other than claims with respect to breaches of any of the Seller Fundamental Representations or in the case of fraud, intentional misrepresentation or willful misconduct which shall not be subject to the Liability Cap, but shall be capped at the Purchase Price).

## APPENDIX A-5.1 (AUS)

(d) Payments by an Indemnifying Party pursuant to Section 8.02 or Section 8.03 in respect of any Loss shall be limited to the amount of any liability or damage that remains after deducting therefrom any insurance proceeds and any indemnity, contribution or other similar payment received or reasonably expected to be received by the Indemnified Party in respect of any such claim. The Indemnified Party shall use its commercially reasonable efforts to recover under insurance policies or indemnity, contribution or other similar agreements for any Losses before seeking indemnification under this Agreement.

(e) Payments by an Indemnifying Party pursuant to Section 8.02 or Section 8.03 in respect of any Loss shall be reduced by an amount equal to any Tax benefit realized or reasonably expected to be realized as a result of such Loss by the Indemnified Party.

(f) Each Indemnified Party shall take, and cause its Affiliates to take, all reasonable steps to mitigate any Loss upon becoming aware of any event or circumstance that would be reasonably expected to, or does, give rise thereto, including incurring costs only to the minimum extent necessary to remedy the breach that gives rise to such Loss.

(g) Subject to the provisions of Sections 3.01, 7.06, 15.11 and any other provisions for equitable relief and/or specific performance, the Parties' sole and exclusive remedy with respect to any and all claims for any breach of any representation, warranty, covenant, agreement or obligation set forth herein or otherwise relating to the subject matter of this Agreement, shall be pursuant to the indemnification provisions set forth in this Article VIII. Each Party hereby waives, to the fullest extent permitted under Law, any and all rights, claims and causes of action for any breach of any representation, warranty, covenant, agreement or obligation set forth herein or otherwise relating to the subject matter of this Agreement it may have against the other Party and their Affiliates and each of their respective representatives arising under or based upon any Law, except pursuant to the indemnification provisions set forth in this Article VIII. Nothing in this Section 8.05(g) shall limit any Person's right to seek and obtain any equitable relief and/or specific performance pursuant to this Agreement.

**Section 8.06. Knowledge of Breach.** Neither Party shall be liable for any Losses based upon or arising out of any inaccuracy in or breach of any representations or warranties of such Party contained in this Agreement if the Party claiming such Losses had Knowledge of such inaccuracy or breach before the Closing.

### ARTICLE IX.

#### **PRE-CLOSING COVENANTS OF SELLER**

**Section 9.01. Operation of the System.** Except as otherwise expressly permitted by this Agreement, as required by Law or with the prior written consent of Buyer (which consent shall not be unreasonably withheld, delayed or conditioned), from the Effective Date until the Closing, Seller shall (i) operate and manage the System only in the ordinary course of business in accordance with past practices and procedures, (ii) collect accounts receivable and pay accounts payable in the ordinary course and in a manner consistent with its past practices, (iii) comply in all material respects with all Laws and Authorizations and Permits, and (iv) use its commercially reasonable efforts to maintain and preserve intact the business and assets of the System and

preserve the rights, franchises, goodwill and relationships of Seller and the System and its customers, lenders, suppliers, regulators, the Authority and others having business relationships with Seller and the System.

**Section 9.02. Cooperation.** Seller shall reasonably cooperate with Buyer and its employees, attorneys, accountants and other agents and, generally, act in reasonably good faith to timely effectuate the purposes of this Agreement and the consummation of the transactions contemplated by this Agreement.

**Section 9.03. Supplements and Updates.** Seller shall promptly deliver to Buyer any supplemental information updating the information set forth in the representations and warranties set forth in Article IV of this Agreement so that such representations and warranties as supplemented by such information will be true and correct as of the Closing Date (or such other date as provided in such representations and warranties) as if then made. Following the Effective Date, Seller shall promptly advise Buyer of any facts which would be a breach of a representation or warranty as of the date made or a default in a covenant contained herein.

**Section 9.04. Consents and Approvals.** Promptly after the execution of this Agreement, or as required by Law, except as otherwise expressly provided herein, Seller shall file all applications and reports that are required to be filed by Seller with any Governmental Authority as set forth on Schedule 4.05. Seller shall also promptly provide all information that any Governmental Authority may require in connection with any such application or report. Seller shall use its commercially reasonable efforts to obtain each consent, waiver, authorization or approval of any kind from any Person in connection with the transactions contemplated by this Agreement. All authorizations of any Governmental Authority necessary to consummate the transactions contemplated by this Agreement will be in form and content reasonably satisfactory to Buyer and Seller before Closing and shall be final and non-appealable. If a party to the PaPUC proceeding appeals PaPUC authorization of the transaction, Buyer and Seller may mutually agree to proceed to consummate the transaction.

**Section 9.05. Pending Development Plan Agreements / Future Developments.** Seller shall enforce all of its rights and the counterparties' obligations under any agreements relating to Pending Development Plans in existence as of the Effective Date, which shall not be amended without notice to and the consent of Buyer, which consent shall not be unreasonably withheld and Buyer shall provide such consent to Seller within fifteen (15) days of notice from Seller or this consent requirement is deemed waived by Buyer after such date. After the Effective Date, Seller shall not enter into any new agreements (including Land Development Agreements and Financial Security Agreements) with landowners regarding the construction of any sewer facilities which, upon completion of construction, will be transferred to Buyer pursuant to Section 2.01 hereof without notice to and the consent of Buyer, which consent shall not be unreasonably withheld and Buyer shall provide such consent to Seller within seven (7) days of notice from Seller or this consent requirement is deemed waived by Buyer after such date. For the avoidance of doubt, any attempt by Buyer to withhold consent for entry into any amendment or new agreement by Seller pursuant to this Section 9.05 that is, in the opinion of Seller's solicitor, required pursuant to the Pennsylvania Municipal Planning Code is deemed unreasonable.

ARTICLE X.

**PRE-CLOSING COVENANTS OF BUYER**

**Section 10.01. Actions Before the Closing Date.** Buyer shall not take any action which shall cause it to be in breach of any representation, warranty, covenant or agreement contained in this Agreement or cause it to be unable to perform in any material respect its obligations hereunder, and Buyer shall use its commercially reasonable efforts (subject to any conditions set forth in this Agreement) to perform and satisfy all conditions to Closing to be performed or satisfied by Buyer under this Agreement, including action necessary to obtain all consents and approvals from any Person required to be obtained by Buyer to effect the transactions contemplated by this Agreement.

**Section 10.02. Consents and Approvals.** Promptly after the execution of this Agreement, or as required by Law, except as otherwise expressly provided herein, Buyer shall file all applications and reports that are required to be filed by Buyer with any Governmental Authority as set forth on Schedule 5.04. Buyer shall also promptly provide all information that any Governmental Authority may reasonably require in connection with any such application or report.

**Section 10.03. Cooperation.** Buyer shall reasonably cooperate with Seller and their employees, attorneys, accountants and other agents and, generally, do such other acts and things in good faith as may be reasonable to timely effectuate the purposes of this Agreement and the consummation of the transactions contemplated in accordance with the provisions of this Agreement.

**Section 10.04. Supplements and Updates.** Buyer shall promptly deliver to Seller any supplemental information updating the information set forth in the representations and warranties set forth in Article V of this Agreement so that such representations and warranties as supplemented by such information will be true and correct as of the Closing Date (or such other date as provided in such representations and warranties) as if then made. At least three (3) Business Days before the Closing Date, Buyer shall advise Seller of any facts which would be a breach of a representation or warranty as of the date made or a default in a covenant contained herein.

ARTICLE XI.

**CONDITIONS PRECEDENT TO OBLIGATIONS OF SELLER**

The obligation of Seller to consummate the transactions provided for in this Agreement is subject to the satisfaction, at or before the Closing, of the following conditions, any one or more of which may be waived in writing by Seller in its sole discretion:

**Section 11.01. Consents and Approvals.** Receipt of all required material, consents, waiver, authorizations or approvals of any Governmental Authority, or of any other Person and any other approvals necessary to consummate the transactions contemplated by this Agreement set forth in Schedule 5.04, including without limitation all required EPA and PaDEP approvals

and all such Authorizations and Permits and Governmental Approvals must be final (and not subject to any appeal and any applicable appeal period having expired).

**Section 11.02. Representations and Warranties of Buyer.** The representations and warranties made by Buyer in Article V which are (a) not qualified by materiality must be true and correct in all material respects on and as of the Closing Date (except for representations or warranties that speak of a specific date or time other than the Closing Date which must be true and correct in all material respects as of such specified date) and (b) qualified by materiality must be true and correct in all respects on and as of the Closing Date (except for representations or warranties that speak of a specific date or time other than the Closing Date which must be true and correct in all respects as of such specified date), and Seller must have received a certificate to that effect from a duly authorized officer of Buyer dated as of the Closing Date.

**Section 11.03. PaPUC Approval.** PaPUC must have issued a Final Order approving the acquisition of the System under terms and conditions that are reasonably acceptable to Seller and Buyer. If a party to the PaPUC proceeding appeals or files a petition for reconsideration of PaPUC authorization of the transaction, Buyer and Seller may mutually agree to proceed to consummate the transaction.

**Section 11.04. No Injunctions.** Neither Seller nor Buyer are subject to any injunction, preliminary restraining order or other similar decree of a court of competent jurisdiction prohibiting the consummation of the transactions contemplated by this Agreement.

**Section 11.05. Performance of the Obligations of Buyer.** Buyer must have performed in all material respects all obligations required under this Agreement to be performed by Buyer on or before the Closing Date, and Seller must have received a certificate to that effect from Buyer dated the Closing Date.

**Section 11.06. Deliveries by Buyer.** Buyer must have made delivery to Seller of the documents and items specified in Section 13.03 herein.

**Section 11.07. No Material Adverse Effect.** There shall not have occurred any event or condition which gives rise to a Material Adverse Effect with respect to the Acquired Assets or the System.

### ARTICLE XII.

#### **CONDITIONS PRECEDENT TO OBLIGATIONS OF BUYER**

The obligation of Buyer to consummate the transactions provided for in this Agreement is subject to the satisfaction, at or before the Closing, of the following conditions, any one or more of which may be waived in writing by Buyer in its sole discretion:

##### **Section 12.01. Consents and Approvals.**

(a) Receipt of all required material, consents, waivers, authorizations or approvals of any Governmental Authority, or of any other Person and any other approvals necessary to consummate the transactions contemplated by this Agreement set forth in Schedule 4.05,

including without limitation all required EPA and PaDEP approvals and all such Authorizations and Permits and Governmental Approvals must be final (and not subject to any appeal and any applicable appeal period having expired); and

(b) Approval by the Seller for: (i)(A) defeasance and redemption of any outstanding bonds issued by the Seller on the System included in the Outstanding Indebtedness and (B) discharge of any other outstanding debt issued to the Seller and payable to any current lender and (ii) applying any funds related to funds held in any construction fund or account under any indenture(s) being held by the Seller or any lender to the Seller on any outstanding debt (it being understood that any debt service funds or debt service reserve funds will be applied to the defeasance, redemption and discharge of outstanding debt).

**Section 12.02. Representations and Warranties of Seller.** The representations and warranties made by Seller in Article IV this Agreement (disregarding all “materiality” and “Material Adverse Effect” or similar qualifications contained therein) must be true and correct on and as of the Closing Date (except for representations and warranties expressly stated to relate to a specific date, in which case each such representation and warranty must be true and correct as of such earlier date), with only such exceptions as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect, and Buyer must have received a certificate to that effect from Seller dated as of the Closing Date.

**Section 12.03. PaPUC Approval.** PaPUC must have issued a Final Order approving the acquisition of the System under terms and conditions that are reasonably acceptable to Seller and Buyer. If a party to the PaPUC proceeding appeals PaPUC authorization of the transaction, Buyer and Seller may mutually agree to proceed to consummate the transaction.

**Section 12.04. No Injunctions.** Neither Seller or Buyer are subject to any injunction, preliminary restraining order or other similar decree of a court of competent jurisdiction prohibiting the consummation of the transactions contemplated by this Agreement.

**Section 12.05. No Material Adverse Effect.** There shall not have occurred any event or condition which gives rise to a Material Adverse Effect with respect to the Acquired Assets or the System.

**Section 12.06. Deliveries by Seller.** Seller must have made delivery to Buyer of the documents and items specified in Section 13.02 herein.

**Section 12.07. Performance of the Obligations of Seller.** Seller must have performed in all material respects all obligations required under this Agreement to be performed by Seller on or before the Closing Date, and Buyer must have received a certificate to that effect from Seller dated the Closing Date.



ARTICLE XIII.

CLOSING

**Section 13.01. Closing Date.** The Closing shall take place at a place in Pennsylvania that is mutually agreed upon by the Parties, at 10:00 a.m. Eastern Standard Time on the earliest agreed upon date or within twenty (20) Business Days after the date upon which all the conditions precedent to Closing described in this Agreement have been fulfilled or waived and Buyer and Seller receive the last of the required consents, waivers, authorizations and approvals from the Governmental Authorities, in each case, for the transactions contemplated by this Agreement, or at such other place and time, by such other method, or on such other date, as may be mutually agreed to by the Parties (the "Closing Date"). The Closing will be effective at 12:01 a.m., Royersford Borough, PA time, on the Closing Date (the "Closing Effective Time").

**Section 13.02. Deliveries by Seller.** At the Closing, Seller shall deliver or cause to be delivered to Buyer executed copies of the following agreements, documents and other items:

(a) A Bill of Sale transferring all of the Acquired Assets comprising personal property, in the form attached as Exhibit A;

(b) Possession of the Acquired Assets, including without limitation, the Real Property, the Easements and an interest in the Missing Easements;

(c) A duly executed counterpart to an Assignment and Assumption Agreement with respect to the Assumed Liabilities (the "Assignment and Assumption Agreement"), in the form attached as Exhibit B;

(d) The consents to transfer all of the Assigned Contracts and Authorizations and Permits (including environmental Authorizations and Permits), to the extent required hereunder;

(e) One or more special warranty or other deeds in recordable form reasonably acceptable to Buyer transferring fee simple title of Real Property;

(f) Copies or originals of all Files and Records, materials, documents and records in possession of Seller relating to the Real Property or the Assigned Contracts;

(g) Certificate of Seller pursuant to Section 12.02 of this Agreement;

(h) Certificate of Seller pursuant to Section 12.07 of this Agreement;

(i) Any documents duly executed by Seller required by the Title Company to issue final owner's title policies in accordance with the provisions of Article VI; and

(j) All such other instruments of conveyance or other documents as shall, in the reasonable opinion of Buyer and its counsel, be necessary to transfer to Buyer the Acquired Assets in accordance with this Agreement or to carry out the terms of this Agreement, duly executed and acknowledged by Seller, if necessary, and in a recordable form.

**Section 13.03. Deliveries by Buyer.** At the Closing, Buyer shall deliver or caused to be delivered to Seller the following agreements, documents and other items:

- (a) Payment in full of the Purchase Price;
- (b) A duly executed counterpart to the Assignment and Assumption Agreement;
- (c) Certificate of Buyer pursuant to Section 11.02 of this Agreement;
- (d) Certificate of Buyer pursuant to Section 11.05 of this Agreement;
- (e) Evidence of PaPUC approval as provided in Section 12.03; and
- (f) All such other instruments of assumption as shall, in the reasonable opinion of Seller and its counsel, be necessary for Buyer to assume the Assumed Liabilities in accordance with this Agreement.

### ARTICLE XIV.

#### TERMINATION

**Section 14.01. Events of Termination.** This Agreement may be terminated and abandoned at any time before the Closing:

- (a) By the mutual consent of Seller and Buyer;
- (b) By either Seller or Buyer, upon notice, if:
  - (i) the Closing does not occurred on or before the Outside Date, except Buyer has the one-time right, upon notice to Seller, to extend the Outside Date for up to ninety (90) days if, in the Buyer's sole discretion, any such amount of time up to ninety (90) days is necessary to obtain a required Governmental Approval; or
  - (ii) any Governmental Authority issues an order, decree or ruling or taken any other action, in each case permanently restraining, enjoining or otherwise prohibiting the material transactions contemplated by this Agreement and such order, decree, ruling or other action becomes final and non-appealable, if the Party seeking termination pursuant to this clause (b)(ii) is not then in material breach of any of its representations, warranties, covenants or agreements contained in this Agreement;
- (c) By Seller (if Seller is not then in material breach of any provision of this Agreement) if a material breach of any covenant or agreement to be performed or complied with by Buyer pursuant to the terms of this Agreement or of any representation or warranty of Buyer contained in this Agreement, which breach (i) has continued without cure for a period of sixty (60) days following notice thereof by Seller to Buyer or if such breach cannot be cured and (ii) would result in a condition to Closing set forth in Article XI of this Agreement not being satisfied (which condition has not been waived by Seller in writing); or

(d) By Buyer (if Buyer is not then in material breach of any provision of this Agreement) if a material breach of any covenant or agreement to be performed or complied with by Seller pursuant to the terms of this Agreement or of any representation or warranty of Seller contained in this Agreement, which breach (i) has continued without cure for a period of sixty (60) days following notice thereof by Buyer to Seller or if such breach cannot be cured and (ii) would result in a condition to Closing set forth in Article XII of this Agreement not being satisfied (which condition has not been waived by Buyer in writing).

This Agreement may not be terminated after the Closing.

**Section 14.02. Effect of Termination.** If this Agreement is terminated by Seller or Buyer pursuant to Section 14.01, notice thereof will be given promptly to the other and all further obligations of the Parties terminate without further action by either Party and without liability or other obligation of either Party to the other Party hereunder, except that no Party will be released from liability hereunder if this Agreement is terminated and the transactions abandoned by reason of any willful breach of this Agreement.

**Section 14.03. Damages for Willful Breach.** If this Agreement is terminated as a result of willful breach by either Party as described in Section 14.02, the Party who willfully breached the Agreement is liable for Losses incurred by the non-breaching Party as a result of the breach in accordance with Article VIII hereof.

### ARTICLE XV.

#### MISCELLANEOUS

**Section 15.01. Confidentiality.** Except as and to the extent required by Law (including but not limited to the Pennsylvania Right-To-Know Act at 65 Pa § 67.101) or pursuant to an order of a court of competent jurisdiction and as required hereunder to obtain any and all required Governmental Approvals, neither Party shall, directly or indirectly, disclose or use (and no Party shall permit its Representatives to disclose or use) any Confidential Information with respect to the other Party furnished, or to be furnished, by such other Party or its shareholders, directors, officers, agents, or representatives to the other Party or its employees, directors, officers, agents or representatives in connection herewith at any time or in any manner other than in connection with the completion of the transactions contemplated by this Agreement and related transactions.

**Section 15.02. Public Announcements.** Subject to Law or listing rules of an exchange on which Buyer's parent corporation's stock is listed, and except as otherwise set forth herein, the initial public announcement relating to the transactions contemplated herein will be mutually agreed upon and jointly made by the Parties. Subsequent public announcements related to the sale of the System by one Party shall be provided to the other Party as soon as reasonably practicable before issuance.

**Section 15.03. Notices.** All notices, other communications and approvals required or permitted by this Agreement shall be in writing, shall state specifically that they are being given pursuant to this Agreement and shall be addressed as follows:

in the case of Seller:

Royersford Borough  
300 Main Street  
Royersford, PA 19468  
Attention: Manager

with a copy to:

Royersford Borough  
300 Main Street  
Royersford, PA 19468  
Attention: Solicitor

in the case of Buyer:

Pennsylvania-American Water Company  
852 Wesley Drive  
Mechanicsburg, PA 17055  
Attention: President

with a copy to:

Pennsylvania-American Water Company  
852 Wesley Drive  
Mechanicsburg, PA 17055  
Attention: General Counsel

or such other persons or addresses as a Party may from time to time designate by notice to the other Party. A notice, other communication or approval is deemed to have been sent and received (i) on the day it is delivered, or if such day is not a Business Day or if the notice is received after ordinary office hours (time or place of receipt), the notice, other communication or approval is deemed to have been sent and received on the next Business Day, or (ii) on the fourth Business Day after mailing if sent by United States registered or certified mail.

**Section 15.04. Headings.** The article, section and paragraph headings in this Agreement are for reference purposes only and do not affect the meaning or interpretation of this Agreement.

**Section 15.05. Severability.** If any term, provision, covenant or restriction contained in this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions contained in this Agreement shall remain in full force and effect and shall in no way be affected, impaired or invalidated.

**Section 15.06. Entire Agreement.** This Agreement is the entire agreement between the Parties pertaining to the subject matter hereof and supersedes all prior agreements, negotiations, discussions and understandings, written or oral, between the Parties. There are no representations, warranties, conditions or other agreements, whether direct or collateral, or

express or implied, that form part of or affect this Agreement, or that induced any Party to enter into this Agreement or on which reliance is placed by any Party, except as specifically set forth in this Agreement. The Parties acknowledge and agree that (i) each has substantial business experience and is fully acquainted with the provisions of this Agreement, (ii) the provisions and language of this Agreement have been fully negotiated and (iii) no provision of this Agreement shall be construed in favor of any Party or against any Party by reason of such provision of this Agreement having been drafted on behalf of one Party rather than the other Party.

**Section 15.07. Amendments; Waivers.** The Parties may amend this Agreement only by the Parties' written agreement that identifies itself as an amendment to this Agreement. Any waiver of, or consent to depart from, the requirements of any provision of this Agreement will be effective only if it is in writing and signed by the Party giving it, and only in the specific instance and for the specific purpose for which it has been given. No failure on the part of any Party to exercise, and no delay in exercising, any right under this Agreement will operate as a waiver of such right. No single or partial exercise of any such right will preclude any other or further exercise of such right or the exercise of any other right.

**Section 15.08. Parties in Interest; Third Party Beneficiary.** Except as hereinafter provided, this Agreement is not intended to and shall not be construed to create upon any Person other than the Parties any rights or remedies hereunder.

**Section 15.09. Successors and Assigns.** Neither Party to this Agreement may assign any right or delegate any performance under this Agreement without the prior written consent of the other Party. A purported assignment or purported delegation without prior written consent is void.

**Section 15.10. Governing Law; Jurisdiction.** The laws of the Commonwealth of Pennsylvania (without giving effect to its conflicts of law principles) govern all matters arising and relating to this Agreement, including torts. The Parties irrevocably agree and consent to the jurisdiction of the United States District Court for the Eastern District of Pennsylvania and the Court of Common Pleas of Montgomery County, Pennsylvania, for the adjudication of any matters arising under or in connection with this Agreement. Any action initiated in court shall be filed and litigated (including all discovery proceedings) exclusively in the United States District Court for the Eastern District of Pennsylvania and the Court of Common Pleas of Montgomery County, Pennsylvania, and each Party irrevocably submits to the exclusive jurisdiction of such courts in any such suit, action or proceeding. Service of process, summons, notice or other document by mail to such Party's address set forth herein shall be effective service of process for any suit, action or other proceeding brought in any such court. EACH PARTY ACKNOWLEDGES AND AGREES THAT ANY CONTROVERSY WHICH MAY ARISE UNDER THIS AGREEMENT OR THE OTHER TRANSACTION DOCUMENTS IS LIKELY TO INVOLVE COMPLICATED AND DIFFICULT ISSUES AND, THEREFORE, EACH SUCH PARTY IRREVOCABLY AND UNCONDITIONALLY WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LEGAL ACTION ARISING OUT OF OR RELATING TO THIS AGREEMENT, THE OTHER TRANSACTION DOCUMENTS OR THE TRANSACTIONS CONTEMPLATED HEREBY OR THEREBY. EACH PARTY TO THIS AGREEMENT CERTIFIES AND ACKNOWLEDGES THAT (A) NO REPRESENTATIVE OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR

OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT SEEK TO ENFORCE THE FOREGOING WAIVER IN THE EVENT OF A LEGAL ACTION, (B) SUCH PARTY HAS CONSIDERED THE IMPLICATIONS OF THIS WAIVER, (C) SUCH PARTY MAKES THIS WAIVER VOLUNTARILY, AND (D) SUCH PARTY HAS BEEN INDUCED TO ENTER INTO THIS AGREEMENT BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION.

**Section 15.11. Specific Performance.** Irreparable damage would occur if any provision of this Agreement were not performed in accordance with the terms hereof and that the Parties may seek specific performance of the terms hereof, in addition to any other remedy to which they are entitled at law or in equity if the other Party has performed in accordance with the terms hereof.

**Section 15.12. Counterparts; Facsimile Execution.** This Agreement may be executed in any number of counterparts which, taken together, is one and the same agreement. This Agreement becomes effective when it has been executed by each Party and delivered to both Parties. To evidence the fact that it has executed this Agreement, a Party may send a copy of its executed counterpart to the other Party by facsimile transmission. Such Party is deemed to have executed and delivered this Agreement on the date it sent such facsimile transmission. In such event, such Party shall forthwith deliver to the other Party an original counterpart of this Agreement executed by such Party.

[THIS SPACE INTENTIONALLY LEFT BLANK;


SIGNATURES NEXT PAGE]

APPENDIX A-5.1 (AUS)

IN WITNESS WHEREOF, the Parties have executed, or caused to be executed by their duly authorized Representatives, this Agreement as of the Effective Date.

ROYERSFORD BOROUGH,  
MONTGOMERY COUNTY

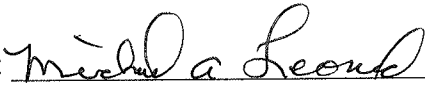
PENNSYLVANIA-AMERICAN WATER  
COMPANY

By:   
Printed: Arul Dham  
Its: President

By: \_\_\_\_\_  
Printed: \_\_\_\_\_  
Its: \_\_\_\_\_

ATTEST:

ATTEST:

By:   
Printed: Michael A. Leonard  
Title: Borough Manager

By: \_\_\_\_\_  
Printed: \_\_\_\_\_  
Title: \_\_\_\_\_

APPENDIX A-5.1 (AUS)

IN WITNESS WHEREOF, the Parties have executed, or caused to be executed by their duly authorized Representatives, this Agreement as of the Effective Date.

ROYERSFORD BOROUGH,  
MONTGOMERY COUNTY

PENNSYLVANIA-AMERICAN WATER  
COMPANY

By: \_\_\_\_\_

By: 

Printed: \_\_\_\_\_

Printed: F. Michael Doran

Its: \_\_\_\_\_

Its: President

ATTEST:

ATTEST:

By: \_\_\_\_\_

By: 

Printed: \_\_\_\_\_

Printed: Susan Simms Marsh

Title: \_\_\_\_\_

Title: Asst. Secretary



# APPENDIX A-5.1 (AUS)

**BID EXECUTION VERSION – 12/10/2019**

## **ASSET PURCHASE AGREEMENT**

**By and Between**

**Royersford Borough, Montgomery County**

**As Seller**

**and**

**Pennsylvania-American Water Company**

**As Buyer**

## **SCHEDULES AND EXHIBITS**

Capitalized terms used in the Schedules which are not otherwise defined herein shall have the respective meanings ascribed to such terms in the Agreement. The Schedules are to be read in their entirety. Nothing in the Schedules is intended to broaden the scope of any representation or warranty in the Agreement. The disclosure of any item, explanation, exception or qualification in any Schedule is disclosure of that item for all purposes for which disclosure is required under the Agreement when it is reasonably apparent from the context that such item, explanation, exception or qualification also relates to another Schedule irrespective of whether any cross reference is made or no Schedule is provided with respect to a representation. Other than as expressly set forth herein or when the Schedules reference agreements or other matters not documented in a separate writing, all descriptions of agreements, written materials or other matters appearing herein, are summary in nature and are qualified by reference to the complete documents, which have been supplied to the Buyer or its counsel.

# APPENDIX A-5.1 (AUS)

## Schedule 2.02(h)

### Excluded Assets

1. CUB CADET – PURCHASED 9/19/2013  
MODEL # LTX 1046  
SERIAL # 045120525
2. JOHN DEERE – MODEL YEAR 2013  
MODEL # D170  
SERIAL #1311064524020
3. NEW HOLLAND SKID STEER MODEL YEAR 2003  
MODEL # LS180  
SERIAL # LMUOIL229
4. CRAFTSMAN ROTARY LAWN MOWER  
MODEL # 917,376677  
SERIAL #061708M006724
5. ARIENS SNOW BLOWER  
MODEL # 932100-824  
SERIAL # 008429
6. CRAFTMAN POWER WASHER – 2700 MSX PSI  
2.3 MAX GPM
7. BRIGGS AND STRATTON ENGINE 7.75-175CC  
MODEL # 580.752521  
SERIAL # 1018914494
8. PENN VALLEY DOUBLE DISC PUMP 3.5 HP GX270  
MODEL # YDD5X24CNU  
SERIAL # 070038

## APPENDIX A-5.1 (AUS)

9. SNOW EXV SALT SPREADER

MODEL # SP-8500

SERIAL # 15032700517 SP-8500

10. CONTROLLER

MODEL #0571612

SERIAL # 10318

11. 2012 FORD F 350 SUPER DUTY 4X4

VIN # 1FTBF3B66CEB43231

LICENSE PLATE # MF-9433F

12. MEYERS SNOW PLOW

MODEL # LP-85

PART # 09402

SERIAL # 00011409402

13. AMT 2INCH PUMP 3.5HP

MODEL # 091232 TYPE 1062E1 CODE # 040512YA

# APPENDIX A-5.1 (AUS)

## **Schedule 4.05**

### Required Governmental Consents

1. Pennsylvania Public Utility Commission (“PaPUC”) Approval of Transaction
2. PaPUC Approval of Consent to Assignment and Amendment to Sewer Service Agreements and Related Amendments
3. Pennsylvania Department of Environmental Protection (“PaDEP”) Approval of Sanitary Sewer Collection and Conveyance System Act 537 Plan recognizing transfer of wastewater collection system from Seller to Buyer
4. PaDEP Approval of Transfer of All NPDES and WQM Permits
5. [Limerick Township/Aqua PA consent to assign Sewer Service Agreements]

# APPENDIX A-5.1 (AUS)

## **Schedule 4.06**

### Seller Liabilities

None.

# APPENDIX A-5.1 (AUS)

## **Schedule 4.07**

### Events Having a Material Adverse Effect

None.

# APPENDIX A-5.1 (AUS)

## **Schedule 4.08**

### Tax Matters

None.

## Schedule 4.09

### Real Property and Easements; Liens

#### *Fee Property*

- Borough of Royersford Wastewater Treatment Plan at 600 South First Avenue, Upper Providence, PA 19468

#### *Pumping Station Easements*

- Green Street Pumping Station (Green Street southwest of the Spring-Ford 9<sup>th</sup> Grade Center)
- Tenth Avenue Pumping Station (intersection of 10<sup>th</sup> Avenue and Main Street)
- First Avenue Interceptor
- Second Avenue Interceptor
- **Tenth Avenue Right-of-Way** granted pursuant to Deed of Dedication dated October 20, 2000 by Reitnour Investment Properties—Limerick, LP
- **Tenth Avenue Right-of-Way**, Limerick Commercial Center, titled Right-of-Way Plan for Lakeview Commercial Center, Job Number 993367, Drawing Number RW193367, dated August 23, 1999, last revised January 17, 2000

#### *Real Property Easements and Rights of Way*

See Attached Schedule



## Schedule 4.10

### Equipment and Machinery

The following pieces of machinery and equipment:

- Primary (3) and Secondary (3) Settling Tanks
- Primary and Secondary Trickling Filters
- Primary Recirculation Pumps (2)
- Secondary Recirculation Pumps (2)
- Raw Sewage Pumps (2)
- Influent Grinder
- Influent Screen Unit
- Poly Aluminum Chloride System
- Anaerobic Digester
- Sludge Holding Tanks (2)
- Emergency Generator

### **10<sup>th</sup> Avenue Pump Station**

- Pump, Gorman Rupp Model T4A3-B, 450 GPM, 20 HP, 230 V, 3 phase
- ISCO 4507 pump station monitor
- 3HP Muffin Monster grinder
- Onan Model 80DGDA, 100kVA, 82kW diesel powered generator
- Flow meters

### **Green Street Pump Station**

- Pump, Vaughan Chopper Pumps Model P4L6, 350 GPM, 15 HP, 230V, 3 phase
- Baldor Model TS60, 61kVA, 49kW diesel powered generator
- Flow meters

### **Conveyance System**

- Approximately 66,000 of 6,8,10, 12, and 15 inch clay pipe<sup>1</sup>
- Approximately 250 manholes
- Approximately 7,600 feet of liner for 8 inch and 10 inch sewer and approximately 1638 feet of liner for 15 inch sewer

---

<sup>1</sup> See spreadsheet in data room for full pipe quantities

# APPENDIX A-5.1 (AUS)

## Schedule 4.11(a)

### Employee Obligations

Position	Salary	Insurance (Health + Dental)	Sick Days	Personal Days	Vacation Days	Authorizations
Supervisor	\$72,710.30	\$34,483.68	15 per year	3 per year	15 per year	Class C,E Wastewater Subclass 2,3,4
Operator	\$46,342.40	\$30,728.40	15 per year	3 per year	10 per year	Class A Wastewater Subclass 1,3

# APPENDIX A-5.1 (AUS)

## **Schedule 4.11(b)**

### Multiemployer Plans

None.

**Schedule 4.11(c)**

Post-Termination Benefit Obligations

None.

# APPENDIX A-5.1 (AUS)

## **Schedule 4.11(e)**

### Severance Agreements

None.

# APPENDIX A-5.1 (AUS)

## **Schedule 4.12(a)**

### Exceptions to Personnel Payments

None.

## **Schedule 4.13**

### Environmental Compliance

- Flooding at the 10<sup>th</sup> Avenue pump station during extreme weather in 2011
- Underground diesel tank near digester building

# APPENDIX A-5.1 (AUS)

## Schedule 4.14

### Authorizations, Licenses and Permits

1. [Commonwealth of Pennsylvania Department of Environmental Resources Water Quality Management Permit for Sanitary Sewer Collection System, Nos. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_].[TO BE CONFIRMED/PROVIDED BY BOROUGH]
2. Commonwealth of Pennsylvania Department of Environmental Protection NPDES Permit No. PA0021512 relating to the Royersford Borough STP at 600 South First Avenue, Upper Providence, Montgomery County, effective January 1, 2018 and expiring December 31, 2022
3. Pennsylvania Department of Environmental Protection approval of Act 537 Official Sewage Facilities Plan
4. Montgomery County Health Department – Post closing notice
5. PaPUC
  - a. Approval of transaction
  - b. Approval of consent to assignment and amendments to Wastewater Service Agreements



# APPENDIX A-5.1 (AUS)

## Schedule 4.15

### Assigned Contracts

<b>Agreements</b>			
<b>Name of Contract</b>	<b>Parties to Contract</b>	<b>Date of Contract</b>	<b>Subject</b>
Agreement for Sewer Service	Limerick Township, Limerick Township Municipal Authority, and the Borough of Royersford	December 4, 1967, as amended November 30, 1976	Providing Sewer Service to Limerick
Independent Contractor Agreement	The Borough of Royersford and HydroTech Environmental	March 1, 2018	Sludgehauling Contract

# APPENDIX A-5.1 (AUS)

# APPENDIX A-5.1 (AUS)

## Schedule 4.16

### Litigation

None.

## **Schedule 4.18(a)**

### Exception to Title to Acquired Assets

Title to the Acquired Assets shall be under and subject to any Missing Easements or exceptions identified on any title reports or surveys obtained by Buyer with respect to conveyance of Seller's property. Seller, does not, and will not make any representation or warranty with respect to any Missing Easements or title exceptions, but shall use commercially reasonable efforts to work with Buyer to address the same.

## Schedule 4.18(b)

### Sufficiency

Sufficiency of the Acquired Assets shall be under and subject to any Missing Easements or exceptions identified on any title reports or surveys obtained by Buyer with respect to conveyance of Seller's property. Seller, does not, and will not make any representation or warranty with respect to any Missing Easements or title exceptions, but shall use commercially reasonable efforts to work with Buyer to address the same.

# APPENDIX A-5.1 (AUS)

## Schedule 4.19

### Recent and Pending Development Plans

None.

# APPENDIX A-5.1 (AUS)

## Schedule 4.20

### Land Development or Financial Security Agreements

None.

# APPENDIX A-5.1 (AUS)

## Schedule 5.04

### Buyer Consents and Approvals

1. Pennsylvania Public Utility Commission (the “PaPUC”) Approval of Transaction
2. PaPUC Approval of Consent to Assignment and Amendment to Sewage Treatment Agreements and Related Amendments
3. Pennsylvania Department of Environmental Protection (the “PaDEP”) Approval of Sanitary Sewer Collection and Conveyance System Act 537 Plan recognizing transfer of wastewater collection system from Seller to Buyer
4. PaDEP transfer of all NPDES and WQM Permits



# APPENDIX A-5.1 (AUS)

## **Schedule 5.11**

### Buyer Litigation

[None.]

# APPENDIX A-5.1 (AUS)

## Schedule 7.03(a)

### Rates

Section 1 Chapter 18 of the Code of Ordinances of the Borough of Royersford, Part 1, Section 104(1)(D) shall read as follows:

"In either of the foregoing cases, such sewer rentals or charges shall be computed in accordance with the following metered rate schedule subject, however, to the minimum sewer rentals or charges provided in this Part:

Sewer Use Charge: \$4.20 per 100 cubic feet of water consumed. If the improved property has installed a meter to measure the volume discharge, the sewer use charge shall be \$4.20 per 100 cubic feet of discharge.

Minimum Charge: \$90 per quarter.

Section 2: Chapter 18 of the Code of Ordinances of the Borough of Royersford, Part 1, Section 104(2) shall read as follows:

"Sewer rentals or charges for domestic waste discharge into the sewer systems from any improved property when the volume of water usage is not metered and when the actual volume of discharge is not metered as permitted in this ordinance shall be computed at the rate of \$130.50 per quarterly billing period per dwelling unit.

Please note, after Closing, the measurement of "cubic feet" will be converted to "gallon".

# APPENDIX A-5.1 (AUS)

## **Schedule 7.11(a)**

### Transferred Personnel

1. Jack Huzzard, Supervisor
2. Bill Evans, Operator

# APPENDIX A-5.1 (AUS)

## **Exhibit A**

### Bill of Sale

# APPENDIX A-5.1 (AUS)

## **Exhibit B**

### Assignment and Assumption Agreement

Agreement to Provide Valuation Consulting Services  
Between

AUS Consultants

And

Pennsylvania America Water Company  
For the Appraisal of

Royersford Borough's Sanitary Sewer System

As of the most recent period (First Quarter 2019)

## **Agreement for Valuation Consulting Services**

This Agreement for Valuation Consulting Services (“Agreement”) is by and between AUS Consultants, a New Jersey corporation (“Supplier”) and Pennsylvania-American Water Company, a Pennsylvania corporation (“PA-American”) and is entered into as of July 19, 2019. In consideration of the covenants hereinafter contained, and intending to be legally bound, the Parties hereto agree to as follows:

### **Section 1. Description of Services:**

Supplier is being engaged to act as a Utility Valuation Expert, as such term is defined in Pennsylvania Act 12 of 2016, amending Chapter 13 of the Pennsylvania Public Utility Code and the First and Second Implementation Orders entered by the Public Utility Commission at Docket No. M-2016-2543193 (collectively, “Act 12”). Supplier is being engaged with respect to the proposed acquisition by PA-American of the sanitary sewer system assets currently owned by Royersford Borough (Royersford, Pa.”). Upon the issuance of a notice to proceed by PA-American for each appraisal phase, Supplier shall prepare and produce the following appraisals and/or studies suitable for the Project, including if requested (collectively, the “Services”):

1. An Appraisal (Valuation study) consistent with the 2019-2020 Uniform Standards of Appraisal Practices (USPAP) as of the date requested by PA-American and consistent with the requirements of Act 12.
2. If applicable, provide expert witness testimony and documentation for the Valuation studies as required by Act 12.
3. If requested by PA-American, updates to the Valuation studies as of the date requested by PA-American.
4. Provide the documentation required by Act 12 with respect to the Services and the fees charged by Supplier pursuant to this Agreement.
5. If requested by PA-American, perform such other services as are consistent with Supplier’s engagement as a Utility Valuation Expert.

### **Section 2. Duration:**

Unless amended, the Project subject to this Agreement is anticipated to be approximately two years in duration and will be performed for the period beginning upon the issuance of a notice to proceed by PA-American and continuing through May 31, 2021. Supplier acknowledges and agrees that it shall not and shall have no obligation to provide the Services until such time as PA-American has issued a notice to proceed. To the extent Act 12 imposes any requirements with respect to the timing for the completion of the Services, the commencement date for such Services shall not be deemed to be any earlier than the date PA-American issues the notice to proceed.

### **Proprietary and Confidential**

This Agreement and information contained therein is not for use or disclosure outside of PA-AMERICAN, its Affiliates, and third party representatives, and Supplier except under written agreement by the contracting parties or as may be required by applicable law or regulation.

## APPENDIX A-5.1 (AUS)

### **Section 3. Effective & Expiration Dates:**

This Agreement shall be effective as of the date set forth in the first paragraph hereof (“Effective Date”) and shall continue until the earlier to completion on the Project or May 31, 2021 (“Expiration Date”) unless earlier terminated as set forth in this Agreement.

### **Section 4. Personnel to Perform the Services:**

Jerome C. Weinert, Principal and Director, shall be in charge of the Services on behalf of Supplier. Supplier shall call upon additional experienced professional staff as required. In the event that this Project or Agreement should not continue for any reason, or should PA-American replace the need for Supplier, PA-American shall give notice as soon as feasibly possible for Supplier to re-deploy their resources elsewhere without any penalty to PA-American.

Both parties recognize the importance of maintaining a continuity of Supplier’s personnel on this Project. Supplier agrees that any of its employees, staff, professionals, experts, partners, and/or other personnel: (a) identified as the “Project Team” identified in Section 6 of this Agreement, and/or (b) assigned to this Project subsequent to the execution of this Agreement, shall continue to be staffed on this Project throughout the entire length of time Project Services are provided under this Agreement. Further, said personnel shall be used in the same capacities in which they are initially intended as of the execution date of this Agreement, or as of the date they are assigned to the Project subsequent to execution date of this Agreement, so long as they continue to be employed by Supplier, or so long as PA-American continues to desire their services.

Should Supplier terminate its relationship and/or employment with said personnel, or if said personnel terminates the relationship with Supplier and/or resigns from employment with Supplier, to the extent that Supplier, for any reason, enters into non-compete or similar agreement(s) and/or arrangement (s) with any of its employees, staff, professionals, experts, partners, and/or other personnel, Supplier agrees to immediately release said personnel from non-compete or similar agreement(s) and/or arrangement(s) with respect to being able to work for PA-American in any capacity PA-American sees fit.

Should any or all of Suppliers employees, staff, professionals, experts, partners, and/or other personnel staffed on this Project leave the employ of Supplier during the terms of this Agreement, Supplier agrees to immediately notify PA-American and suggest alternative personnel to be staffed on the Project. In no event shall any Supplier employee, staff, professional, expert, partner, and/or other personnel be assigned to this Project (whether identified in this Section 4, or identified elsewhere subsequent to the execution of this Agreement) without the express written permission and approval by PA-American. Further, PA-American reserves the right to terminate the Services of any of Supplier employee, staff, professional, expert, partner, and/or other personnel working on this Project at any time, and for any reason, without penalty.

### **Section 5. Location:**

Supplier’s (AUS Consultants’) offices in Harrisburg, Pennsylvania, Mt. Laurel, New Jersey, Greenfield, Wisconsin and various PA-American Company’s sites as may be required.

#### **Proprietary and Confidential**

This Agreement and information contained therein is not for use or disclosure outside of PA-AMERICAN, its Affiliates, and third party representatives, and Supplier except under written agreement by the contracting parties or as may be required by applicable law or regulation.



# APPENDIX A-5.1 (AUS)

## Section 6. Prices:

Supplier fees for the Services are as follows:

<b>Appraisal Activity</b>	<b>Preliminary Appraisal</b>	<b>Appraisal completion to a Section 1329 Compliant Appraisal</b>	<b>Total Appraisal</b>	<b>Expenses (not to exceed)</b>
	<b>Fees</b>	<b>Fees</b>	<b>Fees</b>	<b>Expense</b>
Appraisal				
Initial Appraisal	\$13,900	\$11,300	\$25,200	\$3,200
Appraisal updates		\$2,500	\$2,500	\$800
Pre-filed Direct testimony related to the above described Valuation studies		\$3,000	\$3,000	\$500

<b>Valuation Activity performed by AUS Consultants staff following the filing of the PUC Application</b>	<b>Hourly Rates plus expenses</b>
Jerome C. Weinert	\$250
David Sheffer	175
David Weiler	175
Michael Diedrich	225
Elizabeth A. Weinert	150
Earl Robinson	200
Susan Macchia	50

The expenses in the above tables are for travel and living, report production and shipping.

Pursuant to current USPAP requirements, Supplier is required to inform PA-American that the Supplier, AUS Consultants, has performed a preliminary appraisal and depreciated original cost study for the Project's subject property for Aqua Pennsylvania, Inc. over the last three years.

Supplier recognizes that its fees for the Project are subject to disclosure pursuant to Act 12 and so that Pa-American can include such fees as part of the transaction and closing costs associated with the proposed acquisition of the Project. Supplier further recognizes that its fees shall not exceed five percent (5%) of the fair market value of the assets to be acquired as part of the Project unless such fees are approved by the Pennsylvania Public Utility Commission ("PUC"). Supplier agrees that its fees shall comply with the requirements of Act 12.

## Section 7. Payment:

### **Proprietary and Confidential**

This Agreement and information contained therein is not for use or disclosure outside of PA-AMERICAN, its Affiliates, and third party representatives, and Supplier except under written agreement by the contracting parties or as may be required by applicable law or regulation.

## APPENDIX A-5.1 (AUS)

Payment all undisputed amounts shall be made within 60 days upon PA-American being invoiced each month for all work completed during the prior month, or partial payment upon being invoiced should this appraisal engagement be suspended.

All payment terms are Net 60.

### Section 8. Non-Disclosure:

A. The Parties agree as follows:

1. In connection with the Project, PA-American may find it beneficial to disclose to Supplier certain confidential or proprietary information in written, oral or other tangible or intangible forms, which may include, but is not limited to, discoveries, ideas, concepts, know-how, techniques, designs, specifications, drawings, blueprints, tracings, diagrams, models, samples, flow charts, data, computer programs, disks, diskettes, tapes, marketing plans, customer names and other technical, financial or business information (individually and collectively, "Information"). All Information which is disclosed by PA-American to Supplier, whether provided in tangible or intangible form, including, but not limited to, electronic mail or other electronic communications, shall be deemed to be confidential or proprietary. Further, if Information is provided orally, including Information conveyed to an answering machine, voice mail box or similar medium, it shall too be deemed to be confidential or proprietary.
2. Supplier shall:
  - a. Hold such Information in confidence with the same degree of care with which Supplier protects its own confidential or proprietary Information, but no less than reasonably prudent care;
  - b. Restrict disclosure of the Information solely to its employees, contractors and agents with a need to know such Information, advise those persons of their obligations hereunder with respect to such Information, and assure that such persons are bound by obligations of confidentiality no less stringent than those imposed in this Agreement;
  - c. Use the Information only as needed for the purposes of the Project;
  - d. Except for the purposes of the Project, not copy, distribute, or otherwise use such Information or knowingly allow anyone else to copy, distribute, or otherwise use such Information; any and all copies shall bear the same notices or legends, if any, as the originals; and,
  - e. Upon request, promptly return to PA-American all Information that is in tangible form; as to Information that was disclosed or is stored in intangible form, including, but not limited to electronic mail or other electronic communications, upon request by the PA-American, Supplier shall certify in writing within five (5) business days to PA-American that all such Information has been destroyed or, if the Information was recorded on an erasable storage medium, that Supplier has used reasonable efforts to erase all such Intangible Information.

#### **Proprietary and Confidential**

This Agreement and information contained therein is not for use or disclosure outside of PA-AMERICAN, its Affiliates, and third party representatives, and Supplier except under written agreement by the contracting parties or as may be required by applicable law or regulation.

## APPENDIX A-5.1 (AUS)

3. Except for customer Information, Supplier shall have no obligation to preserve the confidential or proprietary nature of any Information which:
  - a. Was already known to the Supplier free of any obligation to keep it confidential at the time of its disclosure by PA-American as evidenced by Supplier's written records prepared prior to such disclosure; or
  - b. is or becomes publicly known through no wrongful act of Supplier; or
  - c. is rightfully received from a third person having no direct or indirect secrecy or confidentiality obligation to PA-American with respect to such Information; or
  - d. is independently developed by an employee, contractor or agent of Supplier or a third party not associated with the Project and who did not have any direct or indirect access to the Information, as evidenced by the Supplier's written records; or
  - e. is approved for release by written authorization by PA-American; or,
  - f. it is required to disclose pursuant to a written request or demand of a duly empowered government agency or a court of competent jurisdiction, provided due notice and an adequate opportunity to intervene is given to PA-American, unless such notice is prohibited by such written request or demand, in which case, the Supplier shall disclose only such Information as is required and shall use reasonable efforts to obtain confidential treatment for any Information that is so disclosed.
4. Any Information relating to the Project that is disclosed by PA-American to Supplier shall remain confidential for five (5) years from the date of termination of the Agreement. Notwithstanding anything to the contrary herein, Customer Information shall remain confidential indefinitely and shall never be disclosed or used without the prior written approval of an authorized representative of PA-American. "Customer Information" includes, but is not limited to, customer name, address, phone number, information concerning a customer's calling patterns, unlisted customer numbers, any other information associated with a customer or with persons in the household of a customer, and any information available to PA-American and/or its suppliers by virtue of PA-American's relationship with its customers as a provider of telecommunications, Internet, information or other services, including, but not limited to, the quantity, technical configuration, location, type, destination, amount of use of telecommunications or other services subscribed to, and information contained on the telephone bills of PA-American's customers pertaining to telephone exchange service, telephone toll service or other services received by a customer of PA-American.
5. Any disclosed Information by PA-American shall be deemed the property of PA-American, who shall retain exclusively rights to such Information. Nothing contained in this Agreement shall be construed as granting or conferring any patent, copyright, trademark or other proprietary rights by license or otherwise in any such Information to Supplier, except for the right to use such Information in accordance with this Agreement.

### **Proprietary and Confidential**

This Agreement and information contained therein is not for use or disclosure outside of PA-AMERICAN, its Affiliates, and third party representatives, and Supplier except under written agreement by the contracting parties or as may be required by applicable law or regulation.

## APPENDIX A-5.1 (AUS)

6. NOTWITHSTANDING ANYTHING IN THIS AGREEMENT TO THE CONTRARY, PA-AMERICAN MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY NATURE WHATSOEVER WITH RESPECT TO ANY INFORMATION FURNISHED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR WARRANTIES AGAINST INFRINGEMENT.
7. In the event Supplier discloses, disseminates, or releases any confidential or proprietary Information received from PA-American, except as expressly permitted herein, such disclosure, dissemination, or release shall be deemed a material breach of this Agreement. In the event of such breach, PA-American may demand prompt return of all confidential and proprietary Information previously provided to Supplier and terminate this Agreement. The provisions of this Section are in addition to any other legal rights or remedies PA-American may have in law or in equity.
8. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania, irrespective of its choice of law principles. Both Parties agree to comply with all laws, including, but not limited to, laws and regulations regarding the export of information outside the United States. Supplier shall not knowingly transmit, directly or indirectly, in whole or in part, any Information of PA-American or export, directly or indirectly, any product or Information in contravention of the laws of the United States or the laws of any other country governing the aforesaid activities. Supplier shall not transfer any Information received hereunder or any product made using such Information to any country prohibited from receiving such data or product by the U.S. Department of Commerce Export Administration Regulations without first obtaining a valid export license. In the event Supplier violates the foregoing, Supplier shall defend, indemnify, and hold harmless PA-American from and against any claim, loss, liability, expense or damage including fines or legal fees, incurred PA-American with respect to the export or re-export activities contrary to the foregoing. Notwithstanding any other provision of this Agreement, this Section shall survive any termination or expiration of this Agreement.

### **Section 9. Ownership of Paid-For Development, Use and Reservation of Rights:**

PA-American shall be the exclusive owner of all right, title, and interest in and to all Paid-For Development (defined below), including, without limitation, all Intellectual Property Rights therein and thereto. Supplier shall assign or have assigned to PA-American and hereby assigns to PA-American all Intellectual Property Rights in and to the Paid-For Development. "Paid-For Development" shall mean any and all Items to the extent produced or developed by or on behalf of Supplier or its employees, agents, or direct or indirect contractors or suppliers (and whether completed or in-progress), or forming part of any deliverable, pursuant to this Agreement (including, without limitation under any statement of work, exhibit, order or other document under, subordinate to, or referencing this Agreement or the Project) (collectively "Agreements") for the development of which PA-American has been charged monies in one or more of the Agreements ("Development Fees"). Paid-For Development shall always exclude all Excluded Materials, but shall include

#### **Proprietary and Confidential**

This Agreement and information contained therein is not for use or disclosure outside of PA-AMERICAN, its Affiliates, and third party representatives, and Supplier except under written agreement by the contracting parties or as may be required by applicable law or regulation.

## APPENDIX A-5.1 (AUS)

(without limitation) any modifications, alterations or updates of any Excluded Materials (“Enhancements”) that otherwise fall within the definition of Paid-For Development (“Paid-For Enhancements”). PA-American’s ownership of Paid-For Enhancements shall be subject to Supplier’s underlying rights and ownership in Supplier’s Excluded Materials.

“**Items**” shall mean any or all inventions, discoveries, ideas, (whether patentable or not), and all works and materials, including but not limited to products, devices, computer programs, source codes, designs, files, specifications, texts, drawings, processes, data or other information or documentation in preliminary or final form, and all Intellectual Property rights in or to any of the foregoing.

“**Excluded Materials**” shall mean: i) Supplier’s Pre-Existing Materials; ii) Supplier’s Independently Developed Materials; and iii) Supplier’s Mere Reconfigurations.

“**Supplier’s Pre-Existing Materials**” shall mean those Items owned by Supplier to the extent and in the form that they both existed prior to the date Supplier began any work under this Agreement and were created without any use of any PA-American Items. Supplier’s Pre-Existing Materials shall not, however, include Paid-For Enhancements thereto.

“**Supplier’s Independently Developed Materials**” shall mean those Items that have been developed by Supplier, or on Supplier’s behalf, both i) without use of any PA-American Items; and ii) independently of any work performed under any Agreements.

“**Supplier’s Mere Reconfigurations**” means those specific reconfigurations of Supplier’s pre-existing software performed by Supplier, or on Supplier’s behalf, but only to the extent that such reconfiguration is an alteration to such software which is strictly required to permit Supplier’s software to function on PA-American’s network or service platform. In no event shall Supplier’s Mere Reconfigurations include enhancements, modifications, or updates that are not contained in Supplier’s Pre-Existing Materials and that add any features, functionality, or capabilities.

“**Intellectual Property Rights**” means all patents (including all reissues, divisions, continuations, and extensions thereof) and patent applications, trade names, trademarks, service marks, logos, trade dress, copyrights, trade secrets, mask works, rights in technology, know-how, rights in content (including but not limited to performance and synchronization rights), or other intellectual property rights, protected under the laws of any governmental authority having jurisdiction.

### **Section 10. Right to Terminate:**

PA-American has the right to terminate this Agreement, in its entirety or any portion thereof, at any time without penalty. Should PA-American terminate this Agreement at any time, Supplier shall be entitled to keep and collect all fees billed to PA-American prior to the termination date which are not the subject of a dispute between the parties. Further, Supplier shall be entitled to charge, and PA-American agrees to pay for all properly performed Services as of the termination date in accordance with the rates set forth in Section 6 or, in the case of a fixed fee, a prorata share of the monthly billing during the month in which the Agreement was terminated. Said prorata share shall be

#### **Proprietary and Confidential**

This Agreement and information contained therein is not for use or disclosure outside of PA-AMERICAN, its Affiliates, and third party representatives, and Supplier except under written agreement by the contracting parties or as may be required by applicable law or regulation.

## APPENDIX A-5.1 (AUS)

calculated by dividing the total number of days worked by Supplier during the month in which the Agreement is terminated, by the total number of calendar days in the month in which the Agreement was terminated.

### **Section 11. Invoices/Billing Information:**

The Supplier agrees to submit invoices in paper and or electronic form with appropriate references to the PA-American Point of Contact identified in Section 12.

### **Section 12. Project Manager/Point of Contact/Legal Counsel:**

The project manager and/or point of contact of Supplier shall be:

Jerome C. Weinert  
Principal and Director  
AUS Consultants  
Suite 201  
8555 West Forest Home Avenue  
Greenfield, Wisconsin 53228  
E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)  
414-529-5755 (office)  
414-529-5750 (fax)  
414-698-8371 (cell)

The point of contact for PA-American shall be:

Scott D. Fogelsanger, Senior Business - Development Manager  
Pennsylvania-American Water Company  
852 Wesley Drive,  
Mechanicsburg, PA 17055717-550-1509 (office)  
717-875-2282 (cell)  
Email: [Scott.Fogelsanger@amwater.com](mailto:Scott.Fogelsanger@amwater.com)

The Legal Counsel contact for PA-American shall be:

Andrew L. Swope, Vice President, General Counsel  
Pennsylvania-American Water Company  
852 Wesley Drive  
Mechanicsburg, PA 17055  
717-550-1560 (office)  
717-574-2691 (cell)  
Email: [Andrew.Swope@amwater.com](mailto:Andrew.Swope@amwater.com)

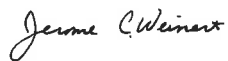
### **Proprietary and Confidential**

This Agreement and information contained therein is not for use or disclosure outside of PA-AMERICAN, its Affiliates, and third party representatives, and Supplier except under written agreement by the contracting parties or as may be required by applicable law or regulation.

## APPENDIX A-5.1 (AUS)

### Section 13. Signatures:

AUS Consultants (Supplier)



Jerome C. Weinert  
July 19, 2019

Pennsylvania American Water Company



Bernie J. Grundusky  
July 19, 2019

#### **Proprietary and Confidential**

This Agreement and information contained therein is not for use or disclosure outside of PA-AMERICAN, its Affiliates, and third party representatives, and Supplier except under written agreement by the contracting parties or as may be required by applicable law or regulation.