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December 7, 2018

Mr. Bernard J. Grundusky  
Sr. Director – Business Development  
Pennsylvania-American Water Company  
852 Wesley Drive  
Mechanicsburg, PA 17055

RE: Steelton Borough Authority, Water Utility Appraisal

Enclosed is the appraisal report for the Steelton Borough Authority's water utility system as of July 1, 2018 prepared for Pennsylvania-American Water Company. 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 Pennsylvania-American Water Company and the Pennsylvania Public Utility Commission.

Based on our appraisal the Fair Market Value of Steelton's water system property, plant, and equipment operating as a Pennsylvania rate regulated water utility is \$23,221,800 determined based on the cost, income, and market approaches to value, as detailed in the following table:

**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

**Fair Market Value Appraisal**

Appraisal Approach	Investor-owned Utility	Weight	Wtd Valuation Indications
<b>Cost Approach</b>			
Depreciated Replacement Cost New	\$ 23,921,473		
Cost Approach Conclusion	23,921,473	50%	11,960,736
<b>Income Approach</b>			
	22,424,662		
Income Approach Conclusion	22,424,662	40%	8,969,865
<b>Market Approach</b>			
Market Approach Conclusion	22,911,987	10%	2,291,199
<b>Appraisal Conclusion</b>	\$ 23,221,800	100%	23,221,800
<b>Conclusion (cost approach)</b>	\$ 23,921,473		


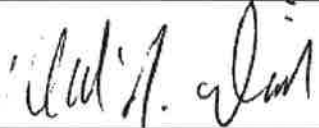


As the purpose of this appraisal was to fulfill the requirements of Act 12 in the establishment of value for rate making of Steelton's water utility's property, plant and equipment, the cost approach conclusion of \$23,921,473 is consistent with the purpose of the appraisal. This cost approach conclusion is detailed in the Cost Approach Section of this report. As the cost approach work papers details 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 establish the booked value for future accounting and rate making.

**AUS CONSULTANTS**



Respectfully Submitted,  
AUS Consultants, Depreciation & Valuation  
December 7, 2018

By:

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

ASA: Accredited Senior 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

Enclosures

**AUS CONSULTANTS**

**Steelton Borough Authority's  
Water Utility**

**Fair Market Value Appraisal Report  
As of July 1, 2018  
for  
Pennsylvania-American Water Company**

**AUS Consultants  
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PAWC-AUS CONSULTANTS UVE CONTRACT

December 7, 2018

Pennsylvania-American Water Company  
Hersey, Pennsylvania

**AUS Consultants**

**Depreciation and Valuation**

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RE: Steelton Borough Authority's Water Utility Appraisal

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Based on our appraisal, the Fair Market Value of the Steelton Borough Authority's water utility property, plant, and equipment operating as Pennsylvania rate regulated water utility is \$23,221,800 determined based on the cost, income, and market approaches to value, as detailed in the following table:

**AUS CONSULTANTS**

**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

**Fair Market Value Appraisal**

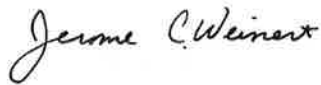



Appraisal Approach	Investor-owned Utility	Weight	Wtd Valuation Indications
<b>Cost Approach</b>			
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<b>Appraisal Conclusion</b>	<b>\$ 23,221,800</b>	<b>100%</b>	<b>23,221,800</b>
<b>Conclusion (cost approach)</b>	<b>\$ 23,921,473</b>		

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 Steelton's property, plant and equipment, the cost approach conclusion of \$23,221,800 is consistent with the purpose of the appraisal. This cost approach conclusion is detailed in the Cost Approach of this report. As the cost approach work papers details 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 establish the booked value for future accounting and rate making.

**AUS CONSULTANTS**

Respectfully Submitted,  
AUS Consultants, Depreciation & Valuation  
December 7, 2018

By:

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

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**AUS CONSULTANTS**

APPRAISAL CERTIFICATION  
for the Fair Market Appraisal of  
the Borough of Steelton, Pennsylvania's Steelton Borough Authority  
Water Utility  
As of July 1, 2018  
Prepared for  
Pennsylvania-American Water Company

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


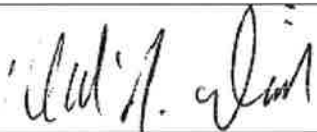


- The statements of fact contained in this report are true and correct.
- Over the last three years, AUS Consultants has not appraised these properties.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, opinions, and conclusions.
- AUS Consultants, Depreciation & Valuation, or its professional staff have 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 2018-2019 Edition.
- The signers (David A. Sheffer) of this report has made personal inspections of the property that is the subject of this report.
- All individuals who participated in the preparation of this report and who are Senior Members of the American Society of Appraisers are re-certified as required by the mandatory re-certification as set out in the constitution by-laws and administrative rules of the American Society of Appraisers.

**AUS CONSULTANTS**

- No individuals provided significant professional assistance to the persons signing this report. However, the following Pennsylvania-American Water Company personnel provided information and assistance obtained from the Steelton Borough Authority and Herbert, Rowland, & Grubic, Inc.'s Engineers Assessment report which was the inventory starting point of the Cost Approach.

AUS Consultants, Depreciation & Valuation  
 December 7, 2018

By:

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

**AUS CONSULTANTS**



**NARRATIVE REPORT**

**AUS CONSULTANTS**

## EXECUTIVE SUMMARY

The purpose of this appraisal is the determination of the fair market value of the property plant and equipment of the Steelton Borough Authority's water utility for our client Pennsylvania-American Water Company. 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 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 (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 Steelton's water utility property, plant, and equipment as it is operated as an investor-owned Pennsylvania PUC rate regulated water 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 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 – “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 water and wastewater industries 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 or the inventory-unit cost methods.

The trended original cost method was utilized 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, Steelton’s investment in water 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 Herbert, Rowland, Grubic, Inc. (HRG) (Engineer’s Assessment tab) as the starting point of the Cost Approach. Utilizing the Engineer’s Assessment AUS Consultant developed Steelton’s replacement cost new less depreciation in property, plant and equipment at July 1, 2018 (AUS Cost Approach tab).

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<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

The cost trends were applied to each of the Steelton's various investment categories (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 (HW) for the water industry in the northeastern region of the United States, AUS General Plant Indexes (AUS), and various United States Bureau of Labor Statistics (US BLS) indexes as detailed in the following table:

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 July 1, 2018

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)		(3e)	(4a)	(4)	(4b)	(5)	(6)	
Account Number	Description	Costing Parameters	Table	Line Reference	Lookup	Reproduction to Replacement Cost Factor	Index Survivor / Retirement Curve	Normal Service Life	Economic Obsolescence	Tax Depreciation	Table	Life
		Index Series				AUS Input		years	years			
303.00	Land & Land Rights	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0	0
303.10	Land & Land Rights	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0	0
305.20	Land & Land Rights - Distribution	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0	0
303.30	Land & Land Rights - Pumping	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0	0
303.40	Land & Land Rights - Treatment	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0	0
303.50	Land & Land Rights - Right-of-Way	USBLS	PPI	3	USBLS3	1.000	Non-Depr	0	0%	Non-Depr	0	0
304.00	Structures & Improvements	HW	W-1	8	HW-18	1.000	R3.0	45	0%	MACRS	25	25
304.10	Structures & Improvements - Pumping	HW	W-1	8	HW-18	1.000	R3.0	45	0%	MACRS	25	25
304.20	Structures & Improvements - Treatment	HW	W-1	15	HW-115	1.000	R3.0	35	0%	MACRS	25	25
304.30	Structures & Improvements - Storage	HW	W-1	15	HW-115	1.000	R3.0	35	0%	MACRS	25	25
306.00	Water Intake Structure	HW	W-1	2	HW-12	1.000	R3.0	35	0%	MACRS	25	25
306.10	Water Intake Structure	HW	W-1	2	HW-12	1.000	R3.0	35	0%	MACRS	25	25
309.00	Piping	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
309.10	Piping	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
310.00	Power Generation	USBLS	PPI	4	USBLS4	1.000	R3.0	35	0%	MACRS	25	25
310.10	Power Generation	USBLS	PPI	4	USBLS4	1.000	R3.0	35	0%	MACRS	25	25
311.00	Pumping	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25	25
311.10	Pumping	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25	25
320.00	Treatment Chemical Treatment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
320.10	Treatment Chemical Treatment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
330.00	Distribution Reservoirs	HW	W-1	23	HW-123	1.000	R3.0	60	0%	MACRS	25	25
330.10	Distribution Reservoirs	HW	W-1	23	HW-123	1.000	R3.0	60	0%	MACRS	25	25
331.00	Mains Distribution	HW	W-1	44	HW-144	1.000	R3.0	60	0%	MACRS	25	25
331.10	Distribution - Mains	HW	W-1	44	HW-144	1.000	R3.0	60	0%	MACRS	25	25
331.200	Distribution - Mains - PVC	HW	W-1	38	HW-138	1.000	R3.0	60	0%	MACRS	25	25
331.300	Distribution - Mains - Ducte Iron	HW	W-3	35	HW-135	1.000	R3.0	60	0%	MACRS	25	25
331.40	Distribution - Mains - Cast Iron	HW	W-1	45	HW-145	1.000	R3.0	65	0%	MACRS	25	25
334.00	Meters & Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
334.10	Meters & Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
336.00	Backflow Preventer	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
336.10	Backflow Preventer	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
339.00	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25	25
339.10	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25	25
344.00	Laboratory Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25	25
344.10	Laboratory Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25	25
347.00	Miscellaneous Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25	25
347.10	Miscellaneous Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25	25
348.00	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25	25
348.10	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25	25
335.00	Hydrants	HW	W-1	42	HW-142	1.000	R3.0	55	0%	MACRS	25	25
335.10	Hydrants	HW	W-1	42	HW-142	1.000	R3.0	55	0%	MACRS	25	25
354.00	Restoration	HW	W-1	35	HW-135	1.000	R3.0	55	0%	MACRS	25	25
354.10	Restoration	HW	W-1	35	HW-135	1.000	R3.0	55	0%	MACRS	25	25
364.00	Metering and Meter Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
364.10	Metering	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
364.20	Meter Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
371.00	Pumping Equipment	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25	25
371.10	Pumping Equipment	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25	25
380.00	Treatment and Disposal Equipment	HW	W-1	17	HW-117	1.000	R3.0	45	0%	MACRS	25	25
380.10	Treatment and Disposal Equipment	HW	W-1	17	HW-117	1.000	R3.0	45	0%	MACRS	25	25
390.00	General Plant	AUS	T-1	15	AUST-15	1.000	R3.0	12	0%	MACRS	15	15
390.10	Office Furniture and Equipment	AUS	T-1	15	AUST-15	1.000	R3.0	12	0%	MACRS	15	15
391.10	Transportation Equipment	AUS	T-1	4	AUST-14	1.000	R3.0	10	0%	MACRS	10	10
392.10	Stores Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0	MACRS	25	25
393.10	Tools, Shop, & Garage Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0%	MACRS	25	25
394.10	Laboratory Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	20	0%	MACRS	20	20
395.10	Power Operated Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	15	0%	MACRS	15	15
396.10	Communications Equipment	USBLS	PPI	2	USBLS2	1.000	R3.0	12	0%	MACRS	12	12
397.10	Miscellaneous Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20	20
398.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20	20
399.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20	20

Using the trended original cost method, Steelton's investment in plant, property and equipment of \$19,739,906 was determined to have a reproduction cost new of \$51,836,769.

**Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System  
Investor-Owned Utility  
As of July 1, 2018**

(0)	(2)	(3c)	(4)	(5a)	(5b)	
Account	Account Description	Investment	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
		OC \$s		RCN \$s	COR \$s / RCN \$s	COR \$s
Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's I	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
1	3	9	13	14	15	16
303 Land		32,244	6	193,451	1.000	193,451
304 Treatment		7,580,743	1.478	11,205,461	1.000	11,205,461
311 Booster Station		896,330	7.06	6,328,090	1.000	6,328,090
330 Storage		977,752	8.2	8,017,566	1.000	8,017,566
331.1 Interconnection		-	0	-	0.000	-
331.2 Distribution		10,252,837	2.545	26,092,200	1.000	26,092,200
<b>Total</b>	<b>Total</b>	<b>19,739,906</b>	<b>2.626</b>	<b>51,836,769</b>	<b>1.000</b>	<b>51,836,769</b>

Replacement Cost New - In the water 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." In this instance the reproduction costs and replacement costs are the same hence I used reproduction and replacement cost interchangeably.

Replacement Cost New Less Depreciation - The replacement cost described above reflects the cost of new property; however, Steelton's water 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>

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 Steelton's water system operating performance; we found that Steelton's water utility's property experiences normal depreciation but not any significant functional or economic obsolescence (see Income Approach).

In order to ascertain the service lives of the various types of Steelton's property, plant and equipment, we considered AUS Consultants' past water and wastewater depreciation studies, documentation provided by the Steelton Borough Authority, and the interviews with Pennsylvania-American's personnel and consultants. Through our experience and the above described information, the following normal depreciation parameters of survival/retirement characteristics and service lives were determined for Steelton's water utility property:

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<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.

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

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	(3) Costing Parameters				(3e) AUS Input	(4) Reproduction to Replacement Cost Factor	(5a) Iowa Survivor / Retirement Curve	(5b) Normal Service Life years	(5c) Economic Obsolescence years	(6) Tax Depreciation	
		(3a) Index Series	(3b) Table	(3c) Line Reference	(3d) Lookup						(6a) Table	(6b) Life
303.00	Land & Land Rights	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0	
304.10	Land & Land Rights	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0	
303.20	Land & Land Rights - Distribution	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0	
303.30	Land & Land Rights - Pumping	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0	
303.40	Land & Land Rights - Treatment	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0	
303.50	Land & Land Rights - Right-of-Way	USBLS	PPI	3	USBLS3	1.000	Non-Depr	0	0%	Non-Depr	0	
304.00	Structures & Improvements	HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25	
304.10	Structures & Improvements - Pumping	HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25	
304.20	Structures & Improvements - Treatment	HW	W-1	15	HWW-115	1.000	R4.0	55	0%	MACRS	25	
304.30	Structures & Improvements - Storage	HW	W-1	15	HWW-115	1.000	R4.0	55	0%	MACRS	25	
306.00	Water Intake Structure	HW	W-1	2	HWW-12	1.000	R3.0	35	0%	MACRS	25	
306.10	Water Intake Structure	HW	W-1	2	HWW-12	1.000	R3.0	35	0%	MACRS	25	
309.00	Piping	HW	W-1	17	HWW-117	1.000	R3.0	35	0%	MACRS	25	
309.10	Piping	HW	W-1	17	HWW-117	1.000	R3.0	35	0%	MACRS	25	
310.00	Power Generation	USBLS	PPI	4	USBLS4	1.000	R3.0	35	0%	MACRS	25	
310.10	Power Generation	USBLS	PPI	4	USBLS4	1.000	R3.0	35	0%	MACRS	25	
311.00	Pumping	HW	W-1	9	HWW-19	1.000	R3.0	35	0%	MACRS	25	
311.10	Pumping	HW	W-1	9	HWW-19	1.000	R3.0	35	0%	MACRS	25	
320.00	Treatment Chemical Treatment	HW	W-1	17	HWW-117	1.000	R3.0	35	0%	MACRS	25	
320.10	Treatment Chemical Treatment	HW	W-1	17	HWW-117	1.000	R3.0	35	0%	MACRS	25	
330.00	Distribution Reservoirs	HW	W-1	23	HWW-123	1.000	R3.0	60	0%	MACRS	25	
330.10	Distribution Reservoirs	HW	W-1	23	HWW-123	1.000	R3.0	60	0%	MACRS	25	
331.00	Mains Distribution	HW	W-1	44	HWW-144	1.000	R3.0	60	0%	MACRS	25	
331.10	Distribution - Mains	HW	W-1	44	HWW-144	1.000	R3.0	60	0%	MACRS	25	
331.200	Distribution - Mains - PVC	HW	W-1	38	HWW-138	1.000	R3.0	60	0%	MACRS	25	
331.300	Distribution - Mains - Ductile Iron	HW	W-1	35	HWW-135	1.000	R3.0	60	0%	MACRS	25	
331.40	Distribution - Mains - Cast Iron	HW	W-1	45	HWW-145	1.000	R3.0	65	0%	MACRS	25	
334.00	Meters & Installations	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25	
334.10	Meters & Installations	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25	
336.00	Backflow Preventer	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25	
336.10	Backflow Preventer	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25	
339.00	Other Equipment	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25	
339.10	Other Equipment	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25	
348.00	Laboratory Equipment	HW	W-1	17	HWW-139	1.000	R3.0	55	0%	MACRS	25	
348.10	Laboratory Equipment	HW	W-1	17	HWW-139	1.000	R3.0	55	0%	MACRS	25	
347.00	Miscellaneous Equipment	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25	
347.10	Miscellaneous Equipment	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25	
348.00	Other Equipment	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25	
348.10	Other Equipment	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25	
335.00	Hydrants	HW	W-1	42	HWW-142	1.000	R3.0	55	0%	MACRS	25	
335.10	Hydrants	HW	W-1	42	HWW-142	1.000	R3.0	55	0%	MACRS	25	
354.00	Restoration	HW	W-1	35	HWW-135	1.000	R3.0	55	0%	MACRS	25	
354.10	Restoration	HW	W-1	35	HWW-135	1.000	R3.0	55	0%	MACRS	25	
362.00	Metering and Meter Installations	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25	
364.10	Metering	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25	
364.20	Meter Installations	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25	
371.00	Pumping Equipment	HW	W-1	9	HWW-19	1.000	R3.0	35	0%	MACRS	25	
371.10	Pumping Equipment	HW	W-1	9	HWW-19	1.000	R3.0	35	0%	MACRS	25	
380.00	Treatment and Disposal Equipment	HW	W-1	17	HWW-117	1.000	R3.0	45	0%	MACRS	25	
380.10	Treatment and Disposal Equipment	HW	W-1	17	HWW-117	1.000	R3.0	45	0%	MACRS	25	
390.00	General Plant						R3.0	12		MACRS	15	
390.10	Office Furniture and Equipment	AUS	T-1	15	AUST-115	1.000	R3.0	12	0%	MACRS	12	
391.10	Transportation Equipment	AUS	T-1	6	AUST-14	1.000	R3.0	10	0%	MACRS	10	
392.10	Stores Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0	MACRS	25	
393.10	Tools, Shop, & Garage Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0%	MACRS	25	
394.10	Laboratory Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	20	0%	MACRS	20	
395.10	Power Operated Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	15	0%	MACRS	15	
396.10	Communications Equipment	USBLS	PPI	2	USBLS2	1.000	R3.0	12	0%	MACRS	12	
397.10	Miscellaneous Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20	
398.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20	
399.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20	

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

When the above depreciation lives are used to quantify the property's depreciation is applied to the replacement cost new (RCN) of \$51,836,769 the resultant RCN less normal depreciation (RCNLD) was found to be \$23,921,473 detailed as follows:

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018

(0)	(0.5)	(1a)	(4)	(5f)	(5g)	(5h)	(6)				
Account	Description	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy	
		years	COR \$s	years	years	% of COR	CORLD \$s	RCN \$s * Years	RCN \$s * Years	RCN \$s * Years	
Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	
Exiter Data	Exiter Data	2018 50- [(1)*0.5]	Col (4)	(5f)*(5e)	(1a)*(5f)	(5h)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)	
18		19	21	22	28	29	30	31	32	33	34
303 Land		0.01	193,451	0.0000	0.0000	1.0000	193,451	2,607	-	-	
304 Treatment		15.40	11,205,461	33.16	48.56	0.6408	7,180,295	172,522,691	371,566,386	544,089,085	
311 Booster Station		45.00	6,328,090	6.59	51.59	0.1277	808,337	284,764,041	41,702,112	326,466,153	
330 Storage		45.00	8,017,566	20.85	65.85	0.3166	2,538,592	360,790,488	167,166,259	527,956,747	
331.1 Interconnection		0.00	-	0.0000	0.0000	0.0000	-	-	-	-	
331.2 Distribution		38.18	26,092,200	31	69.17	0.5059	13,200,798	996,111,649	808,787,245	1,804,898,895	
<b>Total</b>			<b>35 51,836,769</b>	<b>26.8</b>	<b>61.8</b>	<b>46.15%</b>	<b>23,921,473</b>	<b>1,814,191,476</b>	<b>1,389,222,002</b>	<b>3,203,410,880</b>	

The preliminary cost approach to value of Steelton's water utility property was found to \$23,921,473.

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.

In the direct capitalization approach, anticipated earnings are capitalized directly into value using a market-required return. Steelton's water 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 water 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 (after-tax debt free cash flows) from operations are discounted to the appraisal date using a market derived discount 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 operation; thus making the DCF approach preferable.

In preparing this appraisal's DCF analysis first, the results from Steelton's water utility operations were evaluated based on an analysis of historical operating performances over the period 2013 through 2017 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 based on the migration of Steelton's historical operations over time to operations of the Steelton's water operation similar to a public investor-owned water/wastewater utility. Finally, the resultant cash flows from future period operations on the Steelton water system were discounted to the appraisal date using a market derived discount rate for a public investor-owned water/wastewater utility. The following table presents the results of the discounted cash flow analysis:

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018  
 Discounted Cash Flow Analysis

Discount Rate	7.06%		5.54%											
Capitalization Rate	(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	2,904,114	1,867,980	959,657	1,036,134	76,477	22,094	322,714	1,198	690,128	0.956	666,664	666,664	
2	1.5	2,933,155	1,924,012	970,554	1,009,143	38,589	11,148	327,557	146	670,292	0.903	605,274	1,271,938	
3	2.5	2,962,487	1,981,723	981,821	980,764	(1,057)	(305)	332,482	147	648,440	0.843	546,635	1,818,573	
4	3.5	2,992,112	2,041,166	993,469	950,946	(42,523)	(12,285)	337,490	147	625,594	0.788	492,968	2,311,541	
5	4.5	3,590,534	2,102,392	1,005,506	1,488,142	482,636	139,433	342,584	2,993	1,003,132	0.736	738,305	3,049,846	
6	5.5	3,662,345	2,165,455	1,017,944	1,496,890	478,946	138,367	347,764	359	1,010,400	0.687	694,145	3,743,991	
7	6.5	3,735,592	2,230,409	1,051,902	1,505,183	453,281	130,953	429,390	366	944,474	0.642	606,352	4,350,343	
8	7.5	3,810,304	2,297,315	1,069,193	1,512,989	443,796	128,213	437,917	373	946,486	0.600	567,892	4,918,235	
9	8.5	4,343,747	2,366,226	1,087,196	1,977,521	890,325	257,215	446,631	2,668	1,271,007	0.560	711,764	5,629,999	
10	9.5	4,604,372	2,437,205	1,105,935	2,167,167	1,061,232	306,590	455,537	1,302	1,403,738	0.523	734,155	6,364,154	
11	10.5	4,696,459	2,510,312	1,125,434	2,186,147	1,060,713	306,440	464,640	461	1,414,606	0.489	691,742	7,055,896	
12	11.5	4,790,388	2,585,612	1,145,717	2,204,776	1,059,059	305,962	473,942	470	1,424,402	0.456	649,527	7,705,423	
13	12.5	5,365,235	2,663,173	1,166,810	2,702,062	1,535,252	443,534	483,451	2,874	1,772,203	0.426	754,958	8,460,381	
14	13.5	5,472,540	2,743,059	1,188,740	2,729,481	1,540,741	445,120	493,169	537	1,790,655	0.398	712,681	9,173,062	
15	14.5	5,800,892	2,825,342	1,211,535	2,975,550	1,764,015	509,624	503,103	1,642	1,961,181	0.372	729,559	9,902,621	
16	15.5	6,090,937	2,910,094	1,176,414	3,180,843	2,004,429	579,079	421,370	1,450	2,178,944	0.347	756,094	10,658,715	
17	16.5	6,090,937	2,997,386	1,194,727	3,093,551	1,898,824	548,570	427,883	-	2,117,098	0.324	685,940	11,344,655	
18	17.5	6,090,937	3,087,297	1,196,264	3,003,640	1,807,376	522,151	434,505	-	2,046,984	0.303	620,236	11,964,891	
19	18.5	6,090,937	3,179,905	1,197,842	2,911,032	1,713,190	494,941	441,242	-	1,974,849	0.283	558,882	12,523,773	
20 and beyond	19.5	6,334,574	3,275,291	1,217,348	3,059,283	1,841,935	532,135	448,095	1,217	2,077,836	4.765	9,900,889	22,424,662	
			50,191,354					8,371,466						
Age										19.5				
PW(Age) = 1/(1+Discount Rate) <sup>Age</sup>										0.264				
PW to Perpetuity = 1/Capitalization Rate										18.051				
PW <sub>(20 and beyond)</sub> = PW to Perpetuity * PW Factor <sub>(19.5)</sub>										4.765				

Based on the above described discounted cash flow analysis, the Income Approach to value of the Steelton's water property and its operations was determined to be \$22,424,662.

### 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 subsequent to the passage of Act 12 and market value to book value ratios based on investor owned water utilities' financial performance as reported in Value Line Investment Survey near the appraisal date.

Market Sales – In the comparable sale market approach the sales of Pennsylvania municipal 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 Steelton's water utility 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 sales of the City of McKeesport, Pennsylvania wastewater system, Sadsbury Wastewater collection system, and Exeter's wastewater system to Pennsylvania-American Water and the sales of New Garden Township's sewer, Limerick Wastewater and East Bradford Wastewater Collection systems to Aqua Pennsylvania, Inc. were analyzed in relationship to those properties' depreciated original cost and depreciated replacement cost (Market Approach tab).

Financial Market Ratios – In the market approach based on market financial ratios the market data of nine publicly traded companies in the water/wastewater industry as reported in Value Line Investment Surveys (July 2018) were analyzed. In the analysis, the companies' stock (at market value) and debt (at book value) per share are compared as a ratio to the book investment value per share both stock and debt.

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  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018**

**Market Approach Summary**

	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Comparable Sales			
Depreciated Original Cost (AUS Consultants) OCLD	<b>14,433,434.76</b>	1.7331	25,014,586
Replacement Cost New less Depreciation RCNLD	<b>23,921,472.83</b>	0.9578	22,911,987
Average			23,963,287
Use (RCNLD)			22,911,987
	Market Value per Share to Book Value per Share		
Financial Markets			
Market to Book (equity)	2.91		
Market to Book (equity and debt)	1.88		
Use (equity and debt)	1.88		
	Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)		
Market Conclusion			
Steelton Borough (Water) Authority AUS Depreciated Original Cost	Steelton Borough (Water) Authority 14,433,435	1.88	27,134,857
<b>Market Value</b>			Indicated Value \$s
Minimum			22,911,987
Mean			25,020,477
Median			25,014,586
Maximum			27,134,857
Use (RCNLD)			22,911,987

The market approach conclusion of this appraisal was determined to be \$22,911,857.

Cost Approach Revisited – Before concluding this appraisal’s fair market value the preliminary cost approach conclusion of \$23,921,473 needs to be reviewed in light of the above described income and market analyses in order to evaluate if external obsolescence exists in the preliminary replacement cost new less depreciation conclusion. The appraisal literature in regards 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 \$22,424,662 and the market approach conclusion of \$22,911,857 for the Steelton's future water system compared to the preliminary cost approach conclusion of \$23,921,473 indicates no significant external obsolescence exists in the cost approach conclusion of \$23,921,473.

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

**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018**

(0)	(0.5)	(6)	(7)	(8)	
Account	Description	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value	
		CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s	
Input		Calculation	Input	Calculation	
Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]	
36		37	39	40	41
303	Land		193,451	0.00%	193,451
304	Treatment		7,180,295	0.00%	7,180,295
311	Booster Station		808,337	0.00%	808,337
330	Storage		2,538,592	0.00%	2,538,592
331.1	Interconnection		-	0.00%	-
331.2	Distribution		13,200,798	0.00%	13,200,798
<b>Total</b>			<b>23,921,473</b>	<b>0.00%</b>	<b>23,921,473</b>

Value Conclusion

The Fair Market Value of Steelton's water property, plant and equipment and its operation was determined to be \$23,221,800 as follows:

**Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System  
Investor-Owned Utility  
As of July 1, 2018**

**Fair Market Value Appraisal**

<b>Appraisal Approach</b>	<b>Investor-owned Utility</b>	<b>Weight</b>	<b>Wtd Valuation Indications</b>
<b>Cost Approach</b>			
Depreciated Replacement Cost New	<b>\$ 23,921,473</b>		
Cost Approach Conclusion	<b>23,921,473</b>	50%	<b>11,960,736</b>
<b>Income Approach</b>			
	<b>22,424,662</b>		
Income Approach Conclusion	<b>22,424,662</b>	40%	<b>8,969,865</b>
<b>Market Approach</b>			
Market Approach Conclusion	<b>22,911,987</b>	10%	<b>2,291,199</b>
<b>Appraisal Conclusion</b>	<b>\$ 23,221,800</b>	<b>100%</b>	<b>23,221,800</b>
<b>Conclusion (cost approach)</b>	<b>\$ 23,921,473</b>		

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 Steelton's property, plant and equipment, the cost approach conclusion of \$23,921,473 is consistent with the purpose of the appraisal. This cost approach conclusion is detailed (Cost Approach tab of this report). As the cost approach work papers details 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 establish the booked value for future accounting and rate making.



## PURPOSE AND SCOPE OF WORK

The purpose of this appraisal of the Steelton Borough Authority's water utility is the determination of the fair market value of the property plant and equipment of Steelton water 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 Pennsylvania-American Water Company and 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-end) Steelton Borough Authority's water operational financial statements cover the period 2013 through 2017 results.
- The Herbert, Rowland, & Grubic, Inc. (HRG) Engineer's Assessment of the Steelton Borough Authority's water facilities' inventory at October 2018.
- The Handy-Whitman (water industry) Index of Public Utilities Construction Costs for northeastern United States, AUS Consultant General Plant Cost Indexes for the period 1946 through July 1, 2018, and various cost indexes published by the United States Bureau of Labor Statistics (US BLS) through July 2018.

- We conducted interviews and discussions with Pennsylvania-American Water Company personnel.

In preparing this fair market value appraisal of the Steelton Borough Authority's water system 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 water 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  
STEELTON BOROUGH AUTHORITY'S WATER UTILITY 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. American and Aqua have been particularly active in the acquisition of municipal water and wastewater authorities as such in this appraisal these two were reviewed as being indicative of the industry's financial and operating performance.

Pennsylvania Water / Wastewater Industry

The water and wastewater industry in Pennsylvania also consist of both municipal and investor owned systems. Over the last several years the need for infrastructure improvements has lead the Pennsylvania legislature to pass legislation facilitating the acquisition of municipal water and/or wastewater authorities' systems to private investor owned rate regulated companies such as American Water and Aqua America. This legislation, 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 (see Act 12 tab), collectively referred to as Act 12. This appraisal was developed to meet the valuation criteria established by Section 1329 in the valuation of acquired water and wastewater systems.

## Steelton Borough Authority's Water Utility Facilities, its Property and Operations<sup>8</sup>

The Authority under permit PWSID 7220036 provides water to approximately 6,311 consumers through 2,421 metered service connections. The existing water system consists of two components, the water treatment plant (WTP) and the storage and distribution system.

The Authority's WTP obtains all water from a raw water intake located in the Susquehanna River in Dauphin County. Constructed in 1973, the WTP serves the community of Steelton and some customers in Swatara Township. While the WTP's permitted capacity is 3.0 MGD (2,083 gpm), the WTP maintains a typical daily production rate of 1.6 to 2.4 MGD (1,111 to 1,670 gpm). The WTP is staffed 24 hours per day however, the time of operation is typically 13 to 16 hours per day, 7 days per week. The existing treatment process at the WTP currently consists of potassium permanganate for disinfection by-products (DBP) control, alum for coagulation, flash mixing, two upflow sludge blanket clarifiers for flocculation and sedimentation, four multimedia filters and chlorine disinfection. A polymer is also added to the flash mixer to aid in clarifier blanket formation. The existing filtration system was manufactured by INFILCO and was originally installed in 1973. Various upgrades to the filtration system have been performed over the years with the most recent upgrades being completed in 2017 (new clearwell, for DBP removal).

Two (2) vertical turbine raw water pumps with variable frequency drives (VFD's) convey the water from the raw water pumping station to the up-flow clarifier rapid mix tank. From there, the water flows by gravity through the treatment process into the existing clearwell. Two (2) centrifugal finished water pumps with VFD's convey the water from the clearwell to the distribution system. Production at the WTP typically ends when the finished water storage tanks have been filled to their maximum operating levels. During the hours when the WTP is not in production, the distribution system is fed from the finished water storage tanks.

The existing Authority distribution system generally consists of a network of water distribution piping including approximately 28 miles of pipe ranging from 4 inch diameter to 20 inch diameter, one water booster station, two – 2 million gallon (MG) finished water storage tanks, and two interconnections with Suez that provide water service to various residential, commercial, institutional, and industrial properties throughout the Borough. The interconnect metering chamber with Suez, located on S. 19<sup>th</sup> Street, is owned by the Authority. The interconnect pumping station with Suez, located near the finished water storage tanks, is owned by Suez.

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<sup>8</sup> Extracted from HRG's Engineer's Assessment

Table 3.1 provides a breakdown of the water main distribution pipe by size and Table 3.2 provides a breakdown of the water main distribution pipe by material.

**Table 3.1 Water Main Distribution Pipe by Size**

<b>Water Main Size (in.)</b>	<b>Approximate Length (ft.)</b>
4	12,080
6	40,514
8	51,779
10	13,017
12	23,142
16	3,445
20	1,511

**Table 3.2 Water Main Distribution Pipe by Material**

<b>Water Main Material</b>	<b>Approximate Length (ft.)</b>
Cast Iron Pipe	75,659
Ductile Iron Pipe	69,829

## APPRAISAL PROCEDURES AND RESULTS

The purpose of this appraisal of the Steelton Borough Authority's water system is the determination of the fair market value of the water's property plant and equipment as of July 1, 2018. 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 (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 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-end) The Steelton Borough Authority's water operational financial statements cover the period 2013 through 2017.
- The Herbert, Rowland & Grubic, Inc. Engineer's Assessment of the Borough of Steelton, Pennsylvania water facilities' inventory at October 2018.
- The Handy-Whitman (water industry) Index of Public Utilities Construction Costs (HW) for northeastern United States, AUS Consultant General Plant Cost Indexes (AUS) for the period 1946 through July 1, 2018, and various cost indexes published by the United States Bureau of Labor Statistics (US BLS).

- We conducted interviews and discussions with Pennsylvania-American Water Company personnel.

In preparing this fair market value appraisal of the Steelton's water 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 water system's operation. Detailed explanation of each approach to value is included below.

Cost Approach - The philosophy in the cost approach to value is that the maximum value of a property 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 water and wastewater industries 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*

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

<sup>10</sup> *ibid*

or *trend factor* is applied to the property's *historical costs* to convert the known cost into an indication of current cost. Simply put, trending reflects the movement of price over time."<sup>11</sup> In the trended original cost method, Steelton's investment in water 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 Herbert, Rowland & Grubic, Inc. (Engineer's Assessment tab) as the starting point of the Cost Approach. Utilizing the Engineer's Assessment of Steelton's original cost in property, plant and equipment AUS Consultants developed the plant's depreciated original cost and the replacement cost new less depreciation at July 1, 2018 (Cost Approach tab).

Reproduction Cost New - The cost trends are applied to each of the various investment categories (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, AUS Consultants of General Plant Indexes, and various United States Bureau of Labor Statistics (US BLS) indexes. The indexes used for each plant investment account is detailed in the following table:

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



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)	(4)	(4)	(4b)	(5)	(6)	(6)
Account Number	Description	Costing Parameters	Table	Line Reference	Loading	Reproduction to Replacement Cost Factor	Rate Service Life / Retirement Curve	Normal Service Life	Economic Obsolescence	Tax Depreciation	Table	Life
		Index Series			AUS Input			years	years			
303.00	Land & Land Rights	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0	0
303.10	Land & Land Rights	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0	0
303.20	Land & Land Rights - Distribution	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0	0
303.30	Land & Land Rights - Pumping	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0	0
303.40	Land & Land Rights - Treatment	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0	0
303.50	Land & Land Rights - Right-of-Way	USBSL	PPI	3	USBSL3	1.000	Non-Depr	0	0%	Non-Depr	0	0
304.00	Structures & Improvements	HW	W-1	8	HW-18	1.000	R4.0	45	0%	MACRS	25	25
304.10	Structures & Improvements - Pumping	HW	W-1	8	HW-18	1.000	R4.0	45	0%	MACRS	25	25
304.20	Structures & Improvements - Treatment	HW	W-1	15	HW-115	1.000	R4.0	55	0%	MACRS	25	25
304.30	Structures & Improvements - Storage	HW	W-1	15	HW-115	1.000	R4.0	55	0%	MACRS	25	25
306.00	Water Intake Structure	HW	W-1	2	HW-12	1.000	R3.0	35	0%	MACRS	25	25
306.10	Water Intake Structure	HW	W-1	2	HW-12	1.000	R3.0	35	0%	MACRS	25	25
309.00	Piping	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
309.10	Piping	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
310.00	Power Generation	USBSL	PPI	4	USBSL4	1.000	R3.0	35	0%	MACRS	25	25
310.10	Power Generation	USBSL	PPI	4	USBSL4	1.000	R3.0	35	0%	MACRS	25	25
311.00	Pumping	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25	25
311.10	Pumping	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25	25
320.00	Treatment Chemical Treatment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
320.10	Treatment Chemical Treatment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
330.00	Distribution Reservoirs	HW	W-1	23	HW-123	1.000	R3.0	60	0%	MACRS	25	25
330.10	Distribution Reservoirs	HW	W-1	23	HW-123	1.000	R3.0	60	0%	MACRS	25	25
331.00	Mains Distribution	HW	W-1	44	HW-144	1.000	R3.0	60	0%	MACRS	25	25
331.10	Distribution - Mains	HW	W-1	44	HW-144	1.000	R3.0	60	0%	MACRS	25	25
331.200	Distribution - Mains - PVC	HW	W-1	38	HW-138	1.000	R3.0	60	0%	MACRS	25	25
331.300	Distribution - Mains - Ductile Iron	HW	W-1	35	HW-135	1.000	R3.0	60	0%	MACRS	25	25
331.40	Distribution - Mains - Cast Iron	HW	W-1	45	HW-145	1.000	R3.0	65	0%	MACRS	25	25
334.00	Meters & Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
334.10	Meters & Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
336.00	Backflow Preventer	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
336.10	Backflow Preventer	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
339.00	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
339.10	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
344.00	Laboratory Equipment	HW	W-1	17	HW-139	1.000	R3.0	35	0%	MACRS	25	25
344.10	Laboratory Equipment	HW	W-1	17	HW-139	1.000	R3.0	35	0%	MACRS	25	25
347.00	Miscellaneous Equipment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
347.10	Miscellaneous Equipment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
348.00	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
348.10	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25	25
335.00	Hydrants	HW	W-1	42	HW-142	1.000	R3.0	55	0%	MACRS	25	25
335.10	Hydrants	HW	W-1	42	HW-142	1.000	R3.0	55	0%	MACRS	25	25
354.00	Restoration	HW	W-1	35	HW-135	1.000	R3.0	55	0%	MACRS	25	25
354.10	Restoration	HW	W-1	35	HW-135	1.000	R3.0	55	0%	MACRS	25	25
364.00	Metering and Meter Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
364.10	Metering	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
364.20	Meter Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25	25
371.00	Pumping Equipment	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25	25
371.10	Pumping Equipment	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25	25
380.00	Treatment and Disposal Equipment	HW	W-1	17	HW-117	1.000	R3.0	45	0%	MACRS	25	25
380.10	Treatment and Disposal Equipment	HW	W-1	17	HW-117	1.000	R3.0	45	0%	MACRS	25	25
390.00	General Plant	AUS	T-1	15	AUST-115	1.000	R3.0	12	0%	MACRS	15	15
390.10	Office Furniture and Equipment	AUS	T-1	4	AUST-14	1.000	R3.0	10	0%	MACRS	10	10
391.10	Transportation Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0	MACRS	25	25
392.10	Movers Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0%	MACRS	25	25
393.10	Tools, Shop, & Garage Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0%	MACRS	25	25
394.10	Laboratory Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	20	0%	MACRS	20	20
395.10	Power Operated Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	15	0%	MACRS	15	15
396.10	Communications Equipment	USBSL	PPI	2	USBSL2	1.000	R3.0	12	0%	MACRS	12	12
397.10	Miscellaneous Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20	20
398.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20	20
399.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20	20

The following table presents the development of the cost approach for a portion of account 331 Distribution Mains placed between 1981-1990 (this example will be used to describe the entire cost approach:

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018

(0 01)	(0 05)	(0 1)	(0 2)	(0 5)	(1 5)	(2)	(2 5)	(3a)	(3b)	(3c)	(4)	(5a)	(5b)		
Account	Account	Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	Corriling Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) * COR	Replacement Cost New (RCN)	
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	
Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	
Engineers	Engineers	Engineers	Engineers	Engineers	Engineers	Engineers	Engineers	Engineers	Engineers	Engineers	Engineers	Engineers	Engineers	Engineers	
Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	
Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	
331	331.3	1 4" Ductile Iron Pipe	351	L.F.	1986	1986	6,203	HWW-135	263	858	3.262	20,234	1,000	20,234	
331	331.3	2 6" Ductile Iron Pipe	5,398	L.F.	1986	1986	107,314	HWW-135	263	858	3.262	350,058	1,000	350,058	
331	331.3	3 8" Ductile Iron Pipe	762	L.F.	1986	1986	21,881	HWW-135	263	858	3.262	71,376	1,000	71,376	
331	331.3	4 12" Ductile Iron Pipe	1,662	L.F.	1986	1986	69,753	HWW-135	263	858	3.262	227,534	1,000	227,534	
331	331.3	5 16" Ductile Iron Pipe	1,466	L.F.	1986	1986	74,481	HWW-135	263	858	3.262	242,957	1,000	242,957	
331	331.3	6 4" Gate Valve	4	Ea.	1986	1986	2,053	HWW-135	263	858	3.262	6,832	1,000	6,832	
331	331.3	7 6" Gate Valve	17	Ea.	1986	1986	11,829	HWW-135	263	858	3.262	38,586	1,000	38,586	
331	331.3	8 8" Gate Valve	5	Ea.	1986	1986	5,467	HWW-135	263	858	3.262	17,833	1,000	17,833	
331	331.3	9 12" Gate Valve	8	Ea.	1986	1986	14,137	HWW-135	263	858	3.262	46,115	1,000	46,115	
331	331.3	10 16" Gate Valve	8	Ea.	1986	1986	60,083	HWW-135	263	858	3.262	195,991	1,000	195,991	
335	335	11 Air Hydrant Assembly	13	Ea.	1986	1986	41,639	HWW-142	296	1071	3.448	143,613	1,000	143,613	
		Excavation And Aggregate													
354	331.1	12 Backfill	9,639	L.F.	1986	1986	127,752	HWW-144	206.3	985	2.836	362,305	1,000	362,305	
354	331.1	13 Surface Restoration	9,639	L.F.	1986	1986	176,852	HWW-144	206.3	985	2.836	507,224	1,000	507,224	
Subtotal Installation Years 1981-1990 (4)							721,424					3,092	2,230,458	1,000	2,230,458

Using the trended original cost method, Steelton's investment in this example of account 331 Mains – Ductile Iron of \$721,424 was determined to have a reproduction cost new of \$2,230,458. When the trended cost method is applied to each of Steelton's investment in plant, property and equipment of \$19,739,906 was determined to have a reproduction cost new of \$51,836,769 as detailed in the following table.

**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018**

(0)	(2)	(3c)	(4)	(5a)	(5b)	
Account	Account Description	Investment	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
		OC \$s		RCN \$s	COR \$s / RCN \$s	COR \$s
Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's I	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
1	3	9	13	14	15	16
303 Land		32,244	6	193,451	1.000	193,451
304 Treatment		7,580,743	1.478	11,205,461	1.000	11,205,461
311 Booster Station		896,330	7.06	6,328,090	1.000	6,328,090
330 Storage		977,752	8.2	8,017,566	1.000	8,017,566
331.1 Interconnection		-	0	-	0.000	-
331.2 Distribution		10,252,837	2.545	26,092,200	1.000	26,092,200
<b>Total</b>	<b>Total</b>	<b>19,739,906</b>	<b>2.626</b>	<b>51,836,769</b>	<b>1.000</b>	<b>51,836,769</b>

Replacement Cost New - In the water 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. In this instance the reproduction costs and replacement costs are the same; hence, I used reproduction and replacement cost interchangeably. The replacement cost new was determined to be \$51,836,769.

Replacement Cost New Less Depreciation - The replacement cost described above reflects the cost of new property; however, the Steelton's water 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, 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 or less costly replacement property that new technology has developed.”<sup>13</sup>

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.

Based on our experience in regard to: water and wastewater depreciation studies and our analysis of Steelton’s water system and operating performance: Steelton’s property experiences normal depreciation but not any significant functional or economic obsolescence (see Income Approach).

In order to ascertain the service lives of the various types of Steelton’s property, plant and equipment, we considered AUS Consultants’ past water and wastewater depreciation studies, interviews with Pennsylvania-American’s personnel, and documents provided by Steelton. Through our experience and the above described interviews, the following normal depreciation parameters of survival/retirement characteristics and service lives were determined for Steelton’s water utility property:

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<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.

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

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)	(4a)	(4)	(4b)	(5)	(6)
Account Number	Description	Costing Parameters		Reproduction to		Replacement Cost Factor	Low-Service / Retirement Curve	Normal Service Life	Economic Obsolescence	Tax Depreciation	
		Index Series	Table	Line Reference	Lookup					AUS Input	years
303.00	Land & Land Rights	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0
303.10	Land & Land Rights	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0
303.20	Land & Land Rights - Distribution	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0
303.30	Land & Land Rights - Pumping	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0
303.40	Land & Land Rights - Treatment	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0
303.50	Land & Land Rights - Right-of-Way	USBLS	PPI	3	USBLS3	1.000	Non-Depr	0	0%	Non-Depr	0
304.00	Structures & Improvements	HW	W-1	8	HW-18	1.000	R4.0	45	0%	MACRS	25
304.10	Structures & Improvements - Pumping	HW	W-1	8	HW-18	1.000	R4.0	45	0%	MACRS	25
304.20	Structures & Improvements - Treatment	HW	W-1	15	HW-115	1.000	R4.0	55	0%	MACRS	25
304.30	Structures & Improvements - Storage	HW	W-1	15	HW-115	1.000	R4.0	55	0%	MACRS	25
305.00	Water Intake Structure	HW	W-1	2	HW-12	1.000	R3.0	35	0%	MACRS	25
305.10	Water Intake Structure	HW	W-1	2	HW-12	1.000	R3.0	35	0%	MACRS	25
309.00	Piping	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25
309.10	Piping	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25
310.00	Power Generation	USBLS	PPI	4	USBLS4	1.000	R3.0	35	0%	MACRS	25
310.10	Power Generation	USBLS	PPI	4	USBLS4	1.000	R3.0	35	0%	MACRS	25
311.00	Pumping	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25
311.10	Pumping	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25
320.00	Treatment Chemical Treatment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25
320.10	Treatment Chemical Treatment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25
330.00	Distribution Reservoirs	HW	W-1	23	HW-123	1.000	R3.0	60	0%	MACRS	25
330.10	Distribution Reservoirs	HW	W-1	23	HW-123	1.000	R3.0	60	0%	MACRS	25
331.00	Mains Distribution	HW	W-1	44	HW-144	1.000	R3.0	60	0%	MACRS	25
331.10	Distribution - Mains	HW	W-1	44	HW-144	1.000	R3.0	60	0%	MACRS	25
331.200	Distribution - Mains - PVC	HW	W-1	38	HW-138	1.000	R3.0	60	0%	MACRS	25
331.300	Distribution - Mains - Ductile Iron	HW	W-1	35	HW-135	1.000	R3.0	60	0%	MACRS	25
331.40	Distribution - Mains - Cast Iron	HW	W-1	45	HW-145	1.000	R3.0	65	0%	MACRS	25
334.00	Meters & Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
334.10	Meters & Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
336.00	Backflow Preventer	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
336.10	Backflow Preventer	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
339.00	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
339.10	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
344.00	Laboratory Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
344.10	Laboratory Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
347.00	Miscellaneous Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
347.10	Miscellaneous Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
348.00	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
348.10	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
335.00	Hydrants	HW	W-1	42	HW-142	1.000	R3.0	55	0%	MACRS	25
335.10	Hydrants	HW	W-1	42	HW-142	1.000	R3.0	55	0%	MACRS	25
354.00	Restoration	HW	W-1	35	HW-135	1.000	R3.0	55	0%	MACRS	25
354.10	Restoration	HW	W-1	35	HW-135	1.000	R3.0	55	0%	MACRS	25
364.00	Metering and Meter Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
364.10	Metering	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
364.20	Meter Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
371.00	Pumping Equipment	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25
371.10	Pumping Equipment	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25
380.00	Treatment and Disposal Equipment	HW	W-1	17	HW-117	1.000	R3.0	45	0%	MACRS	25
380.10	Treatment and Disposal Equipment	HW	W-1	17	HW-117	1.000	R3.0	45	0%	MACRS	25
390.00	General Plant	AUS	T-1	15	AUST-115	1.000	R3.0	12	0%	MACRS	15
391.10	Office Furniture and Equipment	AUS	T-1	4	AUST-14	1.000	R3.0	10	0%	MACRS	10
392.10	Stores Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0	MACRS	25
393.10	Tools, Shop, & Garage Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0%	MACRS	25
394.10	Laboratory Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	20	0%	MACRS	20
395.10	Power Operated Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	15	0%	MACRS	15
396.10	Communications Equipment	USBLS	PPI	2	USBLS2	1.000	R3.0	12	0%	MACRS	12
397.10	Miscellaneous Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20
398.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20
399.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20

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 formula:

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

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

where: the property’s Total Service Life = Age + Remaining Life

and: the property's remaining life = f(Iowa Survivor Curve, Service Life Projection, and Age)

When the above depreciation lives are used to quantify the property's depreciation is applied to the replacement cost new of the example account 331 Distribution Mains of \$2,230,458 the replacement cost new less depreciation was determined to be \$1,087,890 as detailed in the following table:

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018

(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)			
Account	Description	Age at Earliest Trend Year	Age at 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersed lowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach RCN Less Normal Depreciation	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Year	MSA	Year	Year	Cost \$K	Year	Year	% of NSL	Lookup	%	Year	Year	% of COS	Cost \$K	RCN \$K * Years	RCN \$K * Years	RCN \$K * Years
Year	MSA	Year	Year	Cost \$K	Year	Year	% of NSL	Lookup	%	Year	Year	% of COS	Cost \$K	RCN \$K * Years	RCN \$K * Years	RCN \$K * Years
Year	MSA	Year	Year	Cost \$K	Year	Year	% of NSL	Lookup	%	Year	Year	% of COS	Cost \$K	RCN \$K * Years	RCN \$K * Years	RCN \$K * Years
331.3	4" Ductile Iron Pipe	1986	32.00	20,234	R3.0	80.0	53	R3.0053	0.51325	30.80	62.80	48.044586%	9,924	647,494	823,213	1,270,707
331.3	6" Ductile Iron Pipe	1986	32.00	350,068	R3.0	80.0	50	R3.0050	0.51325	30.80	62.80	48.044586%	171,885	11,201,885	10,781,795	21,983,858
331.3	8" Ductile Iron Pipe	1986	32.00	71,378	R3.0	80.0	50	R3.0050	0.51325	30.80	62.80	48.044586%	35,006	2,284,026	2,198,375	4,482,401
331.3	12" Ductile Iron Pipe	1986	32.00	227,534	R3.0	80.0	50	R3.0050	0.51325	30.80	62.80	48.044586%	111,993	7,281,087	7,000,066	14,269,153
331.3	16" Ductile Iron Pipe	1986	32.00	242,957	R3.0	80.0	50	R3.0050	0.51325	30.60	62.80	48.044586%	119,157	7,774,625	7,483,076	15,257,701
331.3	4" Gate Valve	1986	32.00	8,832	R3.0	80.0	53	R3.0053	0.51325	30.80	62.80	48.044586%	3,252	212,213	204,255	416,468
331.3	6" Gate Valve	1986	32.00	38,588	R3.0	80.0	50	R3.0050	0.51325	30.80	62.80	48.044586%	18,924	1,234,758	1,188,455	2,423,213
331.3	8" Gate Valve	1986	32.00	17,833	R3.0	80.0	50	R3.0050	0.51325	30.80	62.80	48.044586%	8,748	570,887	549,287	1,118,894
331.3	12" Gate Valve	1986	32.00	46,116	R3.0	80.0	53	R3.0053	0.51325	30.80	62.80	48.044586%	22,817	1,475,678	1,420,299	2,896,015
331.3	16" Gate Valve	1986	32.00	195,991	R3.0	80.0	53	R3.0053	0.51325	30.90	62.80	48.044586%	95,123	6,271,704	6,038,515	12,308,219
	335 Fire Hydrant Assembly	1986	32.00	143,613	R3.0	95.0	58	R3.0058	0.47316	26.02	58.02	44.848905%	64,406	4,595,613	3,798,808	8,332,421
	331.1 Excavation And Aggregate Backfill	1986	32.00	362,305	R3.0	80.0	50	R3.0050	0.51325	30.80	62.80	48.044586%	177,691	11,583,749	11,198,984	22,792,733
	331.1 Surface Restorations	1986	32.00	507,224	R3.0	80.0	53	R3.0053	0.51325	30.80	62.80	48.044586%	248,766	16,231,177	15,822,508	31,853,684
	<b>Subtotal Installation Years 1981-1990 [4]</b>			<b>2,230,458</b>						<b>30.49</b>	<b>62.49</b>	<b>48.774290%</b>	<b>1,087,890</b>	<b>71,374,664</b>	<b>68,011,646</b>	<b>139,386,308</b>

When the above depreciation lives are used to quantify the property's depreciation is applied to each of Steelton's investment in plant, property and equipment the replacement cost new (RCN) of \$51,836,769, the resultant RCN less depreciation (RCNLD) was found to be \$23,921,473 detailed as follows:

(0)	(0.5)	(1a)	(4)	(5f)	(5g)	(5h)	(6)				
Account	Description	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy	
Input	Input	years	COR \$s	years	years	% of COR	CORLD \$s	RCN \$s * Years	RCN \$s * Years	RCN \$s * Years	
Exeter Data	Exeter Data	2018 50- (1)+0.5	Col (4)	(5b)*(5e)	(1a)*(5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)	
		19	21	22	28	29	30	31	32	33	34
303 Land		0.01	193,451	0.0000	0.0000	1.0000	193,451	2,607	-	-	
304 Treatment		15.40	11,205,461	33.16	48.56	0.6408	7,180,295	172,522,691	371,566,386	544,089,085	
311 Booster Station		45.00	6,328,090	6.59	51.59	0.1277	808,337	284,764,041	41,702,112	326,466,153	
330 Storage		45.00	8,017,566	20.85	65.85	0.3166	2,538,592	360,790,488	167,166,259	527,956,747	
331.1 Interconnection		0.00	-	0.0000	0.0000	0.0000	-	-	-	-	
331.2 Distribution		38.18	26,092,200	31	69.17	0.5059	13,200,798	996,111,649	808,787,245	1,804,898,895	
<b>Total</b>		<b>35</b>	<b>51,836,769</b>	<b>26.8</b>	<b>61.8</b>	<b>46.15%</b>	<b>23,921,473</b>	<b>1,814,191,476</b>	<b>1,389,222,002</b>	<b>3,203,410,880</b>	

The preliminary cost approach to value of Steelton's water utility property was found to be \$23,921,473.

### 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.

In the direct capitalization approach, anticipated earnings are capitalized directly into value using a market-required return. Steelton's water 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 water 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 (after-tax debt-free cash flows) from

operations are discounted to the appraisal date using a market derived discount 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 operation; thus, making the DCF approach preferable.

In preparing this appraisal's DCF analysis, first the results from Steelton's water utility's operations was evaluated based on an analysis of historical operating performances over the period 2013 through 2017 (Income Approach tab). In the analysis of the operating statistics such as revenues and their growth, various operating expenses those expenses were stated as function of their typical drivers (revenues, plant investment, income from operations, etc). Details provided in Income Approach tab. Using the above described analyses the results of future periods operations were forecast based on the migration of Steelton's historical operations type experience over time to operations of the Steelton's water operation similar to a public investor-owned water/wastewater utility. The forecasts are detailed in the Income Approach tab.

Finally, the resultant cash flows from future period operations of the Steelton's water system were discounted to the appraisal date using a market derived discount rate for a public investor-owned water/wastewater utility (Income Approach Tab – Cost of Capital / Required Return section). The following table presents the results of the discounted cash flow analysis:



**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Potential Purchaser: Investor-Owned Utility**  
**As of July 1, 2018**  
**Discounted Cash Flow Analysis**

Discount Rate														
Capitalization Rate														
(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	2,904,114	1,867,980	959,657	1,036,134	76,477	22,094	322,714	1,198	690,128	0.966	666,664	666,664	
2	1.5	2,933,155	1,924,012	970,554	1,009,143	38,589	11,148	327,557	146	670,292	0.903	605,274	1,271,938	
3	2.5	2,962,487	1,981,723	981,821	980,764	(1,057)	(305)	332,482	147	648,440	0.843	546,635	1,818,573	
4	3.5	2,992,112	2,041,166	993,469	950,946	(42,523)	(12,285)	337,490	147	625,594	0.788	492,968	2,311,541	
5	4.5	3,590,534	2,102,392	1,005,506	1,488,142	482,636	139,433	342,584	2,993	1,003,132	0.736	738,305	3,049,846	
6	5.5	3,662,345	2,165,455	1,017,944	1,496,890	478,946	138,367	347,764	359	1,010,400	0.687	694,145	3,743,991	
7	6.5	3,735,592	2,230,409	1,051,902	1,505,183	453,281	130,953	429,390	366	944,474	0.642	606,352	4,350,343	
8	7.5	3,810,304	2,297,315	1,069,193	1,512,989	443,796	128,213	437,917	373	946,486	0.600	567,892	4,918,235	
9	8.5	4,343,747	2,366,226	1,087,196	1,977,521	890,325	257,215	446,631	2,668	1,271,007	0.560	711,764	5,629,999	
10	9.5	4,604,372	2,437,205	1,105,935	2,167,167	1,061,232	306,590	455,537	1,302	1,403,738	0.523	734,155	6,364,154	
11	10.5	4,696,459	2,510,312	1,125,434	2,186,147	1,060,713	306,440	464,640	461	1,414,606	0.489	691,742	7,055,896	
12	11.5	4,790,388	2,585,612	1,145,717	2,204,776	1,059,059	305,962	473,942	470	1,424,402	0.456	649,527	7,705,423	
13	12.5	5,365,235	2,663,173	1,166,810	2,702,062	1,535,252	443,534	483,451	2,874	1,772,203	0.426	754,958	8,460,381	
14	13.5	5,472,540	2,743,059	1,188,740	2,729,481	1,540,741	445,120	493,169	537	1,790,655	0.398	712,681	9,173,062	
15	14.5	5,800,892	2,825,342	1,211,535	2,975,550	1,764,015	509,624	503,103	1,642	1,961,181	0.372	729,559	9,902,621	
16	15.5	6,090,937	2,910,094	1,176,414	3,180,843	2,004,429	579,079	421,370	1,450	2,178,944	0.347	756,094	10,658,715	
17	16.5	6,090,937	2,997,386	1,194,727	3,093,551	1,898,824	548,570	427,883	-	2,117,098	0.324	685,940	11,344,655	
18	17.5	6,090,937	3,087,297	1,196,264	3,003,640	1,807,376	522,151	434,505	-	2,046,984	0.303	620,236	11,964,891	
19	18.5	6,090,937	3,179,905	1,197,842	2,911,032	1,713,190	494,941	441,242	-	1,974,849	0.283	558,882	12,523,773	
20 and beyond	19.5	6,334,574	3,275,291	1,217,348	3,059,283	1,841,935	532,135	448,095	1,217	2,077,836	4.765	9,900,889	22,424,662	
			50,191,354					8,371,466						
Age										19.5				
PW(Age) = 1/(1+Discount Rate) <sup>Age</sup>										0.264				
PW to Perpetuity = 1/Capitalization Rate										18.051				
PW <sub>(20and beyond)</sub> = PW to Perpetuity * PW Factor <sub>(19.5)</sub>										4.765				

Based on the above described discounted cash flow analysis, the Income Approach to value of the Steelton's water property and its operations was determined to be \$22,424,662.

**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 using recent Pennsylvania wastewater 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 sale market approach the sales of Pennsylvania municipal wastewater systems to investor owned water/wastewater utilities were used to insure comparability. The sales of the City of McKeesport, Pennsylvania wastewater

system, Sadsbury wastewater collection system, and Exeter wastewater system to Pennsylvania-American Water and the sales of New Garden Township's sewer utility, Limerick Wastewater system and East Bradford's wastewater collection system to Aqua Pennsylvania, Inc. were analyzed in relationship to those properties' depreciated original cost and replacement cost new less depreciation (Market Approach tab). The following table details the market sales and their analysis:

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018

Comparable Sales Approach

Market Sales Basis

Description	New Garden Wastewater System	Mifflintown Wastewater System	Limerick Wastewater System	East Bradford Wastewater Collection System	Sadsbury Wastewater Collection System	Exeter Wastewater System	Simple Average / Standard Deviation	Remove Outliers Simple	Remove Outliers Weighted	Use
								Average / Standard Deviation	Average / Standard Deviation	
System Description	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection Only	Wastewater Collection Only	Wastewater Collection & Treatment				
Type of System	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection Only	Wastewater Collection Only	Wastewater Collection & Treatment				
System Attributes										
Purchase Price	28,500,000	129,000,000	75,100,000	5,000,000	9,250,000	96,000,000	100%	373,890,000	168,850,000	
Acquirer	Aqua PA	PA-American	Aqua PA	Aqua PA	PA-American	PA-American				
Date of Sale										
Original Cost										
Depreciated Original Cost (40% Curbside) (DC/DC)	18,567,728	80,191,680	46,133,667	5,383,591	6,128,876	40,057,634		218,206,776	212,823,185	1,733%
Purchase Price to O/C/D	1.5888	1.5601	1.6272	0.9287	1.5092	2.3965	1.6018	1.7364	1.7133	1.7331
Variance to Simple Mean	-0.013	-0.0417	0.0254	-0.6731	-0.0926	0.7947	0.4273	0.3323		0.1635
Variance to Wtd Mean	-0.1245	-0.1532	-0.0863	-0.7846	-0.2041	0.6832				
Replacement Cost New Less Depreciation (RC/ND)	30,615,410	160,301,491	85,086,755	9,238,588	8,537,387	99,589,819		394,347,644	365,111,063	0.9578
Purchase Price to RC/ND	0.9636	0.9919	0.8724	0.5413	1.0966	0.9654	0.9032	0.9756	0.948	0.9578
Variance to Simple Mean	0.0604	0.0887	-0.0308	-0.1619	0.1878	-0.0608	0.1745	0.0724		0.0225
Variance to Wtd Mean	0.0156	0.0439	-0.0756	-0.4067	0.118	0.016	0.19	0.0765		
Standard Deviation										

Financial Market Ratios – In the market approach based on market financial ratios the market data of nine publicly traded companies in the water industry as reported in Value Line Investment Surveys (July 2018) were analyzed. In the analysis, the companies' stock (at market value) and debt (at book value) per share are compared as a ratio to the book value per share both stock and debt.

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 July 1, 2018

Comparable Sales Approach

Financial Basis<sup>1</sup>

	Industry Averages	American & Aqua Averages	American States Water	American Water	Aqua America	California Water	Connecticut Water	Middlesex Water	SIW Corp	York	
Price per Share			58.12	86.31	35.44	39.9	66.2	42.37	66.89	32.75	
Book value per share			15.2	31.75	11	14.45	24.7	14.85	22.65	9.35	
Market to Book Equity Ratio			3.82	2.72	3.22	2.76	2.68	2.85	2.95	3.5	
Minimum	2.68	2.72									
Mean	3.06	2.97		2.72	3.22						
Standard Deviation	0.39	0.250									
Weighted Market to Debt Ratio	2.91		9,646.06	63,578.63	27,342.87	7,492.55	2,837.47	2,473.15	5,334.97	1,792.52	120,498.22
Median	2.9	2.97									
Maximum	3.82	3.22									
Debt (Total) \$s millions			390.4	8,007.0	2,186.8	796.7	258.4	174.6	431.2	90.0	
Outstanding Shares (millions)			36.73	178.05	177.90	48.07	12.09	16.36	20.59	12.89	
Debt per share			10.63	44.97	12.29	16.57	21.37	10.67	20.94	6.98	
Equity (Total) \$s millions			2,134.75	15,367.50	6,304.78	1,917.99	800.36	693.17	1,377.27	422.15	
Total Capital (Debt + Equity)			2,525.15	23,374.50	8,491.58	2,714.69	1,058.76	867.77	1,808.47	512.15	41,353.06
			0.06	0.57	0.21	0.07	0.03	0.02	0.04	0.01	1.01
Market Value per Share (Equity+Debt)			68.75	131.28	47.73	56.47	87.57	53.04	87.83	39.73	
Book Value per Share (Equity+Debt)			25.83	76.72	23.29	31.02	46.07	25.52	43.59	16.33	
Market to Book (Total Capital) Ratio			2.66	1.71	2.05	1.82	1.9	2.08	2.01	2.43	
Minimum	1.71	1.71									
Mean	2.08	1.88		1.71	2.05						
Standard Deviation	0.30	0.170									
Weighted Market to Book (Debt&Equity) Ratio	1.88		6,716.89	39,970.39	17,407.73	4,940.74	2,011.64	1,804.97	3,635.01	1,244.52	77,731.89
Variance to Wtd Mean	0.0893		0.78	(0.17)	0.17	(0.06)	0.02	0.20	0.13	0.55	
Median	2.03	1.88									
Maximum	2.66	2.05									

1. Value Line Investment Survey January 12, 2018

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  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018**

**Market Approach Summary**

	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Comparable Sales			
Depreciated Original Cost (AUS Consultants) OCLD	<b>14,433,434.76</b>	1.7331	25,014,586
Replacement Cost New less Depreciation RCNLD	<b>23,921,472.83</b>	0.9578	22,911,987
Average			23,963,287
Use (RCNLD)			22,911,987
	Market Value per Share to Book Value per Share		
Financial Markets			
Market to Book (equity)	2.91		
Market to Book (equity and debt)	1.88		
Use (equity and debt)	1.88		
	Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)		
Market Conclusion			
	Steelton Borough (Water) Authority		
Steelton Borough (Water) Authority AUS Depreciated Original Cost	14,433,435	1.88	27,134,857
<b>Market Value</b>			Indicated Value \$s
Minimum			22,911,987
Mean			25,020,477
Median			25,014,586
Maximum			27,134,857
Use (RCNLD)			22,911,987

The market approach conclusion of this appraisal was determined to be \$22,911,987.

Cost Approach Revisited – Before concluding this appraisal's fair market value, the preliminary cost approach conclusion of \$23,921,473 needs to be evaluated to determine if external obsolescence exists in the preliminary reproduction cost new less

depreciation conclusion. The appraisal literature, in regards 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>15</sup>

The above described income approach value conclusion of \$22,424,662 for the Steelton’s future water system and the market approach conclusion of \$22,911,987 compared to the cost approach conclusion of \$23,921,473 indicates no significant external obsolescence exists in the cost approach conclusion of \$23,921,473. Applying 0% external obsolescence to our example account of 331 Distribution Mains the fair market value was determined as follow:

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

**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018**

(0)	(0.5)	(1)	(6)	(7)	(8)
Account	Description	Earliest Trend Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD \$c	% of Preliminary Cost Approach	Appraisal Date Value \$s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	(5a)&(5c)	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
331.3	4" Ductile Iron Pipe	1986	9,924	0.00%	9,924
331.3	6" Ductile Iron Pipe	1986	171,685	0.00%	171,685
331.3	8" Ductile Iron Pipe	1986	35,006	0.00%	35,006
331.3	12" Ductile Iron Pipe	1986	111,593	0.00%	111,593
331.3	16" Ductile Iron Pipe	1986	119,157	0.00%	119,157
331.3	4" Gate Valve	1986	3,252	0.00%	3,252
331.3	6" Gate Valve	1986	18,924	0.00%	18,924
331.3	8" Gate Valve	1986	8,746	0.00%	8,746
331.3	12" Gate Valve	1986	22,617	0.00%	22,617
331.3	16" Gate Valve	1986	96,123	0.00%	96,123
	335 Fire Hydrant Assembly	1986	64,406	0.00%	64,406
331.1	Excavation And Aggregate Backfill	1986	177,691	0.00%	177,691
331.1	Surface Restoration	1986	248,766	0.00%	248,766
			<b>1,087,890</b>	<b>0.00%</b>	<b>1,087,890</b>

Therefore, the cost approach conclusion of \$23,921,473 can be considered the final cost approach conclusion as follows:

**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018**

(0)	(0.5)	(6)	(7)	(8)	
Account	Description	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value	
		CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s	
Input		Calculation	Input	Calculation	
Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]	
36		37	39	40	41
303 Land		193,451	0.00%	193,451	
304 Treatment		7,180,295	0.00%	7,180,295	
311 Booster Station		808,337	0.00%	808,337	
330 Storage		2,538,592	0.00%	2,538,592	
331.1 Interconnection		-	0.00%	-	
331.2 Distribution		13,200,798	0.00%	13,200,798	
<b>Total</b>		<b>23,921,473</b>	<b>0.00%</b>	<b>23,921,473</b>	

Value Conclusion

The Fair Market Value of the Steelton Borough Authority's water property, plant and equipment and its operation was determined to be \$23,221,800 as follows:

**Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System  
Investor-Owned Utility  
As of July 1, 2018**

**Fair Market Value Appraisal**

Appraisal Approach	Investor-owned Utility	Weight	Wtd Valuation Indications
<b>Cost Approach</b>			
Depreciated Replacement Cost New	\$ 23,921,473		
Cost Approach Conclusion	23,921,473	50%	11,960,736
<b>Income Approach</b>			
	22,424,662		
Income Approach Conclusion	22,424,662	40%	8,969,865
<b>Market Approach</b>			
Market Approach Conclusion	22,911,987	10%	2,291,199
<b>Appraisal Conclusion</b>	<b>\$ 23,221,800</b>	<b>100%</b>	<b>23,221,800</b>
<b>Conclusion (cost approach)</b>	<b>\$ 23,921,473</b>		

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 Steelton's water property, plant and equipment the cost approach conclusion of \$23,921,473 is consistent with the purpose of the appraisal. This cost approach conclusion is detailed (Cost Approach tab of this report). As the cost approach work papers details 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 establish the booked value for future accounting and rate making.

# Compliance with Uniform Standards of Professional Appraisal Practice (USPAP) 2018-2019

## 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 the Steelton Borough's Water 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 Steelton Borough Authority's water treatment and distribution property consists of distribution mains and services of various sizes and types. 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 in to the income approach to value analysis in this appraisal.*

- State the real property interests appraised  
*Steelton owns land on several parcels. The land is used primarily for its treatment facility, storage facilities and pump station.*
- 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, 14<sup>th</sup> Edition, page 58.*
- State the effective date of the appraisal and the date of the report  
*The effective date of the appraisal is July 1, 2018 and the appraisal report date is November 17, 2018.*
- 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:*

*Cost Approach – The cost approach utilized the trended cost method utilizing the investment inventory developed by AUS Consultants from its depreciated original cost study. 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; the DCF method facilitates the development of cash flows from operations as the property migrates from municipal operation to a regulated investor owned operation. Steelton's operating experience was analyzed (2013-2017) in order to estimate the initial cash flows. 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

*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

*The real estate is used for Steelton's water treatment plant, storage facilities, and pumping station.*

- 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

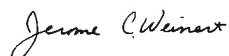
*Contained in Narrative Report.*

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 Steelton Borough Authority's Water 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 2018-2019.
- The signers (David A. Sheffer) of this report has made a personal inspection of the property that is the subject of this report.
- All individuals who participated in the preparation of this report and who are Senior Members of the American Society of Appraisers are recertified as required by the mandatory recertification as set out in the constitution by-laws and administrative rules of the American Society of Appraisers.
- Individuals providing significant appraisal assistance to the person signing this certification include: David A. Sheffer, Principal, AUS Consultants, Valuation and Depreciation Services Group and Herbert, Rowland & Grubic, Inc.'s Engineers Assessment.

AUS Consultants, Valuation and Depreciation Services Group

By:



Jerome C. Weinert, ASA, Wisconsin P.E., CDP

# **Valuation Summary**

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Valuation Summary**

**AUS Consultants  
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**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

**Fair Market Value Appraisal**

Appraisal Approach	Investor-owned Utility	Weight	Wtd Valuation Indications
<b>Cost Approach</b>			
Depreciated Replacement Cost New	\$ 23,921,473		
Cost Approach Conclusion	23,921,473	50%	11,960,736
<b>Income Approach</b>			
	22,424,662		
Income Approach Conclusion	22,424,662	40%	8,969,865
<b>Market Approach</b>			
Market Approach Conclusion	22,911,987	10%	2,291,199
<b>Appraisal Conclusion</b>	<b>\$ 23,221,800</b>	<b>100%</b>	<b>23,221,800</b>
<b>Conclusion (cost approach)</b>	<b>\$ 23,921,473</b>		



**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Cost Approach**

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Pennsylvania-American Water Company  
 Steepleton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018

Cost Approach Summary

Account	Account Description	Investment	(2)	(4)	(5a)	(5b)	(6a)	(5f)	(5g)	(5h)	(6)	(7)	(8)
		DC \$s	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Age at July 1, 2018 Appraisal Date	Replacement Cost New (COR)	Age at July 1, 2018 Appraisal Date	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	Economic Obsolescence	Fair Market Value
Input	Input	Input	RCN \$s	COR \$s / RCN \$s	years	COR \$s	years	years	years	% of COR	CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
Steelman's Engineer's Assessment Data	Steelman's Engineer's Assessment Data	Steelman's Engineer's Assessment Data	Col (2) * (3c)	AUS Input	Col (4) * (5a)	Col (4) * (5a)	2018.00 - ((3) + 0.5)	(5b) / (5e)	(1.2a + (5f))	(5f) / (5g)	(4) * (5h)	Elemental Obsolo/Obsolesc Analysis	(6) * (1.06-17)
303 Land		32,244	6,000	1,934,511	1,000	193,451	46.00	0.00	0.00	100.0%	193,451	0.0%	193,451
304 Treatment		7,580,743	1,478	11,205,461	1,000	11,205,461	7.25	33.16	48.56	64.1%	7,180,295	0.0%	7,180,295
311 Booster Station		896,330	7,060	6,328,090	1,000	6,328,090	45.00	6.59	51.59	12.8%	808,337	0.0%	808,337
330 Storage		977,752	8,200	8,017,566	1,000	8,017,566	45.00	20.85	65.85	31.7%	2,538,592	0.0%	2,538,592
331.1 Interconnection								0.00	0.00	0.0%		0.0%	
331.2 Distribution		10,232,837	2,545	26,092,200	1,000	26,092,200	16.79	31.00	69.17	50.6%	13,200,798	0.0%	13,200,798
<b>Total</b>		<b>19,739,906</b>	<b>2,626</b>	<b>51,836,769</b>	<b>1,000</b>	<b>51,836,769</b>	<b>35.00</b>	<b>26.80</b>	<b>61.80</b>	<b>46.2%</b>	<b>23,921,473</b>	<b>0.00%</b>	<b>23,921,473</b>

**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

(0)	(2)	(3c)	(4)	(5a)	(5b)
Account	Account Description	Investment	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)
Input	Input	Input	Calculation	Input	Calculation
Steelton's f	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Col (3b) / (3a)	AUS Input	Col (4) * (5a)
		OC \$\$	RCN \$\$	COR \$\$ / RCN \$\$	COR \$\$
1	3	9	13	14	15
303 Land		32,244	6	193,451	1,000
304 Treatment		7,580,743	1.478	11,205,461	1,000
311 Booster Station		896,330	7.06	6,328,090	1,000
330 Storage		977,752	8.2	8,017,566	1,000
331.1 Interconnection		-	0	-	0.000
331.2 Distribution		10,252,837	2.545	26,092,200	1,000
<b>Total</b>	<b>Total</b>	<b>19,739,906</b>	<b>2.626</b>	<b>51,836,769</b>	<b>1,000</b>
					<b>51,836,769</b>

**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018**

(0)	(0.5)	(1a)	(4)	(5f)	(5g)	(5h)	(6)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Account	Description	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
		years	COR \$\$	years	years	% of COR	CORLD \$\$	RCN \$\$ * Years	RCN \$\$ * Years	RCN \$\$ * Years
Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	2018.50-[(1)+0.5]	Cd (4)	(5b)*(5e)	(1a)+(5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
18		19								
304 Land		0.01	193,451	0.0000	0.0000	1.0000	193,451	2,607	-	-
304 Treatment		15.40	11,205,461	33.16	48.56	0.6408	7,180,295	172,522,691	371,566,386	544,089,085
311 Booster Station		45.00	6,328,090	6.59	51.59	0.1277	808,337	284,764,041	41,702,112	326,466,153
330 Storage		45.00	8,017,566	20.85	65.85	0.3166	2,538,592	360,790,488	167,166,259	527,956,747
331.1 Interconnection		0.00	-	0.0000	0.0000	0.0000	-	-	-	-
331.2 Distribution		38.18	26,092,200	31	69.17	0.5059	13,200,798	996,111,649	808,787,245	1,804,898,895
<b>Total</b>		<b>35</b>	<b>51,836,769</b>	<b>26.8</b>	<b>61.8</b>	<b>46.15%</b>	<b>23,921,473</b>	<b>1,814,191,476</b>	<b>1,389,222,002</b>	<b>3,203,410,880</b>

**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018**

(0)	(0.5)	(6)	(7)	(8)
Account	Description	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
		CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
		Calculation	Input	Calculation
		RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
36	303 Land	193,451	0.00%	193,451
	304 Treatment	7,180,295	0.00%	7,180,295
	311 Booster Station	808,337	0.00%	808,337
	330 Storage	2,538,592	0.00%	2,538,592
	331.1 Interconnection	-	0.00%	-
	331.2 Distribution	13,200,798	0.00%	13,200,798
	<b>Total</b>	<b>23,921,473</b>	<b>0.00%</b>	<b>23,921,473</b>

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018

Determination of the Depreciated Original Cost

(1)	(2)	(3)	(4)	(5a)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)									
Account	Description	Earliest Trend Year	Original Costs	Age at July 1, 2018 Appraisal Date	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													
	Input	Input	Input		(6a)*(10)	(6a)*(11)	(1+0)/(10)*(11)	(4)/(12)	(4)*(13)	(4)*(6a)	(4)*(10)	(4)*(11)													
Exeter Data	Exeter Data	(4)*(5f)	Exeter Data	2018.00-(1)+0.5	(6)*(9)	(6a)*(10)	(1+0)/(10)*(11)	(4)/(12)	(4)*(13)	(4)*(6a)	(4)*(10)	(4)*(11)													
43		44		45		46		49		53		54		55		56		57		58		59		60	
303 Land			32,244			0	0						32,244	1,483,145											
304 Treatment			7,580,743	7.25	44.92	52.17	0.1504	1,140,472	6,440,271	54,929,623	340,537,745		395,467,368												
311 Booster Station			896,330	45	6.59	51.59	0.8723	781,833	114,497	40,334,850	5,906,815		46,241,665												
330 Storage			977,752	45	20.85	65.85	0.6834	668,166	309,586	43,998,840	20,386,129		64,384,969												
331.1 Interconnection				0	0	0	0																		
331.2 Distribution			10,252,837	16.79	44.49	61.28	0.2311	2,368,927	7,536,837	172,159,313	456,139,635		628,298,948												
<b>Total</b>			<b>19,739,906</b>	<b>15.85</b>	<b>41.69</b>	<b>57.47</b>	<b>0.2512</b>	<b>4,959,398</b>	<b>14,433,495</b>	<b>312,905,771</b>	<b>822,970,324</b>		<b>1,134,392,950</b>												

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Income Approach**

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**Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System  
Potential Purchaser: Investor-Owned Utility  
As of July 1, 2018  
Discounted Cash Flow Analysis**

Discount Rate: 7.06%  
Capitalization Rate: 5.54%

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Period	Age	Revenues	O&M Expenses	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)	Sum (13)
1	0.5	2,904,114	1,867,980	959,657	1,036,134	76,477	22,094	322,714	1,198	690,128	0.966	666,664	666,664
2	1.5	2,933,155	1,924,012	970,554	1,009,143	38,589	11,148	327,557	146	670,292	0.903	605,274	1,271,938
3	2.5	2,962,487	1,981,723	981,821	980,764	(1,057)	(305)	332,482	147	648,440	0.843	546,635	1,818,573
4	3.5	2,992,112	2,041,166	993,469	950,946	(42,523)	(12,285)	337,490	147	625,594	0.788	492,968	2,311,541
5	4.5	3,590,534	2,102,392	1,005,506	1,488,142	482,636	139,433	342,584	2,993	1,003,132	0.736	738,305	3,049,846
6	5.5	3,662,345	2,165,455	1,017,944	1,496,890	478,946	138,367	347,764	359	1,010,400	0.687	694,145	3,743,991
7	6.5	3,735,592	2,230,409	1,051,902	1,505,183	453,281	130,953	429,390	366	944,474	0.642	606,352	4,350,343
8	7.5	3,810,304	2,297,315	1,069,193	1,512,989	443,796	128,213	437,917	373	946,486	0.600	567,892	4,918,235
9	8.5	4,343,747	2,366,226	1,087,196	1,977,521	890,325	257,215	446,631	2,668	1,271,007	0.560	711,764	5,629,999
10	9.5	4,604,372	2,437,205	1,105,935	2,167,167	1,061,232	306,590	455,537	1,302	1,403,738	0.523	734,155	6,364,154
11	10.5	4,696,459	2,510,312	1,125,434	2,186,147	1,060,713	306,440	464,640	461	1,414,606	0.489	691,742	7,055,896
12	11.5	4,790,388	2,585,612	1,145,717	2,204,776	1,059,059	305,962	473,942	470	1,424,402	0.456	649,527	7,705,423
13	12.5	5,365,235	2,663,173	1,166,810	2,702,062	1,535,252	443,534	483,451	2,874	1,772,203	0.426	754,958	8,460,381
14	13.5	5,472,540	2,743,059	1,188,740	2,729,481	1,540,741	445,120	493,169	537	1,790,655	0.398	712,681	9,173,062
15	14.5	5,800,892	2,825,342	1,211,535	2,975,550	1,764,015	509,624	503,103	1,642	1,961,181	0.372	729,559	9,902,621
16	15.5	6,090,937	2,910,094	1,176,414	3,180,843	2,004,429	579,079	421,370	1,450	2,178,944	0.347	756,094	10,658,715
17	16.5	6,090,937	2,997,386	1,194,727	3,093,551	1,898,824	548,570	427,883	-	2,117,098	0.324	685,940	11,344,655
18	17.5	6,090,937	3,087,297	1,196,264	3,003,640	1,807,376	522,151	434,505	-	2,046,984	0.303	620,236	11,964,891
19	18.5	6,090,937	3,179,905	1,197,842	2,911,032	1,713,190	494,941	441,242	-	1,974,849	0.283	558,882	12,523,773
20 and beyond	19.5	6,334,574	3,275,291	1,217,348	3,059,283	1,841,935	532,135	448,095	1,217	2,077,836	4.765	9,900,889	22,424,662
			50,191,354					8,371,466					

Age  
 PW(Age) = 1/(1+Discount Rate)<sup>(Age)</sup>  
 PW to Perpetuity = 1/Capitalization Rate  
 PW<sub>(20and beyond)</sub> = PW to Perpetuity \* PW Factor<sub>(19.5)</sub>

Deferred Tax

19.5  
0.264  
18.051  
4.765



Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System

Potential Purchaser: Investor-Owned Utility

As of July 1, 2018

Calculated Rates of Return on Rate Base and Equity  
(Years 1 through 20)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Period	Age	Revenues	O&M Expenses	Book Depreciation	Rate-making Interest Expense	Book Taxable Income (Current + Deferred)	State and Federal Taxes @ 28.89%	Net Operating Income	Net (Equity) Income	Net Plant	Working Capital	Accumulated Deferred Income Taxes (ADIT)	Rate Base	Return on Rate Base	Net Equity	Return on Equity
						(3)-(4)-(5)-(6)	(7) *28.89%	(7)-(8)+(6)	(9) - (6)				(11)-(12)+(13)	(9)/(14)		(10)/(16)
1	0.5	2,904,114	1,867,980	756,379	258,352	21,403	6,183	273,572	15,220	23,487,813	14,520	(58,727)	23,443,606	1.17%	16,521,040	0.09%
2	1.5	2,933,155	1,924,012	756,943	249,740	2,460	711	251,489	1,749	23,058,428	14,666	(120,439)	22,952,655	1.10%	16,291,548	0.01%
3	2.5	2,962,487	1,981,723	749,555	241,416	(10,207)	(2,949)	234,158	(7,258)	22,641,355	14,813	(187,540)	22,468,628	1.04%	16,060,757	-0.05%
4	3.5	2,992,112	2,041,166	739,537	233,368	(21,959)	(6,344)	217,753	(15,615)	22,239,308	14,960	(260,901)	21,993,367	0.99%	15,829,060	-0.10%
5	4.5	3,021,534	2,102,392	738,817	225,589	523,736	151,307	598,018	372,429	21,843,075	17,963	(337,947)	21,523,081	2.78%	15,592,611	2.33%
6	5.5	3,052,345	2,165,455	733,057	218,070	545,763	157,671	606,162	388,092	21,457,783	18,312	(420,251)	21,055,844	2.88%	16,178,787	2.40%
7	6.5	3,083,592	2,230,409	726,606	210,801	567,776	164,031	614,546	403,745	21,160,083	18,678	(514,230)	20,664,531	2.97%	16,387,346	2.46%
8	7.5	3,115,304	2,297,315	722,755	203,774	586,460	169,428	620,806	417,032	20,874,760	19,051	(614,316)	20,279,495	3.06%	16,615,698	2.51%
9	8.5	3,148,747	2,365,226	720,036	196,982	1,060,503	306,379	951,106	754,124	20,600,869	21,719	(720,388)	19,902,200	4.78%	17,187,432	4.39%
10	9.5	3,182,304	2,437,205	715,532	190,416	1,263,219	364,944	1,088,691	898,275	20,342,387	23,021	(833,753)	19,531,655	5.57%	17,909,396	5.02%
11	10.5	3,216,959	2,510,312	709,758	184,068	1,292,321	373,351	1,103,038	918,970	20,096,781	23,482	(953,841)	19,166,422	5.76%	18,657,932	4.93%
12	11.5	3,252,738	2,585,612	706,843	177,933	1,320,000	381,348	1,116,585	938,652	19,863,390	23,952	(1,080,632)	18,806,710	5.94%	19,431,831	4.83%
13	12.5	3,289,635	2,663,173	705,175	172,002	1,348,885	390,944	1,129,678	968,275	19,641,175	24,426	(1,213,998)	18,454,003	6.12%	20,209,999	4.63%
14	13.5	3,327,640	2,743,059	702,855	166,268	1,378,858	400,944	1,149,169	998,000	19,430,986	24,900	(1,348,370)	18,103,989	6.30%	21,021,194	4.43%
15	14.5	3,366,755	2,825,342	699,099	160,726	1,409,858	412,944	1,170,351	1,028,000	19,237,507	25,375	(1,483,841)	17,763,232	6.48%	21,874,999	4.23%
16	15.5	3,407,037	2,910,094	693,660	155,368	1,441,316	426,944	1,196,351	1,058,000	19,054,000	25,850	(1,628,370)	17,532,431	6.66%	22,774,999	4.03%
17	16.5	3,448,537	2,997,386	687,356	150,190	1,474,316	436,944	1,226,351	1,087,000	18,889,000	26,325	(1,783,841)	17,352,431	6.84%	23,724,999	3.83%
18	17.5	3,491,257	3,087,297	681,042	145,183	1,507,316	447,944	1,259,351	1,118,000	18,739,000	26,800	(1,948,370)	17,187,432	7.02%	24,724,999	3.63%
19	18.5	3,535,197	3,179,905	674,728	140,344	1,542,316	459,944	1,292,351	1,149,000	18,598,000	27,275	(2,113,841)	17,021,432	7.20%	25,774,999	3.43%
20	19.5	3,580,357	3,275,291	668,414	135,666	1,577,316	472,944	1,325,351	1,180,000	18,467,000	27,750	(2,288,370)	16,856,432	7.38%	26,874,999	3.23%

Deferred Tax

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Market Approach**

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**Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System  
Investor-Owned Utility  
As of July 1, 2018**

**Market Approach Summary**

	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Comparable Sales			
Depreciated Original Cost (AUS Consultants) OCLD	<b>14,433,434.76</b>	1.5793	22,794,724
Replacement Cost New less Depreciation RCNLD	<b>23,921,472.83</b>	0.9556	22,859,359
Average			22,827,042
 Use (RCNLD)			 22,859,359

	Market Value per Share to Book Value per Share
Financial Markets	
Market to Book (equity)	2.61
Market to Book (equity and debt)	1.77
 Use (equity and debt)	 1.77

	Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)
Market Conclusion	

	Steelton Borough (Water) Authority		
Steelton Borough (Water) Authority	(Water) Authority		
AUS Depreciated Original Cost	14,433,435	1.77	25,547,180

<b>Market Value</b>	Indicated Value \$s
Minimum	22,794,724
Mean	23,733,754
Median	22,859,359
Maximum	25,547,180
 <b>Use (RCNLD)</b>	 <b>22,859,359</b>

Pennsylvania American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018

Comparable Sales Approach

Market Sales Basis

Description	New Garden Wastewater System	McKeesport Wastewater System	Limerick Wastewater System	East Bradford Wastewater Collection System	Sadsbury Wastewater Collection System	Simple Average / Standard Deviation	Remove Outliers Simple Average / Standard Deviation	Weighted Average	Remove Outliers Weighted Average / Standard Deviation	Use
System Description	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection Only	Wastewater Collection Only					
System Attributes										
<b>Purchase Price</b>	29,500,000	159,000,000	75,100,000	5,000,000	9,250,000			277,850,000	272,850,000	
Acquirer	11%	57%	27%	3%	3%	100%				
Date	Aqua-PA	PA-American	Aqua-PA	Aqua-PA						
Customers										
Original Cost										
Depreciated Original Cost (AUS Consultants) OCLD	18,567,728	101,915,080	46,153,867	5,383,591	6,128,876			178,149,142	172,765,551	
Purchase Price to OCLD	1.5888	1.5601	1.6272	0.9287	1.5092	1.4428	1.5713	1.5596	1.5793	1.5793
Variance to Simple Mean	0.146	0.1173	0.1844	-0.5141	0.0664	0.2599	0.043			
Variance to Wtd Mean	0.0292	0.0005	0.0676	-0.6309	-0.0504				0.0168	
Replacement Cost New Less Depreciation RCNLD	30,615,410	160,301,491	86,086,756	9,236,581	8,517,587			294,757,825	285,521,244	
Purchase Price to RCNLD	0.9636	0.9919	0.8724	0.5413	1.086	0.891	0.9785	0.9426	0.9556	0.9556
Variance to Simple Mean	0.0726	0.1009	-0.0186	-0.3497	0.195	0.1877				
Variance to Wtd Mean	0.021	0.0493	-0.0701	-0.4013	0.1434	0.2091	0.088		0.0263	

**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**July 1, 2018**

**Comparable Sales Approach**

**Financial Basis<sup>1</sup>**

	Industry Averages	American & Aqua Averages	American States Water	American Water	Aqua America	California Water	Connecticut Water	Middlesex Water	SIW Corp	York
Price per Share			39.23	59.05	31.39	26.59	43.81	31.05	36.41	29.87
Book value per share			12.77	28.25	9.78	13.41	20.02	12.74	18.83	8.52
Market to Book Equity Ratio			3.07	2.44	3.21	1.98	2.19	2.44	1.93	3.51
Minimum	1.93	2.44								
Mean	2.60	2.825		2.44	3.21					
Standard Deviation	0.56	0.385								
Weighted Market to Debt Ratio	2.61		5,396.12	48,004.33	23,553.34	3,614.75	2,316.09	1,583.17	2,131.69	1,649.47
Median	2.44	2.825								
Maximum	3.51	3.21								
Debt (Total) \$s millions			325.8	6,544.0	1,795.9	552.5	180.5	144.9	418.9	87.3
Outstanding Shares (millions)			36.50	179.28	176.54	47.88	20.02	16.23	18.83	12.81
Debt per share			8.93	36.71	10.17	11.54	9.02	8.93	22.25	6.81
Equity (Total) \$s millions			1,431.90	12,310.23	5,541.59	1,278.13	877.08	503.94	685.60	382.63
Total Capital (Debt + Equity)			1,757.70	18,854.23	7,337.49	1,835.63	1,057.58	648.84	1,104.50	469.93
			0.05	0.57	0.22	0.06	0.03	0.02	0.03	0.01
Market Value per Share (Equity+Debt)			48.16	105.76	41.56	38.13	52.83	39.98	58.66	36.68
Book Value per Share (Equity+Debt)			21.7	64.96	19.95	24.95	29.04	21.67	41.08	15.33
Market to Book (Total Capital) Ratio			2.22	1.63	2.08	1.53	1.82	1.84	1.43	2.39
Minimum	1.43	1.63								
Mean	1.87	1.855		1.63	2.08					
Standard Deviation	0.32	0.225								
Weighted Market to Book (Debt+Equity) Ratio	1.77		3,902.08	30,732.40	15,261.98	2,793.21	1,824.79	1,193.87	1,579.44	1,123.14
Variance to Wid Mean	0.0817	0.45		(0.14)	0.31	(0.24)	0.05	0.07	(0.34)	0.62
Median	1.83	1.855								
Maximum	2.39	2.08								

<sup>1</sup> Value Line Investment Survey July 13, 2018

**Pennsylvania American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

**Comparable Sales Approach**

**Market Sales Basis**

DEFINITION	Two (2) Cities Wastewater System	Microregion Wastewater System	Jersey Wastewater System	East Bradford Wastewater Collection System	Saboury Wastewater Collection System	Simple Average / Standard Deviation	Remove Outliers Simple Average / Standard Deviation	Weighted Average	Remove Outliers Weighted Average / Standard Deviation
System Jurisdiction Type of System	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection Only	Wastewater Collection Only				
Number of Assets	29,300,000	19,000,000	75,200,000	6,000,000	9,710,000			277,850,000	272,850,000
Acquirer	Acqua PA	PA American	Acqua PA	Acqua PA	PA	100%			
Customers									
Original Cost									
Depreciated Original Cost (AUS Consultants) Q.C.D.	1,388,888	1,560,113	46,131,867	1,383,391	6,179,876			178,149,142	172,765,551
Purchase Price to Q.C.D.	0.105	0.1173	0.1844	0.2141	0.0664	0.3599	0.4428	1.5713	1.5793
Variance to Simple Mean	0.0193	0.0029	0.0676	0.0309	-0.0504				0.0188
Replacement Cost (Newless Depreciation) (C.N.L.D)	10,613,410	160,101,291	86,086,736	9,236,381	8,117,187			294,757,825	285,521,244
Purchase Price to (C.N.L.D)	0.9636	0.9919	0.0724	0.5413	1.085			0.9426	0.9556
Variance to Simple Mean	0.0726	0.1089	-0.0185	-0.3497	0.195	0.1877	0.091	0.9183	0.0263
Variance to Wtd Mean	0.021	0.0493	-0.0702	-0.4013	0.1434			0.3018	0.008

**Pennsylvania American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**July 1, 2018**

**Comparable Sales Approach**

**Financial Basis**

	Industry Averages	American & Acqua Averages	American States Water	American Water	Acqua America	California Water	Connecticut Water	Midwest Water	U.S. Corp.	York
Price per Share			19.23	69.05	11.19	26.39	11.81	15.05	16.41	29.87
Book Value per Share			12.77	28.25	9.78	13.41	10.07	12.38	18.81	8.52
Market to Book Equity Ratio			3.07	2.44	3.21	1.98	2.19	2.44	1.93	3.51
Minimum	1.93	2.44								
Mean	2.60	2.825								
Standard Deviation	0.56	0.383								
Weighted Market to Debt Ratio	2.61		5,196.12	46,004.39	23,553.34	3,614.75	2,316.09	1,583.17	2,131.69	1,649.47
Median	2.44	2.825								
Maximum	3.51	3.21								
Debt (Total) \$ millions			173.8	6,324.0	1,793.9	152.3	180.3	244.9	118.9	87.1
Outstanding Shares (Millions)			16.50	178.28	176.54	47.88	10.07	16.23	18.83	12.81
Debt per Share			8.53	35.21	10.17	31.54	9.02	8.93	22.25	6.81
Equity (Total) \$ millions			1,431.50	12,310.21	5,541.59	1,273.13	877.98	503.94	483.60	382.63
Total Capital (Debt + Equity)			1,757.70	18,854.23	7,337.49	1,825.63	1,057.58	648.84	1,104.50	469.93
Market Value per Share (Equity/Debt)			48.16	105.74	41.34	18.13	32.83	19.98	58.66	36.68
Book Value per Share (Equity/Debt)			21.7	64.96	19.95	24.95	29.04	21.67	41.08	15.33
Market to Book - Total Capital - Ratio			2.22	1.63	3.00	1.53	1.82	1.84	1.43	2.39
Minimum	1.43	1.63								
Mean	1.87	1.855								
Standard Deviation	0.32	0.225								
Weighted Market to Book (C.N.L.D.) Ratio	1.77		3,902.08	30,731.40	15,261.98	2,793.21	1,924.79	1,193.87	1,570.44	1,113.14
Variance to Wtd Mean	0.0817		0.45	(0.14)	0.31	(0.24)	0.05	0.07	(0.34)	0.62
Median	1.83	1.855								
Maximum	2.39	2.08								

**Pennsylvania American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

**Market Approach Summary**

Comparable Sales	Book Values	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Depreciated Original Cost (AUS Consultants) Q.C.D.	14,433,435	1.5793	22,794,724
Replacement Cost (Newless Depreciation) (C.N.L.D)	23,923,472.88	0.9556	22,859,359
<b>Average</b>			<b>22,827,042</b>
Debt (C.N.L.D)			22,859,359
Market Value per Share to Book Value per Share			
Financial Markets			
Market to Book (equity)	2.61		
Market to Book (equity and debt)	1.77		
Debt (equity and debt)	2.77		
Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)			
Market to Book			
Steelton Borough (Water) Authority AUS Depreciated Original Cost	14,433,435	1.77	25,547,180
Market Value			
Minimum			22,794,724
Mean			23,731,754
Median			22,859,359
Maximum			25,547,180
Debt (C.N.L.D)			22,859,359

# **Cost Approach**

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Cost Approach**

**AUS Consultants  
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Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018

Cost Approach Summary

Account	Account Description	Investment	(2)	(4)	(5a)	(5b)	(6a)	(5f)	(5g)	(5h)	(6)	(7)	(8)
			OC \$s	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)	Age at July 1, 2018 Appraisal Date	Normal Remain ing Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	Economic Obsolescence	Fair Market Value
Input	Input	Input	OC \$s	RCN \$s	COR \$s / RCN \$s	COR \$s	Years	years	years	% of COR	CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
			Input	Calculation	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Input	Calculation
			Steelton's Engineers' Assessment Data	Cell (4) * (5a)	AUS Input	Cell (5) * (5a)	2018.00-(11)+0.51	(30)/(5a)	(11)+(5g)	(5f)/(5g)	(4)*(5h)	Economic Obsolescence Analysis	(6) * (1.00)/(7)
303 Land		32,244	6,000	193,451	1.000	193,451	46.00	0.00	0.00	100.0%	193,451	0.0%	193,451
304 Treatment		7,580,743	1,478	11,205,461	1.000	11,205,461	7.25	48.56	64.1%	64.1%	7,180,295	0.0%	7,180,295
311 Booster Station		896,330	7,060	6,328,090	1.000	6,328,090	45.00	51.59	12.8%	12.8%	808,337	0.0%	808,337
330 Storage		977,752	8,200	8,017,566	1.000	8,017,566	45.00	65.85	31.7%	31.7%	2,538,592	0.0%	2,538,592
331.1 Interconnection								0.00	0.0%	0.0%		0.0%	
331.2 Distribution		10,252,837	2,545	26,092,200	1.000	26,092,200	16.79	69.17	50.6%	50.6%	13,200,798	0.0%	13,200,798
<b>Total</b>		<b>19,739,906</b>	<b>2,626</b>	<b>51,836,769</b>	<b>1.000</b>	<b>51,836,769</b>	<b>35.00</b>	<b>61.80</b>	<b>46.2%</b>	<b>46.2%</b>	<b>23,921,473</b>	<b>0.00%</b>	<b>23,921,473</b>

**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018**

(0)	(2)	(3c)	(4)	(5a)	(5b)
Account	Investment	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
	OC \$s		RCN \$s	COR \$s / RCN \$s	COR \$s
Input	Input	Calculation	Calculation	Input	Calculation
Steelton's f	Steelton's Engineers' Assessment Data	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
1	3	9	13	14	15
303 Land	32,244		6	193,451	1,000
304 Treatment	7,580,743	1.478	11,205,461	11,205,461	1,000
311 Booster Station	896,330	7.06	6,328,090	6,328,090	1,000
330 Storage	977,752	8.2	8,017,566	8,017,566	1,000
331.1 Interconnection	-	0	-	0.000	-
331.2 Distribution	10,252,837	2.545	26,092,200	26,092,200	1,000
<b>Total</b>	<b>19,739,906</b>	<b>2.626</b>	<b>51,836,769</b>	<b>1.000</b>	<b>51,836,769</b>

**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

Cost Approach

(0)	(0.5)	(1a)	(4)	(5f)	(5g)	(5h)	(6)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Account	Description	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN \$s * Years	RCN \$s * Years	RCN \$s * Years
Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	2018.50-[(1)*0.5]	Col (4)	(5b)/(5e)	(1a)*((5f)	(5h)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
18	303 Land	19	22	28	29	30	31	32	33	34
	304 Treatment	0.01	193,451	0.0000	0.0000	1.0000	193,451	2,607	-	-
	311 Booster Station	15.40	11,205,461	33.16	48.56	0.6408	7,180,295	172,522,691	371,566,386	544,089,085
	330 Storage	45.00	6,328,090	6.59	51.59	0.1277	808,337	284,764,041	41,702,112	326,466,153
	331.1 Interconnection	45.00	8,017,566	20.85	65.85	0.3166	2,538,592	360,790,488	167,166,259	527,956,747
	331.2 Distribution	0.00	-	0.0000	0.0000	0.0000	-	-	-	-
		38.18	26,092,200	31	69.17	0.5059	13,200,798	996,111,649	808,787,245	1,804,898,895
<b>Total</b>		<b>35</b>	<b>51,836,769</b>	<b>26.8</b>	<b>61.8</b>	<b>46.15%</b>	<b>23,921,473</b>	<b>1,814,191,476</b>	<b>1,389,222,002</b>	<b>3,203,410,880</b>

**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
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(0)	(0.5)	(6)	(7)	(8)
Account	Description	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input		CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
Exeter Data	Exeter Data	Calculation	Input	Calculation
		RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
36		37	39	41
303 Land		193,451	0.00%	193,451
304 Treatment		7,180,295	0.00%	7,180,295
311 Booster Station		808,337	0.00%	808,337
330 Storage		2,538,592	0.00%	2,538,592
331.1 Interconnection		-	0.00%	-
331.2 Distribution		13,200,798	0.00%	13,200,798
<b>Total</b>		<b>23,921,473</b>	<b>0.00%</b>	<b>23,921,473</b>



Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
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 As of July 1, 2018

Determination of the Depreciated Original Cost

(1)	(2)	(3)	(4)	(6a)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Earliest Trend Year	Original Costs	Age at July 1, 2018 Appraisal Date	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
					(6)(9)	(6a)+(10)	(1)-(10)/(11)	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Exeter Data	Exeter Data	(4)*(5f)	Exeter Data	2018 00-(1)*0.5	(5)(9)	(6a)+(10)	(1)-(10)/(11)	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Input	Input	Input	Input									
43		44	46	49	53	54	55	56	57	58	59	60
303 Land			32,244	46	0	0	0	-	32,244	1,483,145	-	-
304 Treatment			7,580,743	7.25	44.92	52.17	0.1504	1,140,472	6,440,271	54,929,623	340,537,745	395,467,368
311 Booster Station			896,330	45	6.59	51.59	0.8723	781,833	114,497	40,334,850	5,906,815	46,241,665
330 Storage			977,752	45	20.85	65.85	0.6834	668,166	309,586	43,998,840	20,386,129	64,384,969
331.1 interconnection			-	0	0	0	0	-	-	-	-	-
331.2 Distribution			10,252,837	16.79	44.49	61.28	0.2311	2,368,927	7,536,837	172,159,313	456,139,635	628,298,948
<b>Total</b>			<b>19,739,906</b>	<b>15.85</b>	<b>41.69</b>	<b>57.47</b>	<b>0.2512</b>	<b>4,959,398</b>	<b>14,433,435</b>	<b>312,905,771</b>	<b>822,970,324</b>	<b>1,134,392,950</b>

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Cost Approach  
Reproduction Cost New (RCN)  
and  
Replacement Cost New (COR)**

**Summary  
Example Account 331  
Detail (All Accounts & Summary)**

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**Pennsylvania-American Water Company  
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(0.01)	(0.05)	(0.1)	(0.2)	(0.5)	(1.5)	(2)	(2.5)	(3a)	(3b)	(3c)	(4)	(5a)	(5b)
Account	Account	Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (COR)
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input
Steelton's I	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	AUS Input	AUS Input	Cost Indices	Cost Indices	Col (3b) / (3a)	Col (2) * (3c)	Col (4) * (5a)
331	331.3	1 4" Ductile Iron Pipe	351	L.F.	1986	1986	6,203	HWW-135	263	858	3,262	20,234	1,000
331	331.3	2 6" Ductile Iron Pipe	5,398	L.F.	1986	1986	107,314	HWW-135	263	858	3,262	350,058	1,000
331	331.3	3 8" Ductile Iron Pipe	762	L.F.	1986	1986	21,881	HWW-135	263	858	3,262	71,376	1,000
331	331.3	4 12" Ductile Iron Pipe	1,662	L.F.	1986	1986	69,753	HWW-135	263	858	3,262	227,534	1,000
331	331.3	5 16" Ductile Iron Pipe	1,466	L.F.	1986	1986	74,481	HWW-135	263	858	3,262	242,957	1,000
331	331.3	6 4" Gate Valve	4	Ea.	1986	1986	2,033	HWW-135	263	858	3,262	6,632	1,000
331	331.3	7 6" Gate Valve	17	Ea.	1986	1986	11,829	HWW-135	263	858	3,262	38,586	1,000
331	331.3	8 8" Gate Valve	5	Ea.	1986	1986	5,467	HWW-135	263	858	3,262	17,833	1,000
331	331.3	9 12" Gate Valve	8	Ea.	1986	1986	14,137	HWW-135	263	858	3,262	46,115	1,000
331	331.3	10 16" Gate Valve	8	Ea.	1986	1986	60,083	HWW-135	263	858	3,262	195,991	1,000
335	335	11 Fire Hydrant Assembly	13	Ea.	1986	1986	41,639	HWW-142	296	1021	3,449	143,613	1,000
		Excavation And Aggregate											
354	331.1	12 Backfill	9,639	L.F.	1986	1986	127,752	HWW-144	206.3	585	2,836	362,305	1,000
354	331.1	13 Surface Restoration	9,639	L.F.	1986	1986	178,852	HWW-144	206.3	585	2,836	507,224	1,000
		Subtotal Installation Years 1981-1990 [4]					<b>721,424</b>			<b>3,092</b>	<b>2,230,458</b>	<b>1,000</b>	<b>2,230,458</b>

Account	Account	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	5b
(0)	(0)	(0.1)	(0.2)	(0.5)	(1.5)	(2)	(2.5)	(3a)	(3b)	(3c)	(4)	(5a)	(5b)
Input	Steelton's Engineers' Assessment Date	Steelton's Engineers' Assessment Data	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's, NARUC Code	Steelton's Engineers' Assessment Date	Steelton's Engineers' Assessment Data	Input	Steelton's Engineers' Assessment Data	Input	Steelton's Engineers' Assessment Date	Input	Steelton's Engineers' Assessment Data	Input	Calculation	Calculation	Input	Calculation
NARUC Code	NARUC Code	Parcel Number	Acres	Parcel Number	Parcel Number	Original Cost	Cost/Inflator Table	Year Index	APPCost Index	Translator	RCN	AUS Input	Cost (4) * (5a)
Land and Land Rights	Land and Land Rights	Parcel Number	Acres	Parcel Number	Parcel Number	Original Cost	Cost/Inflator Table	Year Index	APPCost Index	Translator	RCN	AUS Input	Cost (4) * (5a)
303	303	61-013-047 - 304 Christian Street	0.03	N/A	1972	1	USBSL1	42	252,006	6,000	6,000	1,000	
303	303	61-013-048 - 302 Christian Street	0.03	N/A	1972	1	USBSL1	42	252,006	6,000	6,000	1,000	
303	303	61-014-025 - Christian Street	0.37		1972	1	USBSL1	42	252,006	6,000	6,000	1,000	
303	303	61-014-026 - 262 Christian Street	0.03		1972	6,901	USBSL1	42	252,006	6,000	41,406	1,000	41,406
303	303	61-014-027 - 260 Christian Street	0.03		1972	8,240	USBSL1	42	252,006	6,000	49,440	1,000	49,440
303	303	61-014-028 - 256 Christian Street	0.03		1972	5,150	USBSL1	42	252,006	6,000	30,800	1,000	30,800
303	303	61-014-029 - 234 Christian Street	0.09		1972	6,695	USBSL1	42	252,006	6,000	40,170	1,000	40,170
303	303	61-014-030 - 244 and 246 Christian Street	0.09		1972	5,253	USBSL1	42	252,006	6,000	31,518	1,000	31,518
303	303	63-045-113 - Reservoir Road	2.34		1971	1	USBSL1	41	252,006	6,146	6,146	1,000	6,146
303	303	57-029-005 - Water line right-of-way (Southern side of south Front Street between R Street and T Street)	1.14		1985	1	USBSL1	108	252,006	2,333	2,333	1,000	2,333
303	303	62-043-051 - Water line easement	0.56	2001	2001	1	USBSL1	177	252,006	1,424	1,424	1,000	1,424
Subtotal L:	Subtotal L:		0.06	Checks	2010	1	USBSL1	218	252,006	1,156	1,156	1,000	1,156
						32,244				6	193,451	1,000	193,451
NARUC Code	NARUC Code	Description				Original Cost or Negative for Cost							
Water Treat	Water Treatment Plant					Deduction for Trending Back to 1973 [5]							
Water Treat	Water Treatment Plant Building												
304	304	Building			1973	1,260,090	HMMW-18	100	706	7,060	8,896,235	1,000	8,896,235
306	304.2	Water Intake Structure	Concrete 1973		1973		HMMW-115	100	706	7,060	7,060	1,000	7,060
309	304.2	Water Intake Line/Wet Well/Building	1,160 L.F. - 36" Cast Iron Pipe J		1973	(2,296)	HMMW-115	100	706	7,060	(16,210)	1,000	(16,210)
309	304.2		382 L.F. - 24" Cast Iron Pipe 15,		1973		HMMW-115	100	706	7,060	7,060	1,000	7,060
304	304.2				1973		HMMW-115	100	706	7,060	7,060	1,000	7,060

Pennsylvania-American Water Company  
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Account	Account	Account	Account	0.1	0.2	0.5	2	2.00	2.5	3a	3b	3c	4	5a	5b
(0)	(0)	(0.1)	(0.2)	(0.5)	2	(2.5)	(2)	(2.5)	(3a)	(3b)	(3c)	(4)	(5a)	(5b)	
Input	Account	Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)	
Steelton's Input	Steelton's Input	Steelton's Input	Steelton's Input	Steelton's Input	Steelton's Input	Steelton's Input	Steelton's Input	Steelton's Input	Steelton's Input	Steelton's Input	Steelton's Input	Steelton's Input	Steelton's Input	Steelton's Input	
MARUC Code	MARUC Code	Parcel Number	Acres	Acres	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Original Cost	Cost Index Table	Year Index	APPCost Index	Translator	RCN	AUS Input	Calculation	
311	311				1973	1973	Original Cost	HMMW-19	100	1216	12,160		1,000		
334	334				1973	1973	Original Cost	HMMW-140	100	434	4,340		1,000		
304	304.2				1973	1973		HMMW-115	100	706	7,060		1,000		
304	304.2				2010	1973		HMMW-115	558.8	706	7,060		1,000		
304	304.2				2014	2014		HMMW-115	630.8	706	7,060		1,000		
304	304.2				1973	1973		HMMW-115	100	706	7,060		1,000		
304	304.2				2014	2014	11,880	HMMW-115	630.6	706	7,060		1,000	13,294	
320	320				1973	1973		HMMW-117	100	706	7,060		1,000		
304	304.2				1973	1973		HMMW-117	100	930	9,300		1,000		
304	304.2				1973	1973		HMMW-115	100	706	7,060		1,000		
304	304.2				1973	1973		HMMW-115	100	706	7,060		1,000		
Chemical T	Chemical T				1973	1973		HMMW-115	100	706	7,060		1,000		
320	320				1973	1973		HMMW-117	100	930	9,300		1,000		
320	320				1973	1973		HMMW-117	100	930	9,300		1,000		
320	320				2016	2016	3,996	HMMW-117	887.5	930	1,072		1,000	4,284	
320	320				1973	1973	(732)	HMMW-117	100	930	9,300		1,000	(6,808)	
320	320				1973	1973	(705)	HMMW-117	100	930	9,300		1,000	(6,557)	
320	320				2017	2017	3,986	HMMW-117	886.5	930	1,037		1,000	4,144	
320	320				1973	1973	(2,856)	HMMW-117	100	930	9,300		1,000	(26,561)	
320	320				2015	2015	15,200	HMMW-117	843.3	930	1,103		1,000	16,577	
320	320				1973	1973		HMMW-117	100	930	9,300		1,000		
320	320				1973	1973		HMMW-117	100	930	9,300		1,000		
320	320				2004	2004	15,800	HMMW-117	480	930	1,938		1,000	29,070	
320	320				2016	2016	15,902	HMMW-117	887.5	930	1,072		1,000	17,047	
320	320				1973	1973	(2,915)	HMMW-117	100	930	9,300		1,000	(27,110)	
320	320				1973	1973		HMMW-117	100	930	9,300		1,000		
Rapid (Fast Rapid) Mixer					1973	1973		HMMW-115	100	706	7,060		1,000		
304	304.2				1973	1973		HMMW-115	100	706	7,060		1,000		
304	304.2				1973	1973		HMMW-115	100	706	7,060		1,000		
320	320				1973	1973		HMMW-117	100	930	9,300		1,000		
320	320				2018	2018	1,080	HMMW-117	930	930	1,000		1,000	(1,739)	
304	304.2				2010	2010	3,580,390	HMMW-115	558.8	706	1,261		1,000	4,514,872	
304	304.2				1973	1973	(771,052)	HMMW-115	100	706	7,060		1,000	(5,443,910)	





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Francis/Janis-American Water Company  
 Station Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 As of July 1, 2018

(0)	(0)	(0.1)	(0.2)	(0.5)	(1.5)	(2)	(2.5)	(3a)	(3b)	(3c)	(4)	(5a)	(5b)
Account	Account	Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Replacement Cost New (COR)
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input
Steelton's Assessment Data	Steelton's Assessment Data	Steelton's Assessment Data	Steelton's Assessment Data	Steelton's Assessment Data	Steelton's Assessment Data	Steelton's Assessment Data	Steelton's Assessment Data	AUS Input	Cost Index	Cost Index	Cost (3b) / (3a)	Cost (3) / (3c)	AUS Input
NARUC Code	NARUC Code	Parcel Number	Acres	Acres	Date of Installation	Original Cost	Original Cost	Cost/Inch/Table	Year/Inch	APPCost/Index	Translator	RCN	COR \$s / RCN \$s
Value Pits	Value Pits	Parcel Number	Acres	Acres	Checks	Original Cost	Original Cost						
304	330	2- 10" x 7'-6" x 6'-6" Concrete Valve Pit	1. Ea		1973	820	820	HWWW-123	100	820	8.200	8.200	1,000
304	330	5' x 2'-6" Double Leaf Hatch (each)	1. Ea		1973	820	820	HWWW-123	100	820	8.200	8.200	1,000
304	330	12" Ductile Iron Inflow/Effluent Piping (each)	1. Ea		1973	977,752	977,752	HWWW-123	100	820	8.200	8,017,566	8,017,566
304	330	6" Cast Iron Drain Piping (each)	1. Ea		1973	820	820	HWWW-123	100	820	8.200	8.200	1,000
304	330	2" Sump	1. Ea		1973	820	820	HWWW-123	100	820	8.200	8.200	1,000
304	330	1 - 12" Butterfly Valve (each)	1. Ea		1973	820	820	HWWW-123	100	820	8.200	8.200	1,000
304	330	1 - 6" Butterfly Valve (each)	1. Ea		1973	820	820	HWWW-123	100	820	8.200	8.200	1,000
Subtotal					Checks	977,752	977,752				8.2	8,017,566	8,017,566
Interconnec Interconnection with Suez (S. 19th Street)													
Installation: Installation Years 2010													
NARUC	NARUC	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost	Estimated Original Cost						
304	331.1	Structure	2010		2010	[1]	[1]						
309	331.1	15'-8.5x6x6 Concrete Metering Chamber	2010		2010	506.6	506.6	HWWW-144	506.6	506.6	1.155	1,000	
309	331.1	1.54"x8" Access Hatch	2010		2010	506.6	506.6	HWWW-144	506.6	506.6	1.155	1,000	
309	331.1	6" Ductile Iron Piping & Fittings	2010		2010	506.6	506.6	HWWW-144	506.6	506.6	1.155	1,000	
309	331.1	2'-6" Gate Valve	2010		2010	506.6	506.6	HWWW-144	506.6	506.6	1.155	1,000	
309	331.1	1-6" Flow Control Valve	2010		2010	506.6	506.6	HWWW-144	506.6	506.6	1.155	1,000	
354	331.1	Backflow Preventer	2010		2010	506.6	506.6	HWWW-144	506.6	506.6	1.155	1,000	
348	331.1	1-6" Flow Meter	2010		2010	506.6	506.6	HWWW-144	506.6	506.6	1.155	1,000	
348	331.1	Other Electric Unit Heater	2010		2010	506.6	506.6	HWWW-144	506.6	506.6	1.155	1,000	
Subtotal		In Subtotal Interconnection with Suez			Checks	0	0				0	0.000	0.000
Distribution Distribution System Assets													
Installation: Installation Years 1903-1910 [2]													
NARUC	NARUC	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost	Estimated Original Cost						
331	331.3	1.4" Ductile Iron Pipe	1,106	L.F.	1907	414	414	HWWW-135	858	858	95.333	1,000	
331	331.3	2.6" Ductile Iron Pipe	5,798	L.F.	1907	2,462	2,462	HWWW-135	858	858	95.333	1,000	
331	331.3	3.8" Ductile Iron Pipe	3,720	L.F.	1907	2,265	2,265	HWWW-135	858	858	95.333	1,000	



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Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System  
Investor-Owned Utility  
As of July 1, 2018

Account	Account	(0)	(0.1)	(0.2)	(0.5)	(2)	(2.5)	(3a)	(3b)	(3c)	(4)	(5a)	(5b)
Account	Account	Input	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
INPUT	Account	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's	Steelton's
Engineers' Assessment Data	Engineers' Assessment Data	Engineers' Assessment Data	Engineers' Assessment Data	Engineers' Assessment Data	Engineers' Assessment Data	Engineers' Assessment Data	Engineers' Assessment Data	Engineers' Assessment Data	Engineers' Assessment Data	Engineers' Assessment Data	Engineers' Assessment Data	Engineers' Assessment Data	Engineers' Assessment Data
Asset	Asset	Asset	Asset	Asset	Asset	Asset	Asset	Asset	Asset	Asset	Asset	Asset	Asset
Parcel Number	Parcel Number	Parcel Number	Parcel Number	Parcel Number	Parcel Number	Parcel Number	Parcel Number	Parcel Number	Parcel Number	Parcel Number	Parcel Number	Parcel Number	Parcel Number
Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Original Cost	Original Cost	Original Cost	Original Cost	Original Cost	Original Cost	Original Cost	Original Cost	Original Cost	Original Cost	Original Cost	Original Cost	Original Cost	Original Cost
Estimated Original Cost	Estimated Original Cost	Estimated Original Cost	Estimated Original Cost	Estimated Original Cost	Estimated Original Cost	Estimated Original Cost	Estimated Original Cost	Estimated Original Cost	Estimated Original Cost	Estimated Original Cost	Estimated Original Cost	Estimated Original Cost	Estimated Original Cost
NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code
331	331.3	331	6 4" Gate Valve		1926	1926	HW-135	23	658	37,304	22,532	1,000	22,532
331	331.3	331	7 6" Gate Valve		1926	1926	HW-135	23	658	37,304	33,238	1,000	33,238
331	331.3	331	8 8" Gate Valve		1926	1926	HW-135	23	658	37,304	18,652	1,000	18,652
331	331.3	331	9 10" Gate Valve		1926	1926	HW-135	23	658	37,304	9,028	1,000	9,028
331	331.3	331	10 12" Gate Valve		1926	1926	HW-135	23	658	37,304	41,651	1,000	41,651
335	335	335	11 Fire Hydrant Assembly		1926	1926	HW-142	19	1021	53,737	196,731	1,000	196,731
354	331.1	354	12 Excavation And Aggregate Backfill		1926	1926	HW-144	24.6	585	23,780	281,159	1,000	281,159
354	331.1	354	13 Surface Restoration		1926	1926	HW-144	24.6	585	23,780	393,678	1,000	393,678
Subtotal in Subtotal Installation Years 1921-1930 [2]													
Installation Installation Years 1941-1950 [2]													
NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code
331	331.3	331	1 4" Ductile Iron Pipe		1946	1946	HW-135	32	658	26,813	50,087	1,000	50,087
331	331.3	331	2 4" Gate Valve		1946	1946	HW-135	32	658	26,813	3,325	1,000	3,325
335	335	335	3 Fire Hydrant Assembly		1946	1946	HW-142	25	1021	40,840	10,618	1,000	10,618
354	354	354	4 Excavation And Aggregate Backfill		1946	1946	HW-135	32	658	26,813	37,892	1,000	37,892
354	354	354	5 Surface Restoration		1946	1946	HW-135	32	658	26,813	52,607	1,000	52,607
Subtotal in Subtotal Installation Years 1941-1950 [2]													
Installation Installation Years 1951-1960 [2]													
NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code
331	331	331	1 10" Ductile Iron Pipe		1956	1956	HW-144	57.9	585	10,104	37,759	1,000	37,759
354	354	354	2 Excavation And Aggregate Backfill		1956	1956	HW-135	62	658	13,839	17,230	1,000	17,230
354	354	354	3 Surface Restoration		1956	1956	HW-135	62	658	13,839	24,135	1,000	24,135
Subtotal in Subtotal Installation Years 1951-1960 [2]													
Installation Installation Years 1941-1950 [2]													
NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code	NARUC Code
331	331	331	1 4" Ductile Iron Pipe		1966	1966	HW-144	73	585	8,014	8,623	1,000	8,623
331	331	331	2 6" Ductile Iron Pipe		1966	1966	HW-144	73	585	8,014	9,593	1,000	9,593





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**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

Account	Account	(0)	(0.1)	(0.2)	(0.5)	2	(1.5)	(2)	(2.5)	(3a)	(3b)	(3c)	(4)	(5a)	(5b)
Input	Account	Input	Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
Steelton's	Asset	Input	Parcel Number	Input	Input	Station's Engineer's Assessment Data	Station's Engineer's Assessment Data	Original Cost	Cost/Inch/Year	Cost Index	APPCostIndex	Translator	RCN	COR % / RCN %	Calculation
Code	Code	Code	Code	Code	Code	Code	Code	Code	Code	Code	Code	Code	Code	Code	Code
NARUC	NARUC	NARUC	Parcel Number	Acres	Acres	Station's Engineer's Assessment Data	Station's Engineer's Assessment Data	Original Cost	Cost/Inch/Year	Cost Index	APPCostIndex	Translator	RCN	COR % / RCN %	Calculation
331	331.3	331.3	6.4" Gate Valve	4	4	1986	1986	2,093	HW-135	263	658	3.262	6,632	1,000	6,632
331	331.3	331.3	7.6" Gate Valve	17	17	1986	1986	11,829	HW-135	263	658	3.262	38,586	1,000	38,586
331	331.3	331.3	8.8" Gate Valve	5	5	1986	1986	5,467	HW-135	263	658	3.262	17,833	1,000	17,833
331	331.3	331.3	9.12" Gate Valve	8	8	1986	1986	14,137	HW-135	263	658	3.262	46,115	1,000	46,115
331	331.3	331.3	10.16" Gate Valve	8	8	1986	1986	60,093	HW-135	263	658	3.262	195,991	1,000	195,991
335	335	335	11 Fire Hydrant Assembly	13	13	1986	1986	41,639	HW-142	296	1021	3.449	143,613	1,000	143,613
354	331.1	331.1	12 Excavation And Aggregate Backfill	9,639	9,639	1986	1986	127,752	HW-144	206.3	585	2.636	382,305	1,000	382,305
354	331.1	331.1	13 Surface Restoration	9,639	9,639	1986	1986	178,832	HW-144	206.3	585	3.092	507,224	1,000	507,224
			Subtotal In Subtotal Installation Years 1981-1990 [4]					721,424					2,230,458	1,000	2,230,458
Installation Installation Years 1981-1990 [5]															
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost	Estimated Original Cost							
331	331.3	7,301	1 6" Ductile Iron Pipe	7,301	L.F.	1995	190,477	190,477	HW-135	348	858	2.468	469,716	1,000	469,716
331	331.3	3,867	2 8" Ductile Iron Pipe	3,867	L.F.	1996	145,725	145,725	HW-135	348	858	2.468	359,358	1,000	359,358
331	331.3	32	3 6" Gate Valve	32	EA	1995	25,219	25,219	HW-135	348	858	2.468	72,054	1,000	72,054
331	331.3	18	4 8" Gate Valve	18	EA	1996	25,828	25,828	HW-135	348	858	2.468	65,982	1,000	65,982
335	335	23	5 Fire Hydrant Assembly	23	EA	1996	96,674	96,674	HW-142	418	1021	2.443	236,175	1,000	236,175
354	331.1	11,168	6 Excavation And Aggregate Backfill	11,168	L.F.	1996	194,242	194,242	HW-144	284.9	585	2.053	396,779	1,000	396,779
354	331.1	11,168	7 Surface Restoration	11,168	L.F.	1996	271,939	271,939	HW-144	284.9	585	2.053	558,291	1,000	558,291
			Subtotal In Subtotal Installation Years 1981-1990 [5]				954,104	954,104					2,159,064	1,000	2,159,064
Installation Installation Years 1981-1990 [6]															
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost	Estimated Original Cost							
331	331.3	555	1 6" Ductile Iron Pipe	555	L.F.	2006	15,687	15,687	HW-135	498	658	1.723	33,921	1,000	33,921
331	331.3	23,934	2 8" Ductile Iron Pipe	23,934	L.F.	2006	1,235,236	1,235,236	HW-135	498	658	1.723	2,111,082	1,000	2,111,082
331	331.3	964	3 10" Ductile Iron Pipe	964	L.F.	2006	66,387	66,387	HW-135	498	658	1.723	117,831	1,000	117,831
331	331.3	8,534	4 12" Ductile Iron Pipe	8,534	L.F.	2006	639,043	639,043	HW-135	498	658	1.723	1,101,071	1,000	1,101,071
331	331.3	1,517	5 16" Ductile Iron Pipe	1,517	L.F.	2006	137,511	137,511	HW-135	498	658	1.723	236,931	1,000	236,931
331	331.3	2	6 6" Gate Valve	2	EA	2006	2,483	2,483	HW-135	498	658	1.723	4,278	1,000	4,278
331	331.3	96	7 8" Gate Valve	96	EA	2006	187,284	187,284	HW-135	498	658	1.723	322,690	1,000	322,690
331	331.3	2	8 10" Gate Valve	2	EA	2006	6,305	6,305	HW-135	498	658	1.723	10,864	1,000	10,864
331	331.3	19	9 12" Gate Valve	19	EA	2006	59,506	59,506	HW-135	498	658	1.723	103,216	1,000	103,216

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**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

Account	Account	Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	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	Steelton's Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Assessment Data	AUS Input	Cost Index	Cost Index	Calculator	Calculator	AUS Input	Calculator
NARUC Code	NARUC Code	Parcel Number	Acres	Unit	Date of Installation	Year	Original Cost	Cost Index Table	Year Index	APPCost Index	Translator	RCN	RCN	Cost (4) * (5a)
331	331.3	10 16" Gate Valve	4	Ea.	2006	2006	531,599	HVWV-135	498	858	1.723	92,251	1,000	92,351
335	335	11 Fire Hydrant Assembly	55	Ea.	2006	2006	314,507	HVWV-142	642.5	1021	1.589	499,434	1,000	499,434
354	331.1	13 Excavation And Aggregate Backfill	35,454	L.F.	2006	2006	838,380	HVWV-144	433.5	595	1.349	1,130,975	1,000	1,130,975
354	331.1	14 Surface Restoration	35,454	L.F.	2006	2006	1,173,731	HVWV-144	433.5	595	1.349	1,593,463	1,000	1,593,463
Subtotal in Subtotal Installation Years 1981-1990 [6]							4,725,859				1.555	7,348,008	1,000	7,348,008
Installation Installation Years 1981-1990 [6]														
NARUC Code	NARUC Code	Item No.	Description	Unit	Date of Installation	Year	Estimated Original Cost							
331	331.3	1	2016 Pine/Harrisburg Streets Replacement Project(8)	Ea	2016	2016	1,614,679	HVWV-135	806.3	858	1.085	1,719,633	1,000	1,719,633
331	331.3	2	2017 Mulberry/Bessemer Replacement Project(9)	Ea	2017	2017	248,502	HVWV-135	834.8	858	1.028	285,768	1,000	285,768
331	331.3	3	2017 Ujles Water Main Installation Project(10)	Ea	2017	2017	522,565	HVWV-135	834.8	858	1.028	537,197	1,000	537,197
Subtotal in Subtotal Installation Years 1981-1990 [6]							2,385,746				1.053	2,512,598	1,000	2,512,598
Subtotal D: Subtotal Distribution					Checks		10,252,837				2.545	26,092,200	1,000	26,092,200
303	Land	4	6	7	8	9	92,444				1.3	193,451	1,000	193,451
304	Treatment	5	6	7	8	9	7,980,743				1.478	11,205,461	1,000	11,205,461
311	Booster Station	6	7	8	9	10	896,330				7.05	6,328,090	1,000	6,328,090
330	Storage	7	8	9	10	11	977,752				8.2	8,017,566	1,000	8,017,566
331.1	Interconnection	8	9	10	11	12	0				0	0	0,000	0
331.2	Distribution	9	10	11	12	13	10,252,837				2.545	26,092,200	1,000	26,092,200
Total			16,277,868	(3,462,038)			19,739,906				2.626	51,836,769	1,000	51,836,769

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Cost Approach  
Replacement Cost New less Depreciation (CORLD)**

**Summary  
Example Account 331  
Detail (All Accounts & 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)**

**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

(0)	(0 5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	RCN Weighted Normal Remaining Life	RCN Weighted Age	RCN Weighted Total Life Expectancy
Account	Description	Earliest Trend Year	Age at July 1, 2018 Appraisal Date	Replacement Cost (New RCN)	Retirement Dispersion low-type	Normal Service Life (NSL)	Age as % of NSL	lowa Lookup	lowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN \$s * Years	RCN \$s * Years	RCN \$s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Lookup	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exister Data	Exister Data	AUS Input	2018 5p- (1)+(0 5)	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5d)/(5c)	lowa Life Table	(5b)/(5e)	(1a)+(1 5f)	(5f)/(5g)	(4)*(5h)	(4)*(5f)	(4)*(1a)	(4)*(15g)
18	303 Land	19	21	22	23	24	25	26	27	28	29	30	31	32	33	34
	304 Treatment		0.01	193,451						0	0	1	193,451	2,607		
	311 Booster Station		15.4	11,205,461						33.16	48.56	0.6408	7,180,285	172,522,691	371,566,386	544,089,085
	330 Storage		45	6,328,090						6.59	51.59	0.1277	808,337	284,764,041	41,702,112	326,466,153
	331.1 Interconnection		45	8,017,566						20.85	65.85	0.3166	2,538,592	360,790,488	167,166,259	527,956,747
	331.2 Distribution		38.18	26,092,200						0	0	0		996,111,649	808,787,245	1,804,898,895
<b>Total</b>			<b>35</b>	<b>51,836,769</b>						<b>26.8</b>	<b>61.8</b>	<b>46.15%</b>	<b>23,921,473</b>	<b>1,814,191,476</b>	<b>1,389,222,002</b>	<b>3,203,410,880</b>

**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

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(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	RCN Weighted Normal Remaining Life	RCN Weighted Age	RCN Weighted Total Life Expectancy
Account	Description	Earliest Trend Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion lowa-type	Normal Service Life (NSL) years	Age as % of NSL	lowa Lookup	lowa Percent New	Normal Remaining Life years	Total Life Expectancy years	% of COR	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN \$s - Years	RCN \$s - Years	RCN \$s - Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	AUS Input	2018 50- [(1)+0.5]	Col(4)	AUS Input	AUS Input	(1a)/(5b)	(5)/(5c)	lowa Life Table	(5f)/(5e)	(1a)/(5f)	(5)/(5g)	(4)/(1b)	(4)/(5f)	(4)/(1a)	(4)/(5g)
331.3 4" Ductile Iron Pipe		1986	32.00	20,234	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	9,924	647,494	623,213	1,270,707
331.3 6" Ductile Iron Pipe		1986	32.00	350,058	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	171,685	11,201,865	10,781,795	21,983,659
331.3 8" Ductile Iron Pipe		1986	32.00	71,376	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	35,006	2,284,026	2,198,375	4,482,401
331.3 12" Ductile Iron Pipe		1986	32.00	227,534	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	111,593	7,281,097	7,008,056	14,289,153
331.3 16" Ductile Iron Pipe		1986	32.00	242,957	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	119,157	7,774,625	7,483,076	15,257,701
331.3 4" Gate Valve		1986	32.00	6,632	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	3,252	212,213	204,255	416,468
331.3 6" Gate Valve		1986	32.00	38,556	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	18,924	1,234,758	1,188,455	2,423,213
331.3 8" Gate Valve		1986	32.00	17,833	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	8,746	570,667	549,267	1,119,934
331.3 12" Gate Valve		1986	32.00	46,115	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	22,617	1,475,676	1,420,339	2,896,015
331.3 16" Gate Valve		1986	32.00	195,991	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	96,123	6,271,704	6,036,515	12,308,219
335 Fire Hydrant Assembly		1986	32.00	143,613	R3.0	55.0	58	R3.0058	0.47316	26.02	58.02	44.846805%	64,406	4,595,613	3,736,808	8,332,421
331.1 Excavation And Aggregate Backfill		1986	32.00	362,305	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	177,691	11,593,749	11,158,984	22,752,733
331.1 Surface Restoration		1986	32.00	507,224	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	248,768	16,231,177	15,622,508	31,853,684
<b>Subtotal Installation Years 1981-1990 (4)</b>			<b>32.00</b>	<b>2,230,458</b>						<b>30.49</b>	<b>62.49</b>	<b>48.774290%</b>	<b>1,087,890</b>	<b>71,374,664</b>	<b>68,031,646</b>	<b>139,386,308</b>

0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion low-type	Normal Service Life (NSL)	Age as % of NSL	lowa Lookup	lowa Condition Percent of New	Normal Remaining Life	Total Life Expectancy	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Input	Input	Input	years	Calculation	Input	years	Calculation	Calculation	Lookup	years	years	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-((1)+0.5)	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5d)&(5c)	lowa Life Table	(5f)/(5e)	(1a)/(5f)	(4)+(5h)	(4)/(1a)	(4)/(5f)	(4)/(5g)
Account	Description	Year1	Age	RCN	lowa	Life	AgeP	lowaLookup	lowaCondition	Rem Life	Total Life	RONLD			
303 Land and Land R		1972	46.00	-	Non-Depr										
303 Land and Land R		1972	46.00	-	Non-Depr										
303 Land and Land R		1972	46.00	6	Non-Depr										
303 Land and Land R		1972	46.00	41,406	Non-Depr										
303 Land and Land R		1972	46.00	48,440	Non-Depr										
303 Land and Land R		1972	46.00	30,900	Non-Depr										
303 Land and Land R		1972	46.00	40,170	Non-Depr										
303 Land and Land R		1972	46.00	31,518	Non-Depr										
303 Land and Land R		1971	47.00	6	Non-Depr										
303 Land and Land R		1985	33.00	2	Non-Depr										
303 Right-of-way		2001	17.00	1	Non-Depr										
303 Essement		2010	8.00	1	Non-Depr										
			0.01	193,451						0	0	193,451	2,607		

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Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersal type	Normal Service Life (NSL)	Age as % of NSL	lowa Lookup	lowa Condition Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Enter Data	Enter Data	Enter Data	2018 00c(1)+(0.5)	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)/(5c)	lowa Life Table	(5b)/(5e)	(1a)/(5f)	(5h)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5h)	(4)*(5g)
Account	Description	Year1	Age	RCN	lowa	Life	AgeP	lowaLookup	lowaCondition	Rem Life	Total Life	Condition	RCNLD			
304 Building		1973	45.00	8,696,235	R4.0	45.0	100	R4.0100	0.14634	6.59	51.59	12.773793%	1,136,386.69	400,330.593	98,626.191	458,956.784
304.2 Water Intake Str.		1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2 Water Intake Line		1973	45.00	(16,210)	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	(3,838.00)	(729,439)	(226,288)	(555,727)
304.2		1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
311		1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
334		1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
304.2		1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2		1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2		2010	8.00	-	R4.0	55.0	15	R4.0015	0.85036	48.77	54.77	85.393484%	-	-	-	-
304.2		2014	4.00	-	R4.0	55.0	7	R4.0007	0.93009	51.15	55.15	92.747053%	-	-	-	-
304.2		1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2		2014	4.00	13,294	R4.0	55.0	7	R4.0007	0.93009	51.15	55.15	92.747053%	12,329.53	53,175	679,974	733,149
304.2		1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
320		1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
304.2		1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2		1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
320 Liquefied Gas Ch		1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
320		1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
320		2016	2.00	4,284	R3.0	35.0	6	R3.0006	0.94112	32.94	34.94	94.275902%	4,038.51	8,567	141,105	149,673
320		1973	45.00	(6,808)	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	(491.27)	(306,342)	(23,827)	(330,169)
320 Chemical Feed Li		1973	45.00	(6,557)	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	(473.15)	(295,043)	(22,948)	(317,990)
320 2-2,800 Gallon FI		2017	1.00	4,144	R3.0	35.0	3	R3.0003	0.97050	33.97	34.97	97.140405%	4,025.35	4,144	140,767	144,910
320		1973	45.00	(26,561)	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	(1,916.76)	(1,195,236)	(92,863)	(1,286,199)
320 1-Peristaltic(Blue		2015	3.00	16,677	R3.0	35.0	9	R3.0009	0.91187	31.92	34.92	91.408935%	15,244.60	50,032	532,341	582,373



Pennsylvania-American Water Company  
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(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Disposition low- type	Normal Service Life (NSL)	Age as % of NSL	lowa Lookup	lowa Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Excel Data	Excel Data	Excel Data	2018.00/(1+(0.5))	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5d)/(5c)	lowa Life Table	(5b)/(5a)	(1a)/(5f)	(5f)/(5g)	(4)/(5h)	(4)/(1a)	(4)/(5f)	(4)/(5g)
Account	Description	Year1	Age	RCN	lowa	Life	AgeP	lowaLookup	lowaCondition	Rem Life	Total Life	Condition	RCNLD			
320	Chemical Feed L	1973	45.00	-	R3.0	35.0	129	R3.0*129	0.10010	3.50	4E.50	7.216495%	-	-	-	-
320	1-Peristaltic (Blue)	1973	45.00	-	R3.0	35.0	129	R3.0*129	0.10010	3.50	4E.50	7.216495%	-	-	-	-
320	Chemical Feed L	2004	14.00	26,070	R3.0	35.0	40	R3.0*40	0.62327	21.81	3E.81	60.904775%	17,705.02	406,980	634,017	1,040,997
320	Soda Ash System	2016	2.00	17,047	R3.0	35.0	6	R3.0*6	0.94112	32.94	34.94	94.275902%	16,071.16	34,084	561,526	595,620
320	Soda Ash System	1973	45.00	(27,110)	R3.0	35.0	129	R3.0*129	0.10010	3.50	4E.50	7.216495%	(1,956.36)	(1,219,928)	(94,883)	(1,314,811)
320	Soda Ash System	1973	45.00	-	R3.0	35.0	129	R3.0*129	0.10010	3.50	4E.50	7.216495%	-	-	-	-
304.2	Structure	1973	45.00	-	R4.0	55.0	82	R4.0*82	0.25380	13.96	5E.96	23.677069%	-	-	-	-
304.2	Structure	1973	45.00	-	R4.0	55.0	82	R4.0*82	0.25380	13.96	5E.96	23.677069%	-	-	-	-
304.2	Structure	1973	45.00	-	R4.0	55.0	82	R4.0*82	0.25380	13.96	5E.96	23.677069%	-	-	-	-
320	Mixer	1973	45.00	(1,739)	R3.0	35.0	129	R3.0*129	0.10010	3.50	4E.50	7.216495%	(125.50)	(78,260)	(6,087)	(84,346)
320	Mixer	2018	0.00	1,080	R3.0	35.0	0	R3.0*0	1.00000	35.00	3E.00	100.000000%	1,080.00	-	37,800	37,800
304.2	Structure	2010	8.00	4,514,872	R4.0	55.0	15	R4.0*15	0.85039	48.77	54.77	85.393464%	3,855,405.42	36,116,974	211,150,554	247,279,528
304.2	Structure	1973	45.00	(5,443,910)	R4.0	55.0	82	R4.0*82	0.25380	13.96	5E.96	23.677069%	(1,288,958.21)	(244,975,928)	(75,996,977)	(320,972,905)
311	Pumps	2012	6.00	13,340	R3.0	35.0	17	R3.0*17	0.83474	29.22	3E.22	82.984225%	11,067.56	80,041	389,799	469,840
311	Pumps	1973	45.00	(21,369)	R3.0	35.0	129	R3.0*129	0.10010	3.50	4E.50	7.216495%	(1,543.57)	(882,525)	(74,863)	(1,037,388)
334	Meters and Meter	2015	3.00	6,498	R3.0	35.0	9	R3.0*9	0.91187	31.92	34.92	91.408935%	5,939.75	15,494	207,416	226,910
320	WTP Equipment	2014	4.00	9,374	R3.0	35.0	11	R3.0*11	0.89247	31.24	3E.24	88.648262%	8,309.57	37,494	292,829	330,324
320	WTP Equipment	1973	45.00	(14,750)	R3.0	35.0	129	R3.0*129	0.10010	3.50	4E.50	7.216495%	(1,064.42)	(693,741)	(51,524)	(715,365)
304.2	Structure	1973	45.00	-	R4.0	55.0	82	R4.0*82	0.25380	13.96	5E.96	23.677069%	-	-	-	-
311	Pumps	1973	45.00	2,487,757	R3.0	35.0	129	R3.0*129	0.10010	3.50	4E.50	7.216495%	17,951.55	11,194,070	870,650	12,064,720
334	Meters and Meter	1973	45.00	-	R3.0	35.0	129	R3.0*129	0.10010	3.50	4E.50	7.216495%	-	-	-	-
304.2	StructurePumps	2017	1.00	2,663,582	R4.0	55.0	2	R4.0*2	0.96002	53.90	54.90	96.178506%	2,615,064.71	2,663,582	143,567,053	146,230,635
311	Pumps	1973	45.00	-	R3.0	35.0	129	R3.0*129	0.10010	3.50	4E.50	7.216495%	-	-	-	-
334	Meters and Meter	1973	45.00	-	R3.0	35.0	129	R3.0*129	0.10010	3.50	4E.50	7.216495%	-	-	-	-

0 0.5 1 1a 4 (5a) (5b) (5c) (5d) (5e) (5f) (5g) (5h) (5i) (6) (7) (8) (9)

Pennsylvania-American Water Company  
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Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age as % of NSL	lowa Lookup	lowa Condition Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Input	Input	Input	years	COR \$s	Input	years	Calculation	Calculation	Lookup	years	years	Calculation	Calculation	Calculation	Calculation	Calculation
Excel Data	Excel Data	Year1	2018 004(1)+0.5	Cell (4)	AUS Input	lowa	Life	AUS Input	lowa Life Table	lowa	lowa	lowa	lowa	lowa	lowa	lowa
Account	Description	Year1	Age	RCN	lowa	Life	AgeP	lowaLookup	lowaCondition	Rem Life	Total Life	Condition	RCNLD	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
304.2	0	1973	45.00		R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%				
304.2	0	1973	45.00		R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%				
304.2	StructurePumps	1973	45.00	(5,408)	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	(1,280.45)	(243,356)	(75,485)	(318,853)
311	0	2018	0.00	4,428	R3.0	35.0	0	R3.0000	1.00000	35.00	35.00	100.000000%	4,428.00		154,980	154,980
310	0	2015	3.00	558,458	R3.0	35.0	9	R3.0009	0.91187	31.92	34.92	91.408935%	510,480.28	1,875,373	17,825,971	19,501,345
339	Other Plant and Equipment	2009	9.00	416,358	R3.0	55.0	16	R3.0016	0.84430	46.44	55.44	83.786234%	350,442.32	3,765,218	19,428,522	23,193,740
339	Other Plant and Equipment	1973	45.00	(622,068)	R3.0	55.0	82	R3.0082	0.30136	16.57	81.57	26.912457%	(167,413.70)	(27,993,047)	(10,307,682)	(38,300,708)
347	0	2015	3.00	66,709	R3.0	55.0	5	R3.0005	0.95090	52.30	55.30	94.575045%	63,090.48	200,128	3,488,904	3,689,032
347	0	1973	45.00	(106,215)	R3.0	55.0	82	R3.0082	0.30136	16.57	81.57	26.912457%	(28,585.15)	(4,779,689)	(1,759,988)	(6,539,676)
344	Laboratory Equip	2017	1.00	9,529	R3.0	55.0	2	R3.0002	0.98032	53.92	54.92	98.179170%	9,355.97	9,529	513,830	523,360
344	0	2017	1.00	14,405	R3.0	55.0	2	R3.0002	0.98032	53.92	54.92	98.179170%	14,142.75	14,405	776,720	791,125
339	Other Plant and Equipment	2015	3.00	3,216	R3.0	55.0	5	R3.0005	0.95090	52.30	55.30	94.575045%	3,041.86	9,649	168,215	177,864
339	0	1973	45.00	(5,124)	R3.0	55.0	82	R3.0082	0.30136	16.57	81.57	26.912457%	(1,379.08)	(230,594)	(84,910)	(315,503)
339	0	2017	1.00	3,920	R3.0	55.0	2	R3.0002	0.98032	53.92	54.92	98.179170%	3,848.49	3,920	211,359	215,279
339	0	1973	45.00	(6,203)	R3.0	55.0	82	R3.0082	0.30136	16.57	81.57	26.912457%	(1,669.41)	(279,140)	(102,765)	(381,925)
339	0	2015	3.00	2,978	R3.0	55.0	5	R3.0005	0.95090	52.30	55.30	94.575045%	2,816.54	8,934	155,755	164,689
339	0	1973	45.00	(4,743)	R3.0	55.0	82	R3.0082	0.30136	16.57	81.57	26.912457%	(1,276.46)	(213,435)	(78,562)	(292,027)
			15.4	11,205,461						33.16	48.56	64.08%	7,180,295	172,522,691	371,566,386	544,089,085

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0 0.5 1 1a 4 (1a) (4) (5a) (5b) (5c) (5d) (5e) (5f) (5g) (5h) (6) (7) (8) (9)

Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion low- type	Normal Service Life (NSL)	Age as % of NSL	lowa Lookup	lowa Condition Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Excel Data	Excel Data	Excel Data	2018 09/11/10 S1	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)/(5c)	lowa/Low Table	(5b)/(5e)	(1b)/(5f)	(5f)/(5g)	(4)/(5h)	(4)/(1a)	(4)/(5i)	(4)/(5g)
Account	Description	Year1	Age	RCN	lowa	Life	AgeP	lowaLookup	lowaCondition	Rem Life	Total Life	Condition	RCNLD			
304.1	18' x 18' CMU Str	1973	45.00	6,328,090	R4.0	45.0	100	R4.0100	0.14634	6.59	51.59	12.773793%	806,337.09	284,764,041	41,702,112	326,466,153
304.1	1 - Door	1973	45.00	-	R4.0	45.0	100	R4.0100	0.14634	6.59	51.59	12.773793%	-	-	-	-
304.1	3 - Windows	1973	45.00	-	R4.0	45.0	100	R4.0100	0.14634	6.59	51.59	12.773793%	-	-	-	-
311	2 - Centrifugal PL	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10070	3.50	4E.50	7.216495%	-	-	-	-
311	8" Cast Iron Piping	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10070	3.50	4E.50	7.216495%	-	-	-	-
311	4" Cast Iron Piping	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10070	3.50	4E.50	7.216495%	-	-	-	-
311	2 - 8" Butterfly Vv	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10070	3.50	4E.50	7.216495%	-	-	-	-
311	1 - 8" Check Valv	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10070	3.50	4E.50	7.216495%	-	-	-	-
311	2 - 6" Butterfly Vv	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10070	3.50	4E.50	7.216495%	-	-	-	-
311	2 - 4" Check Valv	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10070	3.50	4E.50	7.216495%	-	-	-	-
311	2 - 4" Butterfly Vv	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10070	3.50	4E.50	7.216495%	-	-	-	-
311	Electrical and HV	1973	45	6,328,090	R3.0	35.0	129	R3.0129	0.10070	6.59	51.59	12.77%	808,337	284,764,041	41,702,112	326,466,153
330	2 - 2 MG Steel Tz	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	6E.85	31.662870%	-	-	-	-
330	20" Screened Ro	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	6E.85	31.662870%	-	-	-	-
330	Cage Ladder (es	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	6E.85	31.662870%	-	-	-	-
330	8" Steel Overlow	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	6E.85	31.662870%	-	-	-	-
330	24" Roof Hatch (t	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	6E.85	31.662870%	-	-	-	-

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Account	(0)	(0.5)	(1)	(1a)	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion lowa- type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Input	Input	Input	Input	years	COR %	Input	years	% of NSL	Calculation	Lookup	years	years	% of COR	Calculation	Calculation	Calculation	Calculation
Exceler Data	Exceler Data	Exceler Data	Year1	2018 00-(1)+0.51	Cell (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)/(5c)	Iowa Life Table	(5b)/(5e)	(1a)+(5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Description	Year1	Age	RCN	lowa	Life	AgeP	lowaLookup	lowaCondition	Rem Life	Total Life	Condition	RCNLD			
330 24" Shell Hatch (r			1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330 2 - 10' x 7'-6" x 6'			1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330 5' x 2'-6" Double			1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330 12" Ductile Iron Ir			1973	45.00	6,017,566	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	2,538,591.63	360,790,488	167,166,259	527,956,747
330 6" Cast Iron Drain			1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330 2" Sump			1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330 1 - 12" Butterfly V			1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330 1 - 6" Butterfly Ve			1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
				45	8,017,566									2,538,592	360,790,488	167,166,259	527,956,747
331.1 15'-8.5x6x6 Con			2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.99	60.39	86.752774%	-	-	-	-
331.1 1-54"x48" Access			2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.99	60.39	86.752774%	-	-	-	-
331.1 6" Ductile Iron Pf			2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.99	60.39	86.752774%	-	-	-	-
331.1 2-6" Gate Valve			2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.99	60.39	86.752774%	-	-	-	-
331.1 1-6" Flow Control			2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.99	60.39	86.752774%	-	-	-	-
331.1 1-6" Backflow Pre			2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.99	60.39	86.752774%	-	-	-	-
331.1 1-6" Flow Meter			2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.99	60.39	86.752774%	-	-	-	-
331.1 Electric Unit Heal			2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.99	60.39	86.752774%	-	-	-	-
				0							0	0	0.00%				

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0 0.5 1 1a 4 (5a) (5b) (5c) (5d) (5e) (5f) (5g) (5h) (6) (7) (8) (9)

Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion lower-type	Normal Service Life (NSL)	Age as % of NSL	lowa Lookup	lowa Condition Percent New	Normal Remaining Life	Total Life Expectancy	Condition % of COR	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Lookup	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Excel Data	Excel Data	Excel Data	2018 00/(1)+0.5	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)/(5c)	lowa Life Table	(5b)/(5e)	(1a)+(5f)	(5f)/(5g)	(4)/(5h)	(4)/(11a)	(4)/(5h)	(4)/(15g)
Account	Description	Year1	Age	RCN	lowa	Life	AgeP	lowaLookup	lowaCondition	Rem Life	Total Life	Condition	RCNLD	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
331.3 4' Ductile Iron Pif		1912	106.00	39,468	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.0000000%		4,183,593		4,183,593
331.3 6' Ductile Iron Pif		1912	106.00	232,803	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.0000000%		24,677,138		24,677,138
331.3 8' Ductile Iron Pif		1912	106.00	215,739	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.0000000%		22,868,289		22,868,289
331.3 10' Ductile Iron P		1912	106.00	389,219	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.0000000%		38,501,185		38,501,185
331.3 4' Gate Valve		1912	106.00	5,148	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.0000000%		545,686		545,686
331.3 6' Gate Valve		1912	106.00	22,403	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.0000000%		2,374,746		2,374,746
331.3 8' Gate Valve		1912	106.00	18,825	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.0000000%		2,101,902		2,101,902
331.3 10' Gate Valve		1912	106.00	14,300	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.0000000%		1,515,795		1,515,795
335 Fire Hydrant Assk		1912	106.00	179,091	R3.0	55.0	193	R3.0193	0.00000	0.00	106.00	0.0000000%		18,877,888		18,877,888
331.1 Excavation And f		1912	106.00	256,494	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.0000000%		27,186,383		27,186,383
331.1 Surface Restorat		1912	106.00	359,080	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.0000000%		38,062,458		38,062,458
			106	1,706,574						0	106	0.00%		180,896,863		180,896,863
331.3 4' Ductile Iron Pif		1916	102.00	15,015	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.0000000%		1,531,530		1,531,530
331.3 6' Ductile Iron Pif		1916	102.00	48,120	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.0000000%		4,908,189		4,908,189
331.3 8' Ductile Iron Pif		1916	102.00	47,619	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.0000000%		4,857,138		4,857,138
331.3 12' Ductile Iron P		1916	102.00	554,697	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.0000000%		56,579,094		56,579,094
331.3 4' Gate Valve		1916	102.00	3,504	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.0000000%		357,357		357,357
331.3 6' Gate Valve		1916	102.00	9,438	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.0000000%		962,676		962,676
331.3 8' Gate Valve		1916	102.00	2,503	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.0000000%		255,255		255,255

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Account	Description	Placement Year	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Input	Input	Input	years	Calculation	Calculation	Input	years	Calculation	Lookup	lowa Condition Percent of New	years	Calculation	Condition	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	AUS input	lowa	AUS input	lowa	lowa	lowa	lowa	lowa	lowa	lowa	lowa	lowa	lowa	lowa	lowa	lowa
Account	Description	Year1	Age	RCN	RCN	AgeP	Life	AgeP	lowa	lowa	Rem Life	Total Life	Condition	RCNLD	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Input	Input	Year1	Age	RCN	RCN	AgeP	Life	AgeP	lowa	lowa	Rem Life	Total Life	Condition	RCNLD	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
331.3 12' Gate Valve	1916	1916	102.00	88,446	60.0	170	60.0	170	R3.0170	0.00000	0.00	102.00	0.000000%	9,021,441	9,021,441	21,117,601	21,117,601
335 Fire Hydrant Assr	1916	1916	102.00	207,035	55.0	185	55.0	185	R3.0165	0.00000	0.00	102.00	0.000000%	21,117,601	21,117,601	15,551,261	15,551,261
331.1 Excavation And F	1916	1916	102.00	152,463	60.0	170	60.0	170	R3.0170	0.00000	0.00	102.00	0.000000%	21,777,315	21,777,315	136,918,857	136,918,857
331.1 Surface Restorat	1916	1916	102.00	213,503	60.0	170	60.0	170	R3.0170	0.00000	0	102	0.00%	136,918,857	136,918,857	171,111,007	171,111,007
			102	1,342,342													
331.3 4' Ductile Iron Pif	1926	1926	92.00	193,309	60.0	153	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	17,784,468	444,611	18,229,070	18,229,070
331.3 6' Ductile Iron Pif	1926	1926	92.00	235,127	60.0	153	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	21,831,694	540,792	22,372,486	22,372,486
331.3 8' Ductile Iron Pif	1926	1926	92.00	100,385	60.0	153	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	9,235,426	230,886	9,466,311	9,466,311
331.3 10' Ductile Iron P	1926	1926	92.00	28,590	60.0	153	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	2,622,024	65,651	2,687,675	2,687,675
331.3 12' Ductile Iron P	1926	1926	92.00	264,597	60.0	153	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	24,342,949	608,574	24,951,523	24,951,523
331.3 4' Gate Valve	1926	1926	92.00	22,532	60.0	153	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	2,072,909	51,823	2,124,732	2,124,732
331.3 6' Gate Valve	1926	1926	92.00	33,238	60.0	153	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	3,057,883	76,447	3,134,330	3,134,330
331.3 8' Gate Valve	1926	1926	92.00	18,652	60.0	153	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	1,715,984	42,900	1,758,884	1,758,884
331.3 10' Gate Valve	1926	1926	92.00	9,028	60.0	153	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	220,18	630,536	20,763	851,300
331.3 12' Gate Valve	1926	1926	92.00	41,631	60.0	153	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	1,015,40	3,830,076	3,925,928	3,925,928
335 Fire Hydrant Assr	1926	1926	92.00	196,731	55.0	167	55.0	167	R3.0167	0.00641	0.95	92.35	0.378993%	745,80	18,095,267	68,856	18,164,123
331.1 Excavation And F	1926	1926	92.00	281,189	60.0	153	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	6,856,50	646,757	25,870,262	25,870,262
331.1 Surface Restorat	1926	1926	92.00	393,678	60.0	153	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	9,601,90	36,216,367	905,459	37,123,826
			92	1,813,607							2.09	94.09	2.22%	40,304	167,311,835	3,799,171	171,111,007

0	0.5	1	1 a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion type	Normal Service Life (NSL)	Age as % of NSL	lowa Lookup	lowa Condition Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Input	Input	Input	years	Calculation	Input	years	Calculation	Lookup	%	years	years	% of COR	Calculation	Calculation	Calculation	Calculation
Exceler Data	Exceler Data	Exceler Data	2018-06-11+0.5	Col(H)	AUS Input	AUS Input	(1a)/(5b)	(5a)/(5c)	lowa Life Table	(5b)/(5a)	(11a)/(5f)	(5f)/(5g)	(4f)/(5h)	(4f)/(7a)	(4f)/(5d)	(4f)/(5g)
Account	Description	Year1	Age	RCN	lowa	Life	AgeP	lowaLookup	lowaCondition	Rem Life	Total Life	Condition	RCNLD			
331.3	4" Ductile Iron P	1946	72.00	50,087	R3.0	60.0	120	R3.0120	0.125568	7.53	79.53	9.468125%	4,742.27	3,605.241	377.153	3,983.394
331.3	4" Gate Valve	1946	72.00	3,325	R3.0	60.0	120	R3.0120	0.125568	7.53	79.53	9.468125%	314.80	239.366	25.036	264.422
335	Fire Hydrant Assr	1946	72.00	10,818	R3.0	55.0	131	R3.0131	0.09481	5.21	77.21	6.747831%	716.51	764.525	55.322	819.847
354	Excavation And F	1946	72.00	37,562	R3.0	55.0	131	R3.0131	0.09481	5.21	77.21	6.747831%	2,536.63	2,706.612	195.853	2,902.465
354	Surface Restoral	1946	72.00	52,507	R3.0	55.0	131	R3.0131	0.09481	5.21	77.21	6.747831%	3,549.84	3,787.712	274.063	4,061.795
			72	154,229						6.01	78.01	7.65%	11,860	11,104.475	927.447	12,031.923
331	10" Ductile Iron P	1956	62.00	37,759	R3.0	60.0	103	R3.0103	0.18808	11.28	73.28	15.39013%	5,612.19	2,341.036	425.918	2,786.954
354	Excavation And F	1956	62.00	17,230	R3.0	55.0	113	R3.0113	0.14848	8.17	70.17	11.643152%	2,006.06	1,066.233	140.766	1,208.998
354	Surface Restoral	1956	62.00	24,135	R3.0	55.0	113	R3.0113	0.14848	8.17	70.17	11.643152%	2,810.10	1,496.384	197.185	1,693.568
			62	79,123						9.65	71.65	13.43%	10,628	4,505.553	763.869	5,669.520
331	4" Ductile Iron P	1966	52.00	6,823	R3.0	60.0	87	R3.0087	0.27078	16.25	66.25	23.809524%	2,100.81	458.817	143.380	602.198
331	6" Gate Valve	1966	52.00	9,593	R3.0	60.0	87	R3.0087	0.27078	16.25	66.25	23.809524%	2,283.99	498.824	155.882	654.706
331	4" Gate Valve	1966	52.00	1,899	R3.0	60.0	87	R3.0087	0.27078	16.25	66.25	23.809524%	452.22	96.765	30.864	128.629
331	6" Gate Valve	1966	52.00	2,805	R3.0	60.0	87	R3.0087	0.27078	16.25	66.25	23.809524%	620.13	155.437	42.324	177.761
331	1 Excavation And F	1966	52.00	13,007	R3.0	60.0	87	R3.0087	0.27078	16.25	66.25	23.809524%	3,096.84	576.349	211.359	667.709
331	1 Surface Restoral	1966	52.00	19,208	R3.0	60.0	87	R3.0087	0.27078	16.25	66.25	23.809524%	4,335.19	946.806	295.877	1,242.693
			52	54,135						16.25	66.25	23.81%	12,889	2,814.938	879.686	3,694.656



Account	Description	Placement Year	Age at July 1, 2016 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Type	Normal Service Life (NSL)	Age as % of NSL	lowa Lookup	lowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2016.00/(1+0.5)	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5d)&(5c)	lowa&lowa	(5b)/(5a)	(1a)/(5g)	(5h)/(5g)	(4)/(5h)	(4)/(11a)	(4)/(5f)	(4)/(9g)
Account	Description	Year1	Age	RCN	lowa	Life	AgeP	lowaLookup	lowaCondition	Rem Life	Total Life	Condition	RCNLD			
331.3	4" Ductile Iron P	1976	42.00	116,935	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	41,330.30	4,911,249	2,684,816	7,596,065
331.3	6" Ductile Iron P	1976	42.00	716,730	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	253,327.14	30,102,679	16,456,131	46,559,810
331.3	8" Ductile Iron P	1976	42.00	965,433	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	341,230.77	40,549,202	22,166,351	62,714,553
331.3	10" Ductile Iron P	1976	42.00	752,794	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	266,073.78	31,617,353	17,284,153	48,901,505
331.3	12" Ductile Iron P	1976	42.00	417,625	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	147,608.73	17,540,237	9,588,663	27,128,901
331.3	16" Ductile Iron P	1976	42.00	68,453	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	24,194.62	2,875,029	1,571,682	4,446,711
331.3	4" Gate Valve	1976	42.00	17,782	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	6,284.94	748,835	408,270	1,155,105
331.3	6" Gate Valve	1976	42.00	83,198	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	29,406.02	3,494,296	1,910,215	5,404,511
331.3	8" Gate Valve	1976	42.00	114,797	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	40,574.91	4,821,487	2,635,746	7,457,233
331.3	10" Gate Valve	1976	42.00	51,535	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	16,214.80	2,164,452	1,183,233	3,347,685
331.3	12" Gate Valve	1976	42.00	21,356	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	7,548.26	896,954	490,335	1,387,289
331.3	16" Gate Valve	1976	42.00	21,904	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	7,741.75	919,947	502,904	1,422,851
335	Fire Hydrant Assr	1976	42.00	436,504	R3.0	55.0	76	R3.0076	0.34089	18.74	60.74	30.652815%	135,280.76	18,417,159	8,217,561	26,634,720
331.1	Excavation And /	1976	42.00	1,208,755	R3.0	60.0	70	R3.0070	0.38281	22.96	64.96	35.344828%	427,232.33	50,767,705	27,753,012	78,520,716
331.1	Surface Restorat	1976	42.00	1,692,261	R3.0	60.0	70	R3.0070	0.38281	22.96	64.68	35.05%	598,126.85	280,898,559	151,707,392	432,605,950
			42	6,689,061						22.68			2,344,186			
331.3	4" Ductile Iron P	1986	32.00	20,234	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	9,923.77	647,494	623,213	1,270,707
331.3	6" Ductile Iron P	1986	32.00	350,058	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	171,684.63	11,201,865	10,781,795	21,983,659
331.3	8" Ductile Iron P	1986	32.00	71,376	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	35,005.98	2,284,028	2,198,375	4,482,401
331.3	12" Ductile Iron P	1986	32.00	227,534	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	111,583.25	7,261,097	7,008,056	14,269,153
331.3	16" Ductile Iron P	1986	32.00	242,957	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	119,157.26	7,774,625	7,489,076	15,267,701



0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Type	Normal Service Life (NSL)	Age as % of NSL	lowa Lookup	lowa Condition Percent of New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Input	Input	Input	years	COR \$s	Input	years	% of NSL	Lookup	Lookup	years	years	% of COR	Calculation	Calculation	Calculation	Calculation
Excel Data	Excel Data	Excel Data	2018-01-01 to 0-5	Cor (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)/(5c)	lowa Life Table	(5b)/(5e)	(1a)/(5f)	(5f)/(5g)	(4h)/(5h)	(4f)/(1a)	(4f)/(5d)	(4f)/(5g)
Account	Description	Year1	Age	RCN	lowa	Life	AgeP	lowaLookup	lowaCondition	Rem Life	Total Life	Condition	RCNLD			
331.3 4" Gate Valve		1986	32.00	6,632	R3.0	60.0	53	R3.C053	0.51325	30.80	82.80	48.044586%	3,252.47	212,213	204,255	416,468
331.3 6" Gate Valve		1986	32.00	38,596	R3.0	60.0	53	R3.C053	0.51325	30.80	82.80	49.044586%	18,324.44	1,234,758	1,188,455	2,423,213
331.3 8" Gate Valve		1986	32.00	17,633	R3.0	60.0	53	R3.C053	0.51325	30.80	82.80	49.044586%	8,746.29	570,667	549,267	1,119,934
331.3 12" Gate Valve		1986	32.00	46,115	R3.0	60.0	53	R3.C053	0.51325	30.80	82.80	48.044586%	22,516.86	1,475,676	1,420,339	2,896,015
331.3 16" Gate Valve		1986	32.00	195,991	R3.0	60.0	53	R3.C058	0.47316	26.02	59.02	44.846605%	64,405.51	6,271,704	6,036,515	12,308,219
335 Fire Hydrant Asss		1986	32.00	143,613	R3.0	55.0	59	R3.C053	0.51325	30.80	82.80	48.044586%	177,690.83	4,595,613	3,736,808	8,332,421
331.1 Excavation And F		1986	32.00	362,305	R3.0	60.0	53	R3.C053	0.51325	30.80	82.80	48.044586%	177,690.83	11,593,749	11,156,984	22,752,733
331.1 Surface Restora		1986	32.00	507,224	R3.0	60.0	53	R3.C053	0.51325	30.80	82.80	48.044586%	248,766.04	16,231,177	15,622,508	31,853,684
			32	2,230,458						30.49	62.49	48.77%	1,037,890	71,374,664	68,011,646	139,386,308
331.3 6" Ductile Iron Pij		1986	22.00	489,716	R3.0	60.0	37	R3.C037	0.64975	38.99	63.99	63.928513%	300,282.63	10,333,758	18,314,238	28,647,986
331.3 8" Ductile Iron Pij		1986	22.00	395,356	R3.0	60.0	37	R3.C037	0.64975	38.99	63.99	63.928513%	228,732.13	7,905,673	14,011,363	21,917,235
331.3 6" Gate Valve		1986	22.00	72,054	R3.0	60.0	37	R3.C037	0.64975	38.99	63.99	63.928513%	46,363.08	1,565,189	2,809,387	4,394,577
331.3 8" Gate Valve		1986	22.00	63,692	R3.0	60.0	37	R3.C037	0.64975	38.99	63.99	63.928513%	40,717.25	1,401,221	2,483,345	3,884,566
335 Fire Hydrant Asss		1986	22.00	236,175	R3.0	55.0	40	R3.C040	0.62327	34.28	65.28	60.908737%	143,353.32	5,195,641	8,086,065	13,291,805
331.1 Excavation And F		1986	22.00	398,779	R3.0	60.0	37	R3.C037	0.64975	38.99	63.99	63.928513%	254,393.36	8,773,134	15,546,387	24,521,521
331.1 Surface Restora		1986	22.00	598,291	R3.0	60.0	37	R3.C037	0.64975	38.99	63.99	63.928513%	356,306.99	12,282,397	21,767,757	34,050,154
			22	2,138,054						38.47	67.47	63.60%	1,372,489	47,477,413	83,030,542	130,507,954
331.3 6" Ductile Iron Pij		2006	12.00	33,921	R3.0	60.0	20	R3.C020	0.80619	48.37	63.37	80.122577%	27,176.14	407,046	1,640,744	2,047,793
331.3 8" Ductile Iron Pij		2006	12.00	2,111,982	R3.0	60.0	20	R3.C020	0.80619	48.37	63.37	80.122577%	1,691,463.00	25,332,980	102,113,018	127,445,998

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(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Input	Input	Input	years	COR Ss	Input	years	%	Lookup	%	years	years	% of COR	CORLO Ss	RCN Ss * Years	RCN Ss * Years	RCN Ss * Years
Exeter Data	Exeter Data	Exeter Data	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Account	Description	Year1	Age	RCN	lowa	Life	AgeP	lowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD	(4)*(7a)	(4)*(5f)	(4)*(5g)
331.3	10" Ductile Iron F	2006	12.00	117,831	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	94,409.07	1,413.970	5,699.478	7,113.445
331.3	12" Ductile Iron F	2006	12.00	1,101,071	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	882,206.53	13,212.853	53,258.809	66,471.662
331.3	16" Ductile Iron F	2006	12.00	236,831	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	188,835.58	2,843.177	11,460.374	14,303.552
331.3	8" Gate Valve	2006	12.00	4,278	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	3,427.81	51.339	206.937	258.276
331.3	8" Gate Valve	2006	12.00	322,890	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	258,547.81	3,872.284	15,609.531	19,480.815
331.3	10" Gate Valve	2006	12.00	10,864	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	8,704.13	130.362	525.468	655.831
331.3	12" Gate Valve	2006	12.00	103,218	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	82,700.95	1,238.616	4,992.667	6,231.273
331.3	16" Gate Valve	2006	12.00	92,351	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	73,994.07	1,109.213	4,467.022	5,575.235
335	Fire Hydrant Asst	2006	12.00	489,434	R3.0	55.0	22	R3.0022	0.78729	43.30	55.30	78.300181%	391,057.59	5,993.206	21,625.484	27,618.690
331.1	Excavation And F	2006	12.00	1,130,375	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	906,166.01	13,571.695	54,705.242	68,276.938
331.1	Surface Restorat	2006	12.00	1,583,363	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	1,268,631.34	19,000.357	76,587.274	95,587.632
			12	7,348,008						48.03	60.03	80.00%	5,878.312	88,176.100	352,891.036	441,067.140
			38.18	26,092,200						31	69.17	50.59%	13,200,798	996,111.649	808,787,245	1,804,898,895
331.3	2016 PineHarris	2016	2.00	1,719,633	R3.0	60.0	3	R3.0003	0.87050	56.23	60.23	96.679396%	1,662,530.93	3,439.266	100,134,238	103,573,504
331.3	2017 MulberryBe	2017	1.00	255,768	R3.0	60.0	2	R3.0002	0.98032	56.82	59.82	96.328318%	251,462.82	255.768	15,044,301	15,300,069
331.3	2017 Ugies Wate	2017	1.00	537,197	R3.0	60.0	2	R3.0002	0.98032	56.82	59.82	96.328318%	526,216.60	537,197	31,597,917	32,135,114
			1.68	2,512,596						58.42	60.1	97.20%	2,442,240	4,232.231	146,776,456	151,008,687
18			20							28	29	30	31	32	33	34
			0.01	193,451						0	0	100.00%	193,451	2,607		
			15.4	11,205,461						33.16	48.56	64.08%	7,180,295	172,522,691	371,566,386	544,089,085
			45	6,328,090						6.59	51.59	12.77%	808,337	284,764,041	41,702,112	326,466,153
			45	8,017,566						20.85	65.85	31.66%	2,538,592	360,790,488	167,166,259	527,956,747

0 0.5 1 1a 4 (5a) (5b) (5c) (5d) (5e) (5f) (5g) (5h) (6) (7) (8) (9)

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Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Disposition type	Normal Service Life (NSL)	Age as % of NSL	lowa Lookup	lowa Condition Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Input	Input	Input	years	COR \$s	Input	years	Calculation	Calculation	%	years	years	% of COR	COR \$s	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018 00-(1)>0 \$]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)/(5c)	lowa Life Table	(5b)/(5e)	(1a)-(5f)	(5f)/(5g)	(4f)(5h)	(4f)(1a)	(4f)(5f)	(4f)(5g)
Account	Description	Year1	Age	RCN	lowa	Life	AgeP	lowaLookup	lowaCondition	Rem Life	Total Life	Condition	RCNLD			
			0	-						0	0	0.00%				
			36.18	26,092,200						31	69.17	50.59%	13,206,798	996,111,649	808,787,245	1,804,898,895
			35	51,836,769						26.8	61.8	46.15%	23,921,473	1,814,191,476	1,389,222,002	3,203,410,880

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Cost Approach  
Replacement Cost New less Depreciation Adjusted for External Obsolescence  
(CORLD less EO)**

**Summary  
Example Account 331  
Detail (All Accounts & 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)**

**Pennsylvania-American Water Company  
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(0) (0.5) (1) (6) (7) (8)

Account	Description	Earliest Trend Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	(5a)&(5c)	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
			CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
36		37			
303 Land		38	193,451	0.00%	193,451
304 Treatment			7,180,295	0.00%	7,180,295
311 Booster Station			808,337	0.00%	808,337
330 Storage			2,538,592	0.00%	2,538,592
331.1 Interconnection			-	0.00%	-
331.2 Distribution			13,200,798	0.00%	13,200,798
<b>Total</b>			<b>23,921,473</b>	<b>0.00%</b>	<b>23,921,473</b>

**Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System  
Investor-Owned Utility  
As of July 1, 2018**

(0) (0.5) (1) (6) (7) (8)

Account	Description	Earliest Trend Year	Preliminary Approach	Economic Obsolescence	Fair Market Value
Input	Exeter Data	Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	(5a)&(5c)	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
			CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
331.3 4" Ductile Iron Pipe		1986	9,924	0.00%	9,924
331.3 6" Ductile Iron Pipe		1986	171,685	0.00%	171,685
331.3 8" Ductile Iron Pipe		1986	35,006	0.00%	35,006
331.3 12" Ductile Iron Pipe		1986	111,593	0.00%	111,593
331.3 16" Ductile Iron Pipe		1986	119,157	0.00%	119,157
331.3 4" Gate Valve		1986	3,252	0.00%	3,252
331.3 6" Gate Valve		1986	18,924	0.00%	18,924
331.3 8" Gate Valve		1986	8,746	0.00%	8,746
331.3 12" Gate Valve		1986	22,617	0.00%	22,617
331.3 16" Gate Valve		1986	96,123	0.00%	96,123
335 Fire Hydrant Assembly		1986	64,406	0.00%	64,406
331.1 Excavation And Aggregate Backfill		1986	177,691	0.00%	177,691
331.1 Surface Restoration		1986	248,766	0.00%	248,766
			<b>1,087,890</b>	<b>0.00%</b>	<b>1,087,890</b>

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**Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
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Investor-Owned Utility  
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Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Input	Year	COFOLD \$s	% of Preliminary Cost Approach	Appraisal Data Value \$s
Exter Data	Exter Data	Year	Calculation	Analysis	Calculation
Account	Description	Year	RCNLD	EO%	FMV
303 Land and Land Rigi		1972		0.00%	
303 Land and Land Rigi		1972		0.00%	8.00
303 Land and Land Rigi		1972	8.00	0.00%	41,408.00
303 Land and Land Rigi		1972	41,408.00	0.00%	49,440.00
303 Land and Land Rigi		1972	49,440.00	0.00%	30,900.00
303 Land and Land Rigi		1972	30,900.00	0.00%	40,170.00
303 Land and Land Rigi		1972	40,170.00	0.00%	31,518.00
303 Land and Land Rigi		1971	31,518.00	0.00%	8.15
303 Land and Land Rigi		1971	8.15	0.00%	2.33
303 Land and Land Rigi		1985	2.33	0.00%	
303 Right-of-way		2001	1.42	0.00%	1.42
303 Easement		2010	1.18	0.00%	1.18
			193,451	0.00%	193,451

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Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
(0)	(0.5)	(1)	(6)	(7)	(8)
Account	Description	Year	RCNLD	EO%	FMV
Input	Exter Data	Input	Calculation	Input	Calculation
Exter Data	Exter Data	Exter Data	RCNLD	Economic Obsolescence Analysis	(6) * (1.00-(7))
304	Building	1973	1,136,386.69	0.00%	1,136,386.69
304.2	Water Intake Struct	1973	-	0.00%	-
304.2	Water Intake Line\	1973	(3,838.00)	0.00%	(3,838.00)
304.2		1973	-	0.00%	-
311		1973	-	0.00%	-
334		1973	-	0.00%	-
304.2		1973	-	0.00%	-
304.2		1973	-	0.00%	-
304.2		2010	-	0.00%	-
304.2		2014	-	0.00%	-
304.2		1973	-	0.00%	-
304.2		2014	12,329.53	0.00%	12,329.53
304.2		1973	-	0.00%	-
320		1973	-	0.00%	-
304.2		1973	-	0.00%	-
304.2		1973	-	0.00%	-
320	Liquefied Gas Chlo	1973	-	0.00%	-
320		1973	-	0.00%	-
320		2016	4,038.51	0.00%	4,038.51
320		1973	(481.27)	0.00%	(481.27)
320	Chemical Feed Lin	1973	(473.15)	0.00%	(473.15)
320	2-2,800 Gallon Fib	2017	4,025.35	0.00%	4,025.35
320		1973	(1,918.76)	0.00%	(1,918.76)
320	1-Peristaltic (Blue Y	2015	15,244.60	0.00%	15,244.60
320	Chemical Feed Lin	1973	-	0.00%	-
320	1-Peristaltic (Blue V	1973	-	0.00%	-
320	Chemical Feed Lin	2004	17,705.02	0.00%	17,705.02



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(0)	(0.5)	(1)	(6)	(7)	(8)
Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Exwater Data	Input	CORLD \$	% of Preliminary Cost Approach	Appraisal Date Value \$
Exwater Data	Exwater Data	Exwater Data	Calculation	Input	Calculation
Account	Description	Year	RCNLD	Economic Obsolescence Analysis	(6) * (100-7)
		Year	Prelim RCNLD	EO%	FMV
320	Soda Ash System	2016	16,071.16	0.00%	16,071.16
320	Soda Ash System	1973	(1,958.38)	0.00%	(1,958.38)
320		1973	-	0.00%	-
304.2	Structure	1973	-	0.00%	-
304.2	Structure	1973	-	0.00%	-
304.2	Structure	1973	-	0.00%	-
320	Mixer	1973	(125.50)	0.00%	(125.50)
320	Mixer	2018	1,080.00	0.00%	1,080.00
304.2	Structure	2010	3,855,405.42	0.00%	3,855,405.42
304.2		1973	(1,288,988.21)	0.00%	(1,288,988.21)
311	Pumps	2012	11,067.56	0.00%	11,067.56
311		1973	(1,543.57)	0.00%	(1,543.57)
334	Meters and Meters	2015	5,939.75	0.00%	5,939.75
320	WTP EquipmentPu	2014	8,309.57	0.00%	8,309.57
320		1973	(1,064.42)	0.00%	(1,064.42)
304.2		1973	-	0.00%	-
311		1973	17,951.55	0.00%	17,951.55
334		1973	-	0.00%	-
304.2	StructurePumpsMe	2017	2,615,064.71	0.00%	2,615,064.71
311		1973	-	0.00%	-
334		1973	-	0.00%	-
304.2		1973	-	0.00%	-
304.2		1973	-	0.00%	-
304.2	StructurePumps	1973	(1,280.45)	0.00%	(1,280.45)

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Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
(0)	(0.5)	(1)	(6)	(7)	(8)
Account	Description	Year	RCNLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
Input	Exister Data	Input	Calculation	Input	Calculation
Exister Data	Exister Data	Exister Data	RCNLD	Economic Obsolescence Analysis	(6) * (1.00-(7))
Account	Description	Year	Prelim RCNLD	EO%	FMV
311	0	2018	4,428.00	0.00%	4,428.00
310	0	2015	510,480.28	0.00%	510,480.28
338 Other Plant and Mi:		2009	350,442.32	0.00%	350,442.32
339 Other Plant and Mi:		1973	(167,413.70)	0.00%	(167,413.70)
347	0	2015	63,090.48	0.00%	63,090.48
347	0	1973	(28,585.15)	0.00%	(28,585.15)
344 Laboratory Equipm		2017	9,355.97	0.00%	9,355.97
344	0	2017	14,142.75	0.00%	14,142.75
338 Other Plant and Mi:		2015	3,041.86	0.00%	3,041.86
339	0	1973	(1,379.08)	0.00%	(1,379.08)
339	0	2017	3,848.48	0.00%	3,848.48
338	0	1973	(1,669.41)	0.00%	(1,669.41)
338	0	2015	2,816.54	0.00%	2,816.54
339	0	1973	(1,278.46)	0.00%	(1,278.46)
			7,180,255	0.00%	7,180,255

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(0)	(0.5)	(1)	(6)	(7)	(8)
Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Exister Data	Input	CORLID \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
Input	Exister Data	Input	Calculation	Input	Calculation
Exister Data	Exister Data	Exister Data	RCNLD	Economic Obsolescence Analysis	(6) * (1) * (7)
Account	Description	Year	Prelim RCNLD	EO%	FMV
304.1 1B x 16' CMU Stru		1973	808,337.09	0.00%	808,337.09
304.1 1 - Door		1973	-	0.00%	-
304.1 3 - Windows		1973	-	0.00%	-
311 2 - Centrifugal Purr		1973	-	0.00%	-
311 8" Cast Iron Piping		1973	-	0.00%	-
311 4" Cast Iron Piping		1973	-	0.00%	-
311 2 - 8" Butterfly Valv		1973	-	0.00%	-
311 1 - 8" Check Valve		1973	-	0.00%	-
311 2 - 6" Butterfly Valv		1973	-	0.00%	-
311 2 - 4" Check Valve		1973	-	0.00%	-
311 2 - 4" Butterfly Valv		1973	-	0.00%	-
311 Electrical and HVAI		1973	808,337	0.00%	808,337
330 2 - 2 IMG Steel Tern		1973	-	0.00%	-
330 20' Screened Roof		1973	-	0.00%	-
330 Cage Ladder (each		1973	-	0.00%	-
330 8" Steel Overflow F		1973	-	0.00%	-
330 24' Roof Hatch (ea		1973	-	0.00%	-
330 24' Shell Hatch (ea		1973	-	0.00%	-
330 2 - 10' x 7'-6" x 6'-6		1973	-	0.00%	-
330 5' x 2'-6" Double Le		1973	2,538,661.63	0.00%	2,538,661.63
330 12' Ductile Iron Int		1973	-	0.00%	-

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(0) (0.5) (1) (6) (7) (8)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Exister Data	Input	CORLD \$	% of Preliminary Cost Approach	Appraisal Date Value \$
Exister Data	Exister Data	Input	Calculation	Input	Calculation
Account	Description	Year	RCNLD	Economic Obsolescence Analysis	(6) * (1,00-(7))
Account	Description	Year	Prelim RCNLD	EO%	FMV
330 6" Cast Iron Drain f		1973		0.00%	
330 2" Sump		1973		0.00%	
330 1 - 12" Butterfly Val		1973		0.00%	
330 1 - 6" Butterfly Valv		1973		0.00%	
			2,538,592	0.00%	2,538,592
331.1 15-8.5x6'6" Concr		2010		0.00%	
331.1 1-5'x48" Access T		2010		0.00%	
331.1 6" Ductile Iron Pipr		2010		0.00%	
331.1 2-6" Gate Valve		2010		0.00%	
331.1 1-6" Flow Control V		2010		0.00%	
331.1 1-6" Backflow Prev		2010		0.00%	
331.1 1-6" Flow Meter		2010		0.00%	
331.1 Electric Unit Heater		2010		0.00%	
331.3 4" Ductile Iron Pipe		1912		0.00%	

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Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Exister Data	Year	Calculation	Input	Calculation
Exister Data	Exister Data	Year	RCNLD	Economic Obsolescence Analysis	(6) * (1) - (7)
Account	Description	Year	Prelim RCNLD	EO%	FMV
331.3	6" Ductile Iron Pipe	1912		0.00%	
331.3	8" Ductile Iron Pipe	1912		0.00%	
331.3	10" Ductile Iron Pipe	1912		0.00%	
331.3	4" Gate Valve	1912		0.00%	
331.3	6" Gate Valve	1912		0.00%	
331.3	8" Gate Valve	1912		0.00%	
331.3	10" Gate Valve	1912		0.00%	
335	Fire Hydrant Assen	1912		0.00%	
331.1	Excavation And Ag	1912		0.00%	
331.1	Surface Restoratio	1912		0.00%	
331.3	4" Ductile Iron Pipe	1916		0.00%	
331.3	6" Ductile Iron Pipe	1916		0.00%	
331.3	8" Ductile Iron Pipe	1916		0.00%	
331.3	12" Ductile Iron Pipe	1916		0.00%	
331.3	4" Gate Valve	1916		0.00%	
331.3	6" Gate Valve	1916		0.00%	
331.3	8" Gate Valve	1916		0.00%	
331.3	12" Gate Valve	1916		0.00%	
335	Fire Hydrant Assen	1916		0.00%	
331.1	Excavation And Ag	1916		0.00%	
331.1	Surface Restoratio	1916		0.00%	



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Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
(0)	(0.5)	(1)	(6)	(7)	(8)
Input		Input	CORLID \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
Input		Input	Calculation	Input	Calculation
Exoner Data	Exoner Data	Exoner Data	RCNLD	Economic Obsolescence Analysis	(6) * (1.0617)
Account	Description	Year	Prelim RCNLD	EO%	FMV
331.10	Ductile Iron Pip	1956	5,812.19	0.00%	5,812.19
354	Excavation And Ag	1956	2,006.06	0.00%	2,006.06
354	Surface Restoratio	1956	2,810.10	0.00%	2,810.10
			10,628	0.00%	10,628
331.4	Ductile Iron Pipe	1966	2,100.81	0.00%	2,100.81
331.6	Ductile Iron Pipe	1966	2,283.99	0.00%	2,283.99
331.4	Gate Valve	1966	452.22	0.00%	452.22
331.6	Gate Valve	1966	620.13	0.00%	620.13
331.1	Excavation And Ag	1966	3,098.84	0.00%	3,098.84
331.1	Surface Restoratio	1966	4,335.19	0.00%	4,335.19
			12,869	0.00%	12,869
331.3.4	Ductile Iron Pipe	1976	41,330.30	0.00%	41,330.30
331.3.6	Ductile Iron Pipe	1976	253,327.14	0.00%	253,327.14
331.3.8	Ductile Iron Pipe	1976	341,230.77	0.00%	341,230.77
331.3.10	Ductile Iron Pip	1976	266,073.78	0.00%	266,073.78
331.3.12	Ductile Iron Pip	1976	147,608.73	0.00%	147,608.73
331.3.16	Ductile Iron Pip	1976	24,194.62	0.00%	24,194.62

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Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Exister Data	Year	Calculation	Input	Calculation
Account	Description	Year	Prelim RCNLD	EO%	FMV
331.3	4" Gate Valve	1976	6,284.94	0.00%	6,284.94
331.3	6" Gate Valve	1976	29,408.02	0.00%	29,408.02
331.3	8" Gate Valve	1976	40,574.91	0.00%	40,574.91
331.3	10" Gate Valve	1976	18,214.80	0.00%	18,214.80
331.3	12" Gate Valve	1976	7,548.28	0.00%	7,548.28
331.3	16" Gate Valve	1976	7,741.75	0.00%	7,741.75
335	Fire Hydrant Assen	1978	135,280.76	0.00%	135,280.76
331.1	Excavation And Ag	1976	427,232.33	0.00%	427,232.33
331.1	Surface Restoration	1976	598,126.85	0.00%	598,126.85
			2,344,186	0.00%	2,344,186
331.3	4" Ductile Iron Pipe	1986	9,923.77	0.00%	9,923.77
331.3	6" Ductile Iron Pipe	1986	171,684.63	0.00%	171,684.63
331.3	8" Ductile Iron Pipe	1986	35,005.98	0.00%	35,005.98
331.3	12" Ductile Iron Pip	1986	111,593.25	0.00%	111,593.25
331.3	16" Ductile Iron Pip	1986	119,157.26	0.00%	119,157.26
331.3	4" Gate Valve	1986	3,252.47	0.00%	3,252.47
331.3	6" Gate Valve	1986	18,924.44	0.00%	18,924.44
331.3	8" Gate Valve	1986	6,746.29	0.00%	6,746.29
331.3	12" Gate Valve	1988	22,816.86	0.00%	22,816.86
331.3	16" Gate Valve	1986	96,122.85	0.00%	96,122.85
335	Fire Hydrant Assen	1986	64,405.51	0.00%	64,405.51
331.1	Excavation And Ag	1986	177,690.83	0.00%	177,690.83
331.1	Surface Restoration	1986	248,766.04	0.00%	248,766.04
			1,087,890	0.00%	1,087,890



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Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input	Exister Data	Input	CORLO \$s	% of Preliminary Cost Approach	Appraisal Data Value
Exister Data	Exister Data	Exister Data	Calculation	Input	Calculation
Account	Description	Year	Prelim RCNLD	EO%	FMV
(0)	(0.5)	(1)	(6)	(7)	(8)
331.3 6" Ductile Iron Pipe		1996	300,282.63	0.00%	300,282.63
331.3 8" Ductile Iron Pipe		1996	228,732.13	0.00%	228,732.13
331.3 6" Gate Valve		1996	48,063.08	0.00%	48,063.08
331.3 8" Gate Valve		1996	40,717.25	0.00%	40,717.25
335 Fire Hydrant Assen		1996	143,853.32	0.00%	143,853.32
331.1 Excavation And Ag		1996	254,833.38	0.00%	254,833.38
331.1 Surface Restorator		1996	356,906.99	0.00%	356,906.99
			1,372,489	0.00%	1,372,489
331.3 6" Ductile Iron Pipe		2006	27,178.14	0.00%	27,178.14
331.3 8" Ductile Iron Pipe		2006	1,691,453.00	0.00%	1,691,453.00
331.3 10" Ductile Iron Pip		2006	94,409.07	0.00%	94,409.07
331.3 12" Ductile Iron Pip		2006	862,206.53	0.00%	862,206.53
331.3 16" Ductile Iron Pip		2006	189,635.58	0.00%	189,635.58
331.3 6" Gate Valve		2006	3,427.81	0.00%	3,427.81
331.3 8" Gate Valve		2006	258,547.81	0.00%	258,547.81
331.3 10" Gate Valve		2006	8,704.13	0.00%	8,704.13
331.3 12" Gate Valve		2006	82,700.95	0.00%	82,700.95
331.3 16" Gate Valve		2006	73,994.07	0.00%	73,994.07
335 Fire Hydrant Assen		2006	391,057.59	0.00%	391,057.59
331.1 Excavation And Ag		2006	908,166.01	0.00%	908,166.01
331.1 Surface Restorator		2006	1,268,631.34	0.00%	1,268,631.34

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(0) (0.5) (1) (6) (7) (8)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
Input			CORL \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
Input			Calculation	Input	Calculation
Exter Data	Exter Data	Exter Data	RCNLD	Economic Obsolescence Analysis (B) * (1-00+7)	
Account	Description	Year	Prelim RCNLD	EO%	FMV
			5,878,312	0.00%	5,878,312
331.3 2016 Pine/Harrisbu		2016	1,662,530.93	0.00%	1,662,530.93
331.3 2017 Mulberry/Bass		2017	251,492.82	0.00%	251,492.82
331.3 2017 Uglas Water 1		2017	528,216.60	0.00%	528,216.60
			2,442,240	0.00%	2,442,240
			13,200,798		13,200,798
36	37	38	39	40	41
			193,451	0.00%	193,451
			7,180,295	0.00%	7,180,295
			808,337	0.00%	808,337
			2,538,592	0.00%	2,538,592
			-	0.00%	-
			13,200,798	0.00%	13,200,798
			23,921,473	0.00%	23,921,473

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steeltown Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Cost Approach  
Depreciated Original Cost**

**Summary  
Example Account 331  
Detail (All Accounts & 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)**

**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
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**Investor-Owned Utility**  
**As of July 1, 2018**

**Determination of the Depreciated Original Cost**

(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Earliest Trend Year	Original Costs	Retirement Dispersion low-type	Normal Service Life (NSL)	Age as of July 1, 2018 Appraisal Date	Age as % of NSL	lowa Lookup	lowa Condition Percent of 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
Input	Input	Input	Input	Input	Input	2018 06/30/18	(6a) / (6)	(9a)(7)	lowa Life Table	(6f)(9)	(6a)-(10)	(1-b)(1-c) / (10)(11)	(4)(12)	(4)-(13)	(4)(15a)	(4)(16)	(4)(17)
Exhibit Data	Exhibit Data	(4)(10)	Exhibit Data	AUS Input	AUS Input	AUS Input	(6a) / (6)	(9a)(7)	lowa Life Table	(6f)(9)	(6a)-(10)	(1-b)(1-c) / (10)(11)	(4)(12)	(4)-(13)	(4)(15a)	(4)(16)	(4)(17)
43		44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	60
303 Land			32,244			32,244							1,483,145	32,244	1,483,145	59	
304 Treatment			7,580,743			7,580,743	7.25			44.92	52.17	0.1504	1,140,472	6,440,271	54,929,623	340,537,745	395,467,368
311 Booster Station			896,350			896,350	45			6.59	51.59	0.8723	781,833	114,497	40,334,850	5,906,815	46,241,665
330 Storage			977,752			977,752	45			20.85	65.85	0.6834	668,166	309,586	43,998,840	20,386,129	64,384,969
331.1 Interconnection							0			0	0	0					
331.2 Distribution			10,252,837			10,252,837	16.79			44.49	61.28	0.2311	2,369,927	7,536,837	172,159,313	456,339,635	628,298,548
<b>Total</b>			<b>19,799,906</b>			<b>19,799,906</b>	<b>15.95</b>			<b>41.69</b>	<b>57.47</b>	<b>0.2512</b>	<b>4,959,398</b>	<b>14,433,435</b>	<b>312,905,771</b>	<b>822,970,324</b>	<b>1,134,992,950</b>

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
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Determination of the Depreciated Original Cost

(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Earliest Trend Year	Original Costs	Retirement Dispersion type	Normal Service Life (NSL)	Age at July 1, 2018 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	CC Weighted Total Life Expectancy
Input	Input	Input	Input	AUS Input	AUS Input	2018 00(1)+0.5	(6a) / (6)	(5)/(7)	lowa Life Table	(6)/(9)	(6a)-(10)	(11)-(12) / (10)-(11)	(4)*(12)	(4)*(13)	(4)* (9a)	(4)*(16)	(4)*(17)
331.3	4" Ductile Iron Pipe	1986	6,203	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	3,181	3,042	199,486	181,052	389,548
331.3	6" Ductile Iron Pipe	1986	107,314	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	54,682	52,632	3,434,048	3,305,271	6,739,310
331.3	8" Ductile Iron Pipe	1986	21,881	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	11,149	10,732	700,192	673,635	1,374,127
331.3	12" Ductile Iron Pipe	1986	69,753	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	35,543	34,210	2,232,096	2,148,392	4,390,488
331.3	16" Ductile Iron Pipe	1986	74,481	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	37,952	36,529	2,383,332	2,294,015	4,677,487
331.3	4" Gate Valve	1986	2,033	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	1,098	887	65,056	62,616	127,672
331.3	6" Gate Valve	1986	11,829	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	6,027	5,802	378,528	364,333	742,861
331.3	8" Gate Valve	1986	5,487	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	2,786	2,681	174,944	168,384	343,328
331.3	12" Gate Valve	1986	14,137	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	7,204	6,933	452,384	435,420	887,804
331.3	16" Gate Valve	1986	60,083	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	30,815	29,468	1,922,656	1,850,556	3,773,212
335	Fire Hydrant Assembly	1986	41,839	R3.0	55	32.00	58	R3.0058	0.47316	26.02	58.02	0.55153	22,965	19,674	1,332,448	1,083,447	2,415,895
331.1	Excavation And Aggregate Backfill	1986	127,752	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	65,098	62,656	4,088,034	3,934,762	8,022,828
331.1.1	Surface Restoration	1986	178,952	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	91,134	87,718	5,723,234	5,508,642	11,231,906
						32				30.52	62.52	0.512	323,390	352,074	23,085,558	22,020,825	45,106,393
			532,827							30.52	62.52	0.512	323,390	308,837	20,250,454	19,316,482	39,566,946

1 2 3 4 5 6 6a 7 8 9 10 11 12 13.00 14.00 15 16 17

**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

**Determination of the Depreciated Original Cost**

(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion lowe-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	lowe Lookup	lowe Condition Percent of 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
Input	Input	Input	Input	Input	Input	2018 00- (17)-(5)	(6a)/(6)	(9)(7)	lowe Life Table	(6)/(9)	(6)+(10)	(1-(0)+(1-(10)/(10)(11))	(4)(12)	(4)-(13)	(4)/(6a)	(4)/(10)	(4)/(11)
Enter Data	Enter Data	Enter Data	Enter Data	AUS Input	AUS Input	age	AgeP	lowe Lookup	lowe Condition	Rem Life	Total Lif	Theo Reserve	Theo Reserve	OC wid Age	OC wid Rem Life	OC wid Total Life	
303 Land and Land f		1972		Non-Depr	0	46.00						0					
303 Land and Land f		1972		Non-Depr	0	46.00						0					
303 Land and Land f		1972	1	Non-Depr	0	46.00						0	6,901	1	46		
303 Land and Land f		1972	6,901	Non-Depr	0	46.00						0	6,901	317,446			
303 Land and Land f		1972	8,240	Non-Depr	0	46.00						0	8,240	379,040			
303 Land and Land f		1972	5,150	Non-Depr	0	46.00						0	5,150	236,900			
303 Land and Land f		1972	6,695	Non-Depr	0	46.00						0	6,695	307,970			
303 Land and Land f		1972	5,253	Non-Depr	0	46.00						0	5,253	241,638			
303 Land and Land f		1971	1	Non-Depr	0	47.00						0	1	47			
303 Land and Land f		1985	1	Non-Depr	0	33.00						0	1	33			
303 Right-of-way		2001	1	Non-Depr	0	17.00						0	1	17			
303 Easement		2010	32,244	Non-Depr	0	8.00						0	32,244	1,483,145			
						46				0	0	0	0	0			

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(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion lowe-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	lowa Lookup	lowa Condition Percent of New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Wtd Age	OC Wtd Rem Life	OC Wtd Total Life
Input	Input	Input	Input	lowa	Life	age	AgeP	lowaLookup	lowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC Wtd Age	OC Wtd Rem Life	OC Wtd Total Life
Excelr Data	Excelr Data	Excelr Data	Excelr Data	AUS Input	AUS Input	2018 Op- (1)-(3)	(6a)/(6)	(5a)(7)	lowa Life Table	(6)/(9)	(6a)/(10)	(11)-(12) / (11)+(10)(11)	(4)(12)	(4)-(13)	(4)(6a)	(4)(10)	(4)(11)
304 Building		1973	1,260,060	R4.0	45	45.00	100	R4.0100	0.14634	6.59	51.59	0.87226	1,099,126	160,964	56,704,050	8,303,993	65,008,043
304.2 Water Intake Str		1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2 Water Intake Lin		1973	(2,296)	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	(1,752)	(544)	(103,320)	(32,052)	(135,372)
304.2		1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
311		1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
334		1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
304.2		1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2		1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2		2010	-	R4.0	55	8.00	15	R4.0015	0.85036	46.77	54.77	0.14807	-	-	-	-	-
304.2		2014	-	R4.0	55	4.00	7	R4.0007	0.93009	51.15	55.15	0.07253	-	-	-	-	-
304.2		1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2		2014	11,880	R4.0	55	4.00	7	R4.0007	0.93009	51.15	55.15	0.07253	862	11,018	47,520	607,662	655,162
304.2		1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
320		1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
304.2		1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2		1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
320 Liquefied Gas C		1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
320		1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
320		2016	3,996	R3.0	35	2.00	6	R3.0006	0.94112	32.94	34.94	0.05724	228	3,767	7,992	131,828	139,620
320		1973	(732)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(679)	(53)	(32,940)	(2,962)	(35,502)
320 Chemical Feed I		1973	(705)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(654)	(51)	(31,725)	(2,468)	(34,193)
320 2-2,800 Gallon F		2017	3,996	R3.0	35	1.00	3	R3.0003	0.9705	33.97	34.97	0.0286	114	3,882	3,996	135,744	139,740
320 1-Peristaltic (Blu		1973	(2,856)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(2,650)	(206)	(128,520)	(9,996)	(138,516)
320		2015	15,120	R3.0	35	3.00	9	R3.0009	0.91187	31.92	34.92	0.06591	1,299	13,821	45,960	482,630	527,990

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(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age at July 1, 2018 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
EWater Data	input	input	EWater Data	AUS input	AUS input	age	(6a)/(7)	(5)(8/7)	lowa Lifs Table	(8)/(9)	(9a)/(10)	(11-0)-(12-0)/(10)(11)	(4)/(12)	(-)-(-)(13)	(4)/(6a)	(4)/(10)	(4)/(11)
Acc't	Descrip	Year	Original Cost	lowa	Life	age	AgeP	lowaLookup	lowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wid Age	OC wid Rem Life	OC wid Total Life
320	Chemical Feed I	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
320	1-Peristatic (Blu	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
320	Chemical Feed I	2004	15,000	R3.0	35	14.00	6	R3.0040	0.62327	21.81	35.81	0.36095	5,864	9,136	210,000	327,150	557,150
320	Soda Ash System	2016	15,902	R3.0	35	2.00	6	R3.0006	0.94112	32.94	34.94	0.05724	910	14,992	31,804	523,812	555,616
320	Soda Ash System	1973	(2,915)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(2,705)	(210)	(131,175)	(10,203)	(141,378)
320	Mixer	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
304.2	Structure	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2	Structure	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
320	Mixer	1973	(187)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(174)	(13)	(8,415)	(655)	(9,070)
320	Mixer	2018	1,080	R3.0	35	0.00	0	R3.0000	1	35	35	0	1,080	1,080	37,800	37,800	37,800
304.2	Structure	2010	3,580,350	R4.0	55	8.00	15	R4.0015	0.85036	46.77	54.77	0.14607	522,989	3,057,402	28,643,120	167,454,840	196,097,960
304.2	Pumps	1973	(771,092)	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	(588,521)	(182,571)	(34,698,140)	(10,764,444)	(45,463,584)
311	Pumps	2012	8,640	R3.0	35	6.00	17	R3.0017	0.89474	29.22	35.22	0.17036	1,472	7,168	51,840	252,461	304,301
311	Meeters and Meik	1973	(1,759)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(1,632)	(127)	(79,155)	(6,157)	(85,312)
334	Meeters and Meik	2015	6,000	R3.0	35	3.00	9	R3.0009	0.91187	31.92	34.92	0.08591	515	5,485	18,000	191,520	209,520
320	WTP Equipment	2014	8,208	R3.0	35	4.00	11	R3.0011	0.89247	31.24	35.24	0.11351	932	7,276	32,832	256,418	289,250
320	WTP Equipment	1973	(1,586)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(1,472)	(114)	(71,370)	(5,551)	(76,921)
304.2	Structure	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
311	Structure	1973	20,457	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	19,981	1,476	920,565	71,600	992,165
334	Structure	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
304.2	StructurePumps	2017	2,548,862	R4.0	55	1.00	2	R4.0002	0.96002	53.9	54.9	0.01821	48,415	2,502,467	2,548,862	137,394,740	139,933,622
311	Structure	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
334	Structure	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-



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Account	Description	Placement Year	Original Cost	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	lowa Lookup	lowa Condition Percent of 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 wid Total Life Expectancy
Input	Input	Input	Input	lowa	AUS Input	age	AgeP	lowaLookup	lowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wid Age	OC wid Rem Life	OC wid Total Life
Enter Data	Enter Data	Enter Data	Enter Data	AUS Input	AUS Input	2018.00. (11/10/5)	(6a)/(6)	(5)/(7)	lowa Life Table	(8)/(9)	(9)/(10)	(10-11.0)/(10/11)	(4)/(12)	(4)/(13)	(4)/(6a)	(4)/(10)	(4)/(11)
304.2	0	1973		R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323					
304.2	0	1973		R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323					
304.2	StructurePumps	1973	(766)	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	(585)	(161)	(54,470)	(10,693)	(45,163)
311	0	2018	4,428	R3.0	35	0.00	0	R3.0000	1	35	35	0		4,428		154,980	154,980
310	0	2015	545,902	R3.0	35	3.00	9	R3.0009	0.91187	31.92	34.92	0.06591	46,888	489,004	1,637,706	17,425,192	19,062,898
339	Other Plant and	2009	302,500	R3.0	55	9.00	16	R3.0016	0.8443	46.44	55.44	0.16234	49,109	253,392	2,722,500	14,048,100	16,770,600
339	Other Plant and	1973	(66,888)	R3.0	55	45.00	82	R3.0082	0.30136	16.57	61.57	0.73088	(48,888)	(18,001)	(3,010,005)	(1,106,351)	(4,118,356)
347	0	2015	60,480	R3.0	55	3.00	5	R3.0005	0.9509	52.3	55.3	0.05425	3,281	57,199	181,440	3,163,104	3,344,544
347	0	1973	(11,421)	R3.0	55	45.00	82	R3.0082	0.30136	16.57	61.57	0.73088	(6,347)	(3,074)	(513,945)	(189,246)	(703,191)
344	Laboratory Equip	2017	9,288	R3.0	55	1.00	2	R3.0002	0.98032	53.92	54.92	0.01821	169	9,119	9,288	500,809	510,097
344	0	2017	14,040	R3.0	55	1.00	2	R3.0002	0.98032	53.92	54.92	0.01821	256	13,784	14,040	757,037	771,077
339	Other Plant and	2015	2,916	R3.0	55	3.00	5	R3.0005	0.9509	52.3	55.3	0.05425	158	2,758	6,748	152,507	161,255
339	0	1973	(551)	R3.0	55	45.00	82	R3.0082	0.30136	16.57	61.57	0.73088	(403)	(148)	(24,795)	(9,130)	(33,925)
339	0	2017	3,780	R3.0	55	1.00	2	R3.0002	0.98032	53.92	54.92	0.01821	69	3,711	3,780	203,818	207,598
339	0	1973	(657)	R3.0	55	45.00	82	R3.0082	0.30136	16.57	61.57	0.73088	(488)	(180)	(30,015)	(11,052)	(41,067)
339	0	2015	2,700	R3.0	55	3.00	5	R3.0005	0.9509	52.3	55.3	0.05425	146	2,554	8,100	141,210	149,310
339	0	1973	(510)	R3.0	55	45.00	82	R3.0082	0.30136	16.57	61.57	0.73088	(373)	(137)	(22,950)	(8,451)	(31,401)
			7,580,743			7.25				44.92	52.17	0.1504	1,140,972	6,440,271	54,929,623	340,537,745	395,467,368

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(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Cost	Retirement Dispersion lowe-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	lowa Lookup	lowa Condition Percent of 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
Input	input	input	input	lowa	AUS Input	age	AgeP	lowaLookup	lowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wid Age	OC wid Rem Life	OC wid Total Life
Esater Data	Esater Data	Esater Data	Esater Data	AUS Input	AUS Input	2016 00- (1)19 5	(6a) / (6)	(9)(K7)	lowa Life Table	(8)Ys	(6a)H(10)	(1-9)1- 9/(10)(11)	(4)(K12)	(4)1(13)	(4)7(6a)	(4)7(10)	(4)7(11)
Accl	Descrip	Year	Original Cost	lowa	Life	age	AgeP	lowaLookup	lowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wid Age	OC wid Rem Life	OC wid Total Life
304.1	19' x 16' CMU S	1973	896,330	R4.0	45	45.00	100	R4.0100	0.14634	6.59	51.59	0.87226	781,833	114,497	40,334,850	5,906,815	46,241,665
304.1	1 - Door	1973		R4.0	45	45.00	100	R4.0100	0.14634	6.59	51.59	0.87226					
304.1	3 - Windows	1973		R4.0	45	45.00	100	R4.0100	0.14634	6.59	51.59	0.87226					
311	2 - Centrifugal P	1973		R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784					
311	8" Cast Iron Pipi	1973		R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784					
311	4" Cast Iron Pipi	1973		R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784					
311	2 - 8" Butterfly V	1973		R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784					
311	1 - 8" Check Val	1973		R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784					
311	2 - 6" Butterfly V	1973		R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784					
311	2 - 6" Check Val	1973		R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784					
311	2 - 4" Butterfly V	1973		R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784					
311	2 - 4" Butterfly V	1973		R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784					
311	Electrical and H'	1973	896,330	R3.0	45	45.00	129	R3.0129	0.1001	6.59	51.59	0.8723	781,833	114,497	40,334,850	5,906,815	46,241,665
330	2 - 2 MG Steel T	1973		R3.0	60	45.00	75	R3.0075	0.34751	20.85	85.85	0.68337					
330	20' Screened Rt	1973		R3.0	60	45.00	75	R3.0075	0.34751	20.85	85.85	0.68337					
330	Cage Ladder (e	1973		R3.0	60	45.00	75	R3.0075	0.34751	20.85	85.85	0.68337					
330	8" Steel Overflo	1973		R3.0	60	45.00	75	R3.0075	0.34751	20.85	85.85	0.68337					
330	24' Roof Hatch (	1973		R3.0	60	45.00	75	R3.0075	0.34751	20.85	85.85	0.68337					

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(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	lowa Lookup	lowa Condition Percent of 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 w/d Total Life Expectancy
Input	Input	Input	Input	Input	Input	2018 00- (11)+0-5	(6a)/(6)	lowa Lookup	lowaCondition	(6)/(9)	(6a)/(10)	$\frac{(1)-(10)+1-0}{0-(1)(10)+(11)}$	(4)/(12)	(4)/(13)	(4)/(6a)	(4)/(10)	(4)/(11)
Asset	Descrip	Year	Original Cost	lowa	Life	age	AgeP	lowaLookup	lowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC w/d Age	OC w/d Rem Life	OC w/d Total Life
330	24" Shell Hatch	1973		R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.66337					
330	2 - 10" x 7'-6" x €	1973		R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.66337					
330	5' x 2'-6" Double	1973		R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.66337					
330	12" Ductile Iron I	1973	977,752	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.66337	663,166	309,586	43,998,840	20,386,129	64,384,969
330	6" Cast Iron Drai	1973		R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.66337					
330	2" Sump	1973		R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.66337					
330	1 - 12" Butterfly	1973		R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.66337					
330	1 - 6" Butterfly V	1973	977,752	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.66337	663,166	309,586	43,998,840	20,386,129	64,384,969
331.1	15-8.5x6"x6" Cor	2010		R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247					
331.1	1-54"x48" Acces	2010		R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247					
331.1	6" Ductile Iron P	2010		R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247					
331.1	2-6" Gate Valve	2010		R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247					
331.1	1-6" Flow Contr	2010		R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247					
331.1	1-6" Backflow Pr	2010		R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247					
331.1	1-6" Flow Meter	2010		R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247					
331.1	Electric Unit Hes	2010		R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247					
					0					0	0						

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Account	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Input	Input	Input	Input	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	lowa Lookup	lowa Condition Percent of 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
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS input	AUS input	3018.00- (1)*10.5]	(6a) / (6)	(5)&(7)	lowa Life Table	(6)*9	(6a)*(10)	(10)/(10)*(11)	(4)*(12)	(4)-(13)	(4)*(15)	(4)*(16)	(4)*(17)
Acct	Descrip	Year	Original Cost	lowa	Life	age	AgeP	lowaLookup	lowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wid Age	OC wid Rem Life	OC wid Total Life
331.3	4' Ductile Iron Pi	1912	414	R3.0	60	106.00	177	R3.0177	0	0	106	1	414	0	43,884	0	43,884
331.3	6' Ductile Iron Pi	1912	2,442	R3.0	60	106.00	177	R3.0177	0	0	106	1	2,442	0	258,852	0	258,852
331.3	8' Ductile Iron Pi	1912	2,263	R3.0	60	106.00	177	R3.0177	0	0	106	1	2,263	0	238,878	0	238,878
331.3	10' Ductile Iron f	1912	3,810	R3.0	60	106.00	177	R3.0177	0	0	106	1	3,810	0	403,860	0	403,860
331.3	4' Gate Valve	1912	54	R3.0	60	106.00	177	R3.0177	0	0	106	1	54	0	5,724	0	5,724
331.3	6' Gate Valve	1912	235	R3.0	60	106.00	177	R3.0177	0	0	106	1	235	0	24,910	0	24,910
331.3	8' Gate Valve	1912	208	R3.0	60	106.00	177	R3.0177	0	0	106	1	208	0	22,048	0	22,048
331.3	10' Gate Valve	1912	150	R3.0	60	106.00	177	R3.0177	0	0	106	1	150	0	15,900	0	15,900
335	Fira Hydrant Ass	1912	1,221	R3.0	55	106.00	193	R3.0193	0	0	106	1	1,221	0	129,426	0	129,426
331.1	Excavation And	1912	4,253	R3.0	60	106.00	177	R3.0177	0	0	106	1	4,253	0	450,818	0	450,818
331.1	Surface Restora	1912	5,954	R3.0	60	106.00	177	R3.0177	0	0	106	1	5,954	0	631,124	0	631,124
			21,004			106					106	1	21,004	0	2,226,424	0	2,226,424
331.3	4' Ductile Iron Pi	1916	210	R3.0	60	102.00	170	R3.0170	0	0	102	1	210	0	21,420	0	21,420
331.3	6' Ductile Iron Pi	1916	673	R3.0	60	102.00	170	R3.0170	0	0	102	1	673	0	68,646	0	68,646
331.3	8' Ductile Iron Pi	1916	666	R3.0	60	102.00	170	R3.0170	0	0	102	1	666	0	67,932	0	67,932
331.3	12' Ductile Iron f	1916	7,756	R3.0	60	102.00	170	R3.0170	0	0	102	1	7,756	0	791,316	0	791,316
331.3	4' Gate Valve	1916	49	R3.0	60	102.00	170	R3.0170	0	0	102	1	49	0	4,988	0	4,988
331.3	6' Gate Valve	1916	132	R3.0	60	102.00	170	R3.0170	0	0	102	1	132	0	13,464	0	13,464
331.3	8' Gate Valve	1916	35	R3.0	60	102.00	170	R3.0170	0	0	102	1	35	0	3,570	0	3,570

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(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Cost	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	lowa Lookup	lowa Condition Percent of 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 wtd Total Life Expectancy
EWater Data	Input	EWater Data	Input	AUS Input	AUS Input	age	(6a)/(6)	(5)/(7)	lowa Life Table	(8)/(9)	(6a)/(10)	(11)/(10)*(11)	(9)/(12)	(9)/(13)	(9)/(6a)	(4)/(10)	(9)/(11)
Accd	Descrip	Year	Original Cost	lowa	Life	age	AgeP	lowaLookup	lowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
331.3	12' Gate Valve	1916	1,237	R3.0	60	102.00	170	R3.0170	0	0	102	1	1,237	0	126,174	0	126,174
335	Fire Hydrant/Ass	1916	1,825	R3.0	55	102.00	185	R3.0185	0	0	102	1	1,825	0	186,150	0	186,150
331.1	Excavation And	1916	3,392	R3.0	90	102.00	170	R3.0170	0	0	102	1	3,392	0	342,924	0	342,924
331.1	Surface Restora	1916	4,708	R3.0	90	102.00	170	R3.0170	0	0	102	1	4,708	0	480,216	0	480,216
			20,655			102					102	1	20,655	0	2,106,810	0	2,106,810
331.3	4' Ductile Iron Pl	1926	5,182	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	5,056	126	476,744	11,919	488,663
331.3	6' Ductile Iron Pl	1926	6,303	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	6,149	154	579,876	14,497	594,373
331.3	8' Ductile Iron Pl	1926	2,691	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	2,625	66	247,572	6,189	253,761
331.3	10' Ductile Iron f	1926	784	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	745	19	70,288	1,757	72,045
331.3	12' Ductile Iron f	1926	7,093	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	6,920	173	652,556	16,314	668,870
331.3	4' Gate Valve	1926	604	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	589	15	55,568	1,389	56,957
331.3	6' Gate Valve	1926	691	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	669	22	81,972	2,049	84,021
331.3	8' Gate Valve	1926	500	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	488	12	46,000	1,150	47,150
331.3	10' Gate Valve	1926	242	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	236	6	22,264	557	22,821
331.3	12' Gate Valve	1926	1,116	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	1,089	27	102,672	2,567	105,239
335	Fire Hydrant/Ass	1926	3,661	R3.0	55	92.00	167	R3.0167	0.00641	0.35	92.35	0.99621	3,647	14	396,812	1,281	398,093
331.1	Excavation And	1926	11,825	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	11,537	288	1,087,900	27,198	1,115,098
331.1	Surface Restora	1926	16,555	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	16,151	404	1,523,060	38,077	1,561,137
			57,427			92				2.18	94.13	0.9769	56,102	1,325	5,283,284	124,943	5,408,227

1	2	3	4	5	6	6a	7	8	9	10	11	12	13.00	14.00	15	16	17
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Determination of the Depreciated Original Cost																	
(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion lowe-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	lowe Lookup	lowe Condition Percent of 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 wtd Total Life Expectancy
Input	Input	Input	Input	AUS Input	AUS Input	age	(6a)/(6)	(5)/(7)	loweLife Table	(6)/(9)	(6a)/(10)	$\frac{(11-04) \times 100}{90 \times (100/11)}$	(4)/(12)	(4)/(13)	(4)/(6a)	(4)/(10)	(4)/(11)
Asset	Descrpt	Year	Original Cost	lowe	Life	age	AgeP	loweLookup	loweCondition	Rem Life	Total LJf	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life

331.3 4" Ductile Iron P	1946	1,868	R3.0	60	72.00	120	R3.0120	0.12556	7.53	79.53	0.90532	1,691	177	134,496	14,066	149,562
331.3 4" Gate Valve	1946	124	R3.0	60	72.00	120	R3.0120	0.12556	7.53	79.53	0.90532	112	12	8,928	934	9,862
335 Fire Hydrant Ass	1946	260	R3.0	55	72.00	131	R3.0131	0.09481	5.21	77.21	0.93252	242	18	18,720	1,555	20,075
354 Excavation And	1946	1,402	R3.0	55	72.00	131	R3.0131	0.09481	5.21	77.21	0.93252	1,307	95	100,944	7,304	108,248
354 Surface Restora	1946	1,962	R3.0	55	72.00	131	R3.0131	0.09481	5.21	77.21	0.93252	1,830	132	141,264	10,222	151,486
			5,616		72				6.03	78.03	0.93229	5,183	433	404,352	33,881	438,233

331 10" Ductile Iron I	1956	3,737	R3.0	60	62.00	103	R3.0103	0.18808	11.25	73.25	0.84607	3,162	575	231,694	42,153	273,847
354 Excavation And	1956	1,245	R3.0	55	62.00	113	R3.0113	0.14849	8.17	70.17	0.86357	1,100	145	77,190	10,172	87,362
354 Surface Restora	1956	1,744	R3.0	55	62.00	113	R3.0113	0.14849	8.17	70.17	0.86357	1,541	203	108,128	14,248	122,376
			6,726		62				9.9	71.9	0.8627	5,803	923	417,032	66,573	483,585

331 4" Ductile Iron P	1966	1,101	R3.0	60	52.00	87	R3.0087	0.27078	16.25	68.25	0.7619	699	262	57,252	17,891	75,143
331 6" Ductile Iron P	1966	1,197	R3.0	60	52.00	87	R3.0087	0.27078	16.25	68.25	0.7619	912	285	62,244	19,451	81,695
331 4" Gate Valve	1966	237	R3.0	60	52.00	87	R3.0087	0.27078	16.25	68.25	0.7619	181	56	12,324	3,851	16,175
331 6" Gate Valve	1966	325	R3.0	60	52.00	87	R3.0087	0.27078	16.25	68.25	0.7619	248	77	16,900	5,281	22,181
331.1 Excavation And	1966	1,623	R3.0	60	52.00	87	R3.0087	0.27078	16.25	68.25	0.7619	1,237	386	84,396	26,374	110,770
331.1 Surface Restora	1966	2,272	R3.0	60	52.00	87	R3.0087	0.27078	16.25	68.25	0.7619	1,731	541	118,144	36,920	155,064
			6,755		52				16.25	68.25	0.7619	5,147	1,608	351,260	109,769	461,029

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 Investor-Owned Utility  
 As of July 1, 2018

Determination of the Depreciated Original Cost

1	2	3	4	5	6	6a	7	8	9	10	11	12	13.00	14.00	15	16	17
(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Cost	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	lowa Lookup	lowa Percent of New	Normal Remaining Life	Total Lf	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018 age	(6a)/(6)	(8)/(7)	lowa Life Table	(6)/(9)	(6)/(11)	$\frac{(1)-(11)}{0.77(10)/(11)}$	(4)/(12)	(4)/(13)	(4)/(15)	(4)/(16)	(4)/(17)
Acct	Descrip	Year	Original Cost	lowa	Life	age	AgeP	lowaLookup	lowaCondition	Ram Life	Total Lf	Theo%	Theo Reserve	Theo Reserve	OC w/d Age	OC w/d Rem Life	OC w/d Total Life
331.3	4" Ductile Iron P	1976	22,214	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	14,362	7,852	932,988	510,033	1,443,021
331.3	6" Ductile Iron P	1976	136,157	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	88,032	48,125	5,718,594	3,126,165	8,844,759
331.3	8" Ductile Iron P	1976	183,403	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	118,579	64,824	7,702,926	4,210,933	11,913,869
331.3	10" Ductile Iron I	1976	143,008	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	92,462	50,546	6,006,336	3,263,464	9,269,800
331.3	12" Ductile Iron I	1976	79,336	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	51,295	28,041	3,332,112	1,821,555	5,153,667
331.3	16" Ductile Iron I	1976	13,004	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	8,408	4,596	546,168	299,572	844,740
331.3	4" Gate Valve	1976	3,378	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	2,194	1,194	141,876	77,559	219,435
331.3	6" Gate Valve	1976	15,805	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	10,219	5,586	663,810	362,883	1,026,693
331.3	8" Gate Valve	1976	21,808	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	14,100	7,708	915,935	500,712	1,416,648
331.3	10" Gate Valve	1976	9,790	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	6,300	3,460	411,180	224,778	635,958
331.3	12" Gate Valve	1976	4,057	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	2,623	1,434	170,394	93,149	263,543
331.3	16" Gate Valve	1976	4,161	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	2,680	1,471	174,762	95,537	270,299
335	Fire Hydrant Ass	1976	67,431	R3.0	55	42.00	76	R3.0076	0.34069	18.74	60.74	0.69147	46,627	20,804	2,632,102	1,263,657	4,095,759
331.1	Excavation And	1976	288,195	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	173,401	94,794	11,264,190	6,157,757	17,421,947
331.1	Surface Restora	1976	375,474	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	242,763	132,711	15,769,908	8,620,893	24,390,791
			1,347,221		60	42			0.38261	22.75	64.75	0.6488	874,075	473,146	56,583,282	30,647,635	87,230,917
331.3	4" Ductile Iron P	1966	6,203	R3.0	60	32.00	59	R3.0053	0.51325	30.8	62.8	0.50955	3,161	3,042	196,496	191,052	389,546
331.3	6" Ductile Iron P	1966	107,314	R3.0	60	32.00	59	R3.0053	0.51325	30.8	62.8	0.50955	54,692	52,602	3,434,048	3,305,271	6,739,319
331.3	8" Ductile Iron P	1966	21,891	R3.0	60	32.00	59	R3.0053	0.51325	30.8	62.8	0.50955	11,149	10,732	700,182	673,935	1,374,127
331.3	12" Ductile Iron I	1966	69,753	R3.0	60	32.00	59	R3.0053	0.51325	30.8	62.8	0.50955	35,543	34,210	2,232,096	2,146,392	4,380,488
331.3	16" Ductile Iron I	1966	74,481	R3.0	60	32.00	59	R3.0053	0.51325	30.8	62.8	0.50955	37,952	36,529	2,383,392	2,284,015	4,677,407



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(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	lowa Lookup	lowa Condition Percent of New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC wtd Total Life Expectancy
Input	Input	Input	Input	lowa	AUS Input	age	(6a)/(6)	lowa(7)	lowa(9)	(8)/(9)	(6a)+(10)	(11)/(10)	(4)/(12)	(4)/(13)	(4)/(6a)	(4)/(10)	(4)/(11)
Excel Data	Excel Data	Excel Data	Excel Data	AUS Input	AUS Input	2018 00- (11/05)			lowa Life Table								
Acct	Descrip	Year	Original Cost	lowa	lowa	age	AgeP	lowa(7)	lowa(9)	lowa(9)	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
331.3	4" Gate Valve	1986	2,033	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	1,036	997	65,056	62,616	127,672
331.3	6" Gate Valve	1986	11,829	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	6,027	5,802	378,528	364,333	742,861
331.3	8" Gate Valve	1986	5,467	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	2,786	2,681	174,944	168,364	343,328
331.3	12" Gate Valve	1986	14,137	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	7,204	6,933	462,364	435,420	887,804
331.3	16" Gate Valve	1986	90,083	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	30,615	29,468	1,922,656	1,850,556	3,773,212
335	Fire Hydrant Ass	1986	41,639	R3.0	55	32.00	58	R3.0058	0.47316	26.02	58.02	0.55153	22,965	18,674	1,332,448	1,083,447	2,415,895
331.1	Excavation And	1986	127,752	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	65,096	62,656	4,088,064	3,934,762	8,022,826
331.1	Surface Restora	1986	176,652	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	91,134	87,718	5,723,264	5,508,642	11,231,906
			721,424			32				30.52	62.52	0.512	369,350	352,074	23,085,568	22,020,825	45,106,393
331.3	6" Ductile Iron P	1996	190,477	R3.0	60	22.00	37	R3.0037	0.64975	38.99	60.99	0.36071	66,707	121,770	4,190,494	7,426,698	11,617,192
331.3	8" Ductile Iron P	1996	145,725	R3.0	60	22.00	37	R3.0037	0.64975	38.99	60.99	0.36071	52,564	93,161	3,205,950	5,681,618	8,887,768
331.3	6" Gate Valve	1996	29,219	R3.0	60	22.00	37	R3.0037	0.64975	38.99	60.99	0.36071	10,540	19,679	642,818	1,139,249	1,782,067
331.3	8" Gate Valve	1996	25,828	R3.0	60	22.00	37	R3.0037	0.64975	38.99	60.99	0.36071	9,316	16,512	568,216	1,007,034	1,575,250
335	Fire Hydrant Ass	1996	96,674	R3.0	55	22.00	40	R3.0040	0.62327	34.28	56.28	0.3909	37,790	56,884	2,126,828	3,313,985	5,440,813
331.1	Excavation And	1996	194,242	R3.0	60	22.00	37	R3.0037	0.64975	38.99	60.99	0.36071	70,065	124,177	4,273,324	7,573,496	11,846,820
331.1	Surface Restora	1996	271,939	R3.0	60	22.00	37	R3.0037	0.64975	38.99	60.99	0.36071	98,091	173,848	5,982,658	10,602,502	16,585,560
			954,104			22				38.51	60.51	0	607,031	607,031	20,990,288	36,745,180	57,735,468
331.3	6" Ductile Iron P	2006	18,687	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	3,913	15,774	236,244	952,260	1,188,504
331.3	8" Ductile Iron P	2006	1,225,236	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	243,540	981,696	14,702,832	59,264,665	73,967,497



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1	2	3	4	5	6a	7	8	9	10	11	12	13.00	14.00	15	16	17
(1)	(2)	(3)	(4)	(5)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Cost	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	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
Input	Exeter Data	Input	Exeter Data	lowa	AUS Input	2018 age	(6a)/(6)	lowa Life Table	(6)*(9)	(6a)*(10)	$\frac{(11)-(9)+1}{(11)-(10)+1}$	(4)*(12)	+(1)-(13)	(4)*(15a)	(4)*(16)	(4)*(17)
Acct	Descrip	Year	Original Cost	lowa	Life	age	AgeP	lowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wid Age	OC wid Rem Life	OC wid Total Life
331.3 10" Ductile Iron I		2006	66,387	R3.0	60	12.00	20 R3.0020	0.80619	48.37	60.37	0.19877	13,593	54,794	820,644	3,307,879	4,128,523
331.3 12" Ductile Iron I		2006	639,043	R3.0	60	12.00	20 R3.0020	0.80619	48.37	60.37	0.19877	127,023	512,020	7,868,516	30,910,510	38,579,026
331.3 16" Ductile Iron I		2006	137,511	R3.0	60	12.00	20 R3.0020	0.80619	48.37	60.37	0.19877	27,333	110,178	1,650,132	6,651,407	8,501,539
331.3 6" Gate Valve		2006	2,483	R3.0	60	12.00	20 R3.0020	0.80619	48.37	60.37	0.19877	494	1,989	25,796	120,103	149,899
331.3 8" Gate Valve		2006	187,264	R3.0	60	12.00	20 R3.0020	0.80619	48.37	60.37	0.19877	37,228	150,058	2,247,406	9,058,927	11,306,335
331.3 10" Gate Valve		2006	6,305	R3.0	60	12.00	20 R3.0020	0.80619	48.37	60.37	0.19877	1,253	5,052	75,660	304,973	380,633
331.3 12" Gate Valve		2006	59,906	R3.0	60	12.00	20 R3.0020	0.80619	48.37	60.37	0.19877	11,908	47,988	718,872	2,897,653	3,616,525
331.3 16" Gate Valve		2006	53,589	R3.0	60	12.00	20 R3.0020	0.80619	48.37	60.37	0.19877	10,654	42,945	643,186	2,582,584	3,235,772
335 Fire Hydrant/Ass		2006	314,307	R3.0	55	12.00	22 R3.0022	0.78728	43.3	55.3	0.217	68,205	246,102	3,771,684	13,609,493	17,381,177
331.1 Excavation And		2006	838,360	R3.0	60	12.00	20 R3.0020	0.80619	48.37	60.37	0.19877	166,645	671,735	10,060,560	40,552,441	50,613,001
331.1 Surface Restora		2006	1,173,731	R3.0	60	12.00	20 R3.0020	0.80619	48.37	60.37	0.19877	233,303	940,428	14,084,772	56,773,368	70,658,140
			4,725,859			12			48.03	60.03	0.2	945,085	3,780,770	56,710,308	226,996,263	283,706,571
331.3 2016 Pine/Hams		2016	1,614,679	R3.0	60	2.00	3 R3.0003	0.9705	58.23	60.23	0.03321	53,623	1,551,058	3,229,356	94,022,758	97,252,116
331.3 2017 Mulberry/B		2017	248,802	R3.0	60	1.00	2 R3.0002	0.98032	58.82	58.82	0.01672	4,160	244,642	248,802	14,634,534	14,883,336
331.3 2017 Uglies Wal		2017	522,565	R3.0	60	1.00	2 R3.0002	0.98032	58.82	58.82	0.01672	8,737	513,828	522,565	30,737,273	31,259,838
			2,386,046			1.58			58.42	60.1	0.0279	2,319,525	4,000,725	139,394,565	143,395,290	
			10,252,837			16.79			44.49	61.28	0.2311	2,368,927	7,536,837	172,159,313	456,139,635	628,298,948
43	44	45	46	47	48	49	50	51	52	53	55	56	57	58	59	60
			32,244			46			0	0	0		32,244	1,483,145		
			7,580,743			7.25			44.92	52.17	0.1504	1,140,472	6,440,271	54,929,623	340,537,745	395,467,368
			896,330			45			6.59	51.59	0.8723	781,833	114,497	40,334,850	5,906,815	46,241,665
			977,752			45			20.85	65.95	0.6834	666,166	309,586	43,996,840	20,386,129	64,384,969

1 2 3 4 5 6 6a 7 8 9 10 11 12 13.00 14.00 15 16 17

**Pennsylvania-American Water Company**  
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**Water System**  
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**Determination of the Depreciated Original Cost**

(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	lowa Lookup	lowa Condition Percent of 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
Input	Input	Input	Input	lowa	AUS Input	age	(6a)/(6)	(8)&(7)	lowa Life Table	(6)&(9)	(8)&(10)	(1)-(9)/(1-(10)&(11))	(4)&(12)	(4)-(13)	(4)&(15a)	(4)&(16)	(4)&(17)
Excel Data	Excel Data	Excel Data	Excel Data	AUS Input	AUS Input	2018 age	(6a)/(6)	(8)&(7)	lowa Life Table	(6)&(9)	(8)&(10)	(1)-(9)/(1-(10)&(11))	(4)&(12)	(4)-(13)	(4)&(15a)	(4)&(16)	(4)&(17)
Acct	Descrip	Year	Original Cost	lowa	Life	age	AgeP	lowaLookup	lowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wid Age	OC wid Rem Life	OC wid Total Life
			10,252,837			0				0	0	0					
			19,739,906			16.79				44.49	61.28	0.2311	2,368,977	7,536,837	177,159,313	456,139,635	628,298,948
						15.85				41.69	57.47	0.2512	4,959,398	14,433,435	312,905,771	822,970,324	1,134,992,950

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Cost Approach  
Costing & Depreciation Parameters**

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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)	(4a)	(4b)	(5)	(6a)	(6b)
Account Number	Description	Costing Parameters	Table	Line Reference	Lookup	Reproduction to Replacement Cost Factor	How Survivor / Retirement Curve	Normal Service Life	Economic Obsolescence	Tax Depreciation	
		Index Series			AUS Input			years	years	Table	Life
<b>Non-Depreciable</b>											
301.00	Land & Land Rights	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0
303.10	Land & Land Rights	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0
303.20	Land & Land Rights Distribution	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0
303.30	Land & Land Rights Pumping	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0
303.40	Land & Land Rights Treatment	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0
303.50	Land & Land Rights Right of Way	USBSL	PPI	3	USBSL3	1.000	Non-Depr	0	0%	Non-Depr	0
304.00	Structures & Improvements	HW	W-1	8	HW-18	1.000	R4.0	45	0%	MACRS	25
304.10	Structures & Improvements - Pumping	HW	W-1	8	HW-18	1.000	R4.0	45	0%	MACRS	25
304.20	Structures & Improvements - Treatment	HW	W-1	15	HW-115	1.000	R4.0	55	0%	MACRS	25
304.30	Structures & Improvements - Storage	HW	W-1	15	HW-115	1.000	R4.0	55	0%	MACRS	25
306.00	Water Intake Structure	HW	W-1	2	HW-12	1.000	R3.0	35	0%	MACRS	25
306.10	Water Intake Structure	HW	W-1	2	HW-12	1.000	R3.0	35	0%	MACRS	25
309.00	Piping	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25
309.10	Piping	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25
310.00	Power Generation	USBSL	PPI	4	USBSL4	1.000	R3.0	35	0%	MACRS	25
310.10	Power Generation	USBSL	PPI	4	USBSL4	1.000	R3.0	35	0%	MACRS	25
311.00	Pumping	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25
311.10	Pumping	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25
320.00	Treatment Chemical Treatment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25
320.10	Treatment Chemical Treatment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25
330.00	Distribution Reservoirs	HW	W-1	23	HW-123	1.000	R3.0	60	0%	MACRS	25
330.10	Distribution Reservoirs	HW	W-1	23	HW-123	1.000	R3.0	60	0%	MACRS	25
331.00	Mains Distribution	HW	W-1	44	HW-144	1.000	R3.0	60	0%	MACRS	25
331.10	Distribution Mains	HW	W-1	44	HW-144	1.000	R3.0	60	0%	MACRS	25
331.200	Distribution Mains PVC	HW	W-1	38	HW-138	1.000	R3.0	60	0%	MACRS	25
331.300	Distribution Mains Ductile Iron	HW	W-1	35	HW-135	1.000	R3.0	60	0%	MACRS	25
331.40	Distribution Mains Cast Iron	HW	W-1	45	HW-145	1.000	R3.0	65	0%	MACRS	25
334.00	Meters & Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
334.10	Meters & Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
336.00	Backflow Preventer	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
336.10	Backflow Preventer	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
339.00	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
339.10	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
344.00	Laboratory Equipment	HW	W-1	17	HW-139	1.000	R3.0	55	0%	MACRS	25
344.10	Laboratory Equipment	HW	W-1	17	HW-139	1.000	R3.0	55	0%	MACRS	25
347.00	Miscellaneous Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
347.10	Miscellaneous Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
348.00	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
348.10	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
335.00	Hydrants	HW	W-1	42	HW-142	1.000	R3.0	55	0%	MACRS	25
335.10	Hydrants	HW	W-1	42	HW-142	1.000	R3.0	55	0%	MACRS	25
354.00	Restoration	HW	W-1	35	HW-135	1.000	R3.0	55	0%	MACRS	25
354.10	Restoration	HW	W-1	35	HW-135	1.000	R3.0	55	0%	MACRS	25
364.00	Metering and Meter Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
364.10	Metering	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
364.20	Meter Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
371.00	Pumping Equipment	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25
371.10	Pumping Equipment	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25
380.00	Treatment and Disposal Equipment	HW	W-1	17	HW-117	1.000	R3.0	45	0%	MACRS	25
380.10	Treatment and Disposal Equipment	HW	W-1	17	HW-117	1.000	R3.0	45	0%	MACRS	25
390.00	General Plant						R3.0	12		MACRS	15
390.10	Office Furniture and Equipment	AUS	T-1	15	AUST-115	1.000	R3.0	12	0%	MACRS	12
391.10	Transportation Equipment	AUS	T-1	4	AUST-14	1.000	R3.0	10	0%	MACRS	10
392.10	Stores Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0	MACRS	25
393.10	Tools, Shop, & Garage Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0%	MACRS	25
394.10	Laboratory Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	20	0%	MACRS	20
395.10	Power Operated Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	15	0%	MACRS	15
396.10	Communications Equipment	USBSL	PPI	2	USBSL2	1.000	R3.0	12	0%	MACRS	12
397.10	Miscellaneous Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20
398.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20
399.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Cost Approach  
Cost Indices**

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Water Industry – Northeastern United States**

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*Bulletin No. 187*

*1912 to January 1, 2018*

The  
Handy-Whitman Index®  
of  
Public Utility  
Construction Costs™



*Trends of Construction Costs*

COMPILED & PUBLISHED BY  
**Whitman, Requardt & Associates, LLP**  
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North Atlantic Region	G-1	G-1-1
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## 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.

## **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. 187**

During the twelve month period ending January 1, 2018, the average index of all geographical regions for Total Gas Plant increased 2.9% and the comparable index for Electric Plant-All Steam Generation increased 2.0%.

May 2018

Whitman, Requardt and Associates, LLP

**Cost Trends Of**

# **Water Utility Construction**

**COST TREND TABLES  
1912 to January 1, 2018**

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	
			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	7	7	7	7	9	13	15	15	17	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
9	Electric Pumping Equipment	311	-	-	15	15	17	20	22	24	24	23	21	22	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
16	Large Treatment Plant Equip.	320	9	9	9	9	11	14	16	17	20	19	18	18	20	20
17	Small Treatment Plant Equip.	320	10	10	10	10	13	17	19	19	22	20	20	20	21	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
24	Elevated Steel Tanks	330	4	4	4	11	14	16	18	19	16	13	11	12	11	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
35	Cast Iron Mains	331	9	10	9	9	12	18	20	22	25	24	22	23	24	23
36	Cement-Asbestos Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	Steel Mains	331	6	7	6	7	8	11	13	13	14	15	14	14	14	15
38	PVC Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Services Installed	333	6	6	5	6	6	9	10	11	12	13	12	12	13	13
40	Meters	334	23	23	23	23	26	29	35	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
47	Clarifier Equipment-Installed		-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	Filter Gallery Piping-Installed		8	8	8	8	10	14	16	18	20	18	17	18	19	19
49																
50																
51																
52																
53																
54																
55																
56																

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	17	17	17	17	17	16	14	14	15	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																

# W-1

## 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	9	9	9
			4	4	4	4	4	4	4	4	4	4	5	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																



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	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	84	87	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																

# W-1

## 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	1
			R	9	9	9	9	9	9	9	9	9	9	9	9	9
		U	6	6	7	7	7	7	7	7	7	7	7	7	7	7
		C	8	9	0	1	2	3	4	5	6	7	8	9	0	1
1	Source of Supply Plant															
2	Collecting & Impounding Res.	305	67	72	78	86	94	100	115	127	133	139	148	164	179	189
3																
4																
5																
6																
7	Pumping Plant															
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	Water Treatment Plant															
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	Transmission Plant															
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	Distribution Plant															
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	83	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	Miscellaneous Items															
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																

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	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																	





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														

Line	CONSTRUCTION AND EQUIPMENT	N A R 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													
3																
4																
5																
6																
7	<b>Pumping Plant</b>															
8	Structures & Improvements	304	687													
9	Electric Pumping Equipment	311	1146													
10																
11																
12																
13																
14	<b>Water Treatment Plant</b>															
15	Structures & Improvements	304	687													
16	Large Treatment Plant Equip.	320	797													
17	Small Treatment Plant Equip.	320	911													
18																
19																
20																
21																
22	<b>Transmission Plant</b>															
23	Steel Reservoirs	330	801													
24	Elevated Steel Tanks	330	1181													
25	Concrete Reservoirs	330	-													
26																
27	Cast Iron Mains	331	810													
28	Steel Mains	331	733													
29	Concrete Cylinder Mains	331	620													
30																
31																
32																
33	<b>Distribution Plant</b>															
34	Mains-Average All Types	331	790													
35	Cast Iron Mains	331	855													
36	Cement-Asbestos Mains	331	763													
37	Steel Mains	331	704													
38	PVC Mains	331	397													
39	Services Installed	333	661													
40	Meters	334	434													
41	Meter Installations	334	750													
42	Hydrants Installed	335	1012													
43																
44																
45	<b>Miscellaneous Items</b>															
46	Flocculating Equipment-Installed		2223													
47	Clarifier Equipment-Installed		1369													
48	Filter Gallery Piping-Installed		801													
49																
50																
51																
52																
53																
54																
55																
56																

**Cost Trends Of**

**Building**

**Construction**

**COST TREND TABLES**  
**1912 to January 1, 2018**



# B-1

## COST TRENDS OF BUILDING CONSTRUCTION

### NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
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																	

Line	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
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	12	
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																	

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## COST TRENDS OF BUILDING CONSTRUCTION

### 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
		4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	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
		0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5
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	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																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS														
		1 9 7 6	1 9 7 7	1 9 7 8	1 9 7 9	1 9 8 0	1 9 8 1	1 9 8 2	1 9 8 3	1 9 8 4	1 9 8 5	1 9 8 6	1 9 8 8	1 9 8 9	1 9 9 0	1 9 9 1
1	<b>Building Construction</b>															
2	Reinf. Conc. Bldg. Construction	134	139	150	167	184	190	189	196	211	222	229	246	258	262	257
3	Brick Building Construction	130	136	148	164	183	192	197	206	217	225	233	252	265	271	272
4	Structural Steel Erected	153	154	170	193	225	227	202	202	225	240	249	272	286	286	261
5	Reinf. Concrete (Ready-Mix)	124	131	140	154	166	176	191	201	210	220	225	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	254	244	250	255
10	Lumber for Reinf. Concrete	106	118	130	148	139	138	135	143	144	140	140	143	148	147	145
11	Steel Bars for Reinf. Concrete	145	147	166	206	215	216	203	190	198	202	205	227	232	222	199
12	Common Brick	130	136	159	190	232	247	255	257	256	246	258	292	320	320	316
13	Concrete Block	116	120	139	185	210	228	260	260	262	278	285	285	301	288	288
14																
15	<b>Labor</b>															
16	Building Trades Labor	122	129	135	143	152	164	184	199	212	221	229	245	256	268	285
17	Heavy Constr. Trades Labor	123	131	137	146	155	165	184	199	210	220	229	244	255	264	279
18	Labor for Reinf. Concrete	122	130	137	147	157	166	184	198	210	220	227	242	253	262	277
19	Common Labor	124	133	141	152	163	172	190	204	214	223	231	243	254	265	280
20	Electricians	124	129	135	143	150	164	186	207	224	234	239	261	271	280	298
21	Pipefitters	122	131	135	143	154	170	192	207	219	228	236	248	263	276	290
22	Plumbers	122	131	136	141	152	168	191	205	217	226	235	242	257	279	294
23																

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
												2001		2002		2003	
		1 9 9 2	1 9 9 3	1 9 9 4	1 9 9 5	1 9 9 6	1 9 9 7	1 9 9 8	1 9 9 9	2 0 0 0	2 0 0 1	2 0 0 1	2 0 0 1	2 0 0 2	2 0 0 2	2 0 0 3	2 0 0 3
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																	

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## COST TRENDS OF BUILDING CONSTRUCTION

### 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
7																	
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
14																	
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
23																	

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			
3	Brick Building Construction	530	532	542	539	550	552	585	580	586	589	604	608	633			
4	Structural Steel Erected	538	542	558	553	561	567	568	555	549	556	561	569	579			
5	Reinf. Concrete (Ready-Mix)	525	526	527	527	541	543	556	554	564	567	581	585	602			
6	Reinf. Concrete (Plant-Mix)	464	467	470	468	482	482	497	490	497	505	519	527	541			
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	441	441	436	436	441	452	455	461	471	471	481	485	488			
10	Lumber for Reinf. Concrete	150	165	170	168	174	170	188	182	178	204	222	240	244			
11	Steel Bars for Reinf. Concrete	393	391	365	356	363	373	368	326	288	307	316	349	342			
12	Common Brick	448	451	458	452	449	449	617	617	618	618	636	637	725			
13	Concrete Block	428	428	445	445	444	499	505	485	483	429	427	411	411			
14																	
15	<b>Labor</b>																
16	Building Trades Labor	607	607	619	619	636	636	646	646	660	660	678	678	696			
17	Heavy Constr. Trades Labor	596	596	605	605	620	620	640	640	659	659	673	673	696			
18	Labor for Reinf. Concrete	591	591	598	598	616	616	633	633	651	651	666	666	690			
19	Common Labor	604	604	604	604	620	620	644	644	661	661	674	674	705			
20	Electricians	665	665	674	674	691	691	702	702	724	724	731	731	753			
21	Pipefitters	658	658	668	668	694	694	704	704	717	717	738	738	755			
22	Plumbers	623	623	634	634	655	655	668	668	674	674	696	696	716			
23																	

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	7	7	7	7	11	16	17	16	17	15	14	15	15	15	15	14
3	Brick Building Construction	8	8	8	9	11	15	16	17	19	17	16	17	17	17	17	17
4	Structural Steel Erected	9	9	9	8	16	29	26	22	22	15	15	19	19	17	17	15
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Reinf. Concrete (Plant-Mix)	6	6	6	7	8	10	12	13	14	12	12	12	13	14	13	12
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Lumber for Reinf. Concrete	5	5	5	5	6	9	13	12	13	9	9	10	12	13	10	10
11	Steel Bars for Reinf. Concrete	15	15	15	17	34	47	37	35	37	24	22	28	29	27	25	24
12	Common Brick	14	14	14	19	22	26	28	37	47	42	41	44	41	39	39	39
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14																	
15	<b>Labor</b>																
16	Building Trades Labor	5	5	5	6	6	7	8	9	10	11	11	12	12	13	14	14
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	4	4	4	5	4	5	6	8	8	8	8	8	9	10	10	9
19	Common Labor	3	4	4	4	4	4	5	7	7	7	6	6	6	7	8	6
20	Electricians	5	5	5	5	5	5	7	9	10	10	10	11	11	11	12	13
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Plumbers	7	7	7	7	7	7	9	10	11	12	12	14	14	14	16	16
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
		2	2	3	3	3	3	3	3	3	3	3	3	3	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	14	15	14	13	12	12	13	13	14	15	15	15	15	17	19	19
3	Brick Building Construction	16	16	15	14	13	13	15	15	15	16	16	16	16	18	20	20
4	Structural Steel Erected	15	16	14	13	11	12	14	14	15	16	15	15	15	18	20	20
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Reinf. Concrete (Plant-Mix)	12	12	12	12	10	11	12	12	12	13	13	13	14	16	17	17
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	-	-	-	-	-	-	-	-	38	37	37	36	37	37	37	37
10	Lumber for Reinf. Concrete	10	10	9	8	7	8	10	9	10	10	10	11	11	14	16	16
11	Steel Bars for Reinf. Concrete	24	25	22	20	20	21	24	23	25	31	29	28	27	28	28	28
12	Common Brick	34	31	28	27	26	27	30	28	28	28	28	28	28	29	30	30
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14																	
15	<b>Labor</b>																
16	Building Trades Labor	14	14	14	14	13	12	12	12	12	14	14	15	15	17	18	18
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	9	9	9	9	8	8	9	9	10	10	11	11	12	14	14	14
19	Common Labor	6	7	7	7	6	6	7	7	6	7	8	8	8	9	11	11
20	Electricians	13	14	15	13	12	12	12	12	13	13	13	14	15	17	18	19
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Plumbers	16	16	15	15	14	13	13	13	14	15	15	15	15	17	18	19
23																	



# B-2

## COST TRENDS OF BUILDING CONSTRUCTION

### SOUTH ATLANTIC REGION (1973=100)

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1 9 4 4	1 9 4 5	1 9 4 6	1 9 4 7	1 9 4 8	1 9 4 9	1 9 5 0	1 9 5 1	1 9 5 2	1 9 5 3	1 9 5 4	1 9 5 5	1 9 5 6	1 9 5 7	1 9 5 8	1 9 5 9
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	19	19	23	27	32	32	33	35	36	39	40	42	46	50	51	52
3	Brick Building Construction	20	21	24	28	32	33	34	37	37	39	41	42	46	48	50	51
4	Structural Steel Erected	20	20	24	29	36	39	40	42	42	46	47	49	58	65	65	66
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	34	37	38	40	43	45	47	49
6	Reinf. Concrete (Plant-Mix)	18	19	22	27	30	28	29	31	33	34	35	37	39	41	41	44
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	37	38	40	46	50	51	51	52	57	61	62	63	68	71	73	75
10	Lumber for Reinf. Concrete	20	20	27	38	39	34	33	35	36	37	37	40	41	41	38	40
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	31	37	44	47	48	49	49	55	55	55	57	58	62	62	62	63
13	Concrete Block	-	-	-	-	-	56	53	59	59	63	63	58	60	59	59	59
14																	
15	<b>Labor</b>																
16	Building Trades Labor	18	19	21	23	26	27	28	30	31	33	35	37	38	40	42	44
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	14	15	17	20	22	23	23	25	27	29	30	32	33	35	37	39
19	Common Labor	12	13	15	17	20	20	21	22	23	25	26	28	30	31	33	35
20	Electricians	19	19	20	22	25	27	28	29	31	33	35	36	38	40	41	43
21	Pipefitters	-	-	-	-	-	29	29	31	33	35	36	37	38	40	42	44
22	Plumbers	19	20	21	24	27	29	29	30	32	34	35	36	37	39	41	43
23																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1 9 6 0	1 9 6 1	1 9 6 2	1 9 6 3	1 9 6 4	1 9 6 5	1 9 6 6	1 9 6 7	1 9 6 8	1 9 6 9	1 9 7 0	1 9 7 1	1 9 7 2	1 9 7 3	1 9 7 4	1 9 7 5
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	53	53	54	54	55	56	58	60	63	69	73	81	90	100	121	134
3	Brick Building Construction	52	53	54	55	56	57	59	60	64	70	73	82	92	100	116	127
4	Structural Steel Erected	65	61	61	61	61	62	63	65	68	72	76	82	88	100	142	163
5	Reinf. Concrete (Ready-Mix)	50	51	53	54	55	57	58	59	62	68	73	82	92	100	113	122
6	Reinf. Concrete (Plant-Mix)	45	47	49	50	51	53	54	55	60	67	69	78	90	100	109	116
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	75	74	75	75	75	74	74	74	74	78	78	84	92	100	113	126
10	Lumber for Reinf. Concrete	43	43	48	48	49	48	50	48	60	65	55	61	79	100	89	98
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	65	65	65	67	68	68	68	69	76	79	75	84	104	100	109	114
13	Concrete Block	61	63	63	61	61	61	62	63	64	68	68	79	92	100	108	112
14																	
15	<b>Labor</b>																
16	Building Trades Labor	45	47	49	50	51	53	55	57	61	68	75	84	94	100	109	118
17	Heavy Constr. Trades Labor	-	43	45	47	49	51	52	54	58	65	72	82	93	100	108	118
18	Labor for Reinf. Concrete	41	43	45	46	48	49	52	54	57	64	71	82	94	100	109	117
19	Common Labor	37	39	41	43	44	46	48	50	54	60	67	80	94	100	109	118
20	Electricians	45	46	48	50	51	53	54	56	60	66	74	84	94	100	108	120
21	Pipefitters	45	47	47	49	50	53	56	60	64	70	78	88	95	100	107	120
22	Plumbers	45	46	47	48	50	52	55	57	60	68	75	85	94	100	108	120
23																	

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
		7	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	135	142	154	171	189	197	190	190	199	207	210	213	223	229	226	214
3	Brick Building Construction	131	139	152	165	180	191	193	199	206	213	216	218	224	233	232	227
4	Structural Steel Erected	153	155	170	195	227	230	202	197	218	232	238	244	261	273	270	242
5	Reinf. Concrete (Ready-Mix)	127	136	147	161	173	186	193	194	197	199	200	201	204	210	208	209
6	Reinf. Concrete (Plant-Mix)	124	136	147	160	169	178	180	180	182	188	191	191	196	198	192	187
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	138	150	166	186	199	206	212	214	217	223	225	226	226	240	242	242
10	Lumber for Reinf. Concrete	113	141	156	172	171	155	133	128	126	148	160	165	164	163	145	131
11	Steel Bars for Reinf. Concrete	145	147	166	206	215	216	203	190	199	204	206	205	227	233	222	199
12	Common Brick	123	143	173	173	185	201	225	261	278	286	293	295	295	324	336	337
13	Concrete Block	122	135	147	185	213	221	222	225	241	237	236	236	238	248	252	268
14																	
15	<b>Labor</b>																
16	Building Trades Labor	125	132	139	148	159	175	190	197	199	200	201	202	206	211	213	219
17	Heavy Constr. Trades Labor	124	132	138	147	161	178	191	197	199	199	199	201	204	208	210	215
18	Labor for Reinf. Concrete	123	130	138	146	159	179	191	195	196	195	194	195	198	202	202	207
19	Common Labor	125	133	140	149	165	188	197	198	198	192	192	195	197	196	198	203
20	Electricians	129	137	145	154	164	181	195	206	209	210	214	217	221	227	230	235
21	Pipefitters	127	136	144	153	164	176	191	205	208	211	214	212	214	218	224	231
22	Plumbers	127	135	142	148	159	176	191	205	207	210	212	211	214	220	225	229
23																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	2001 2002 2003															
		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.	
		2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	218	232	248	250	260	267	268	276	285	286	294	290	296	291	293	
3	Brick Building Construction	231	243	257	259	265	278	286	297	309	308	314	313	319	317	320	
4	Structural Steel Erected	239	257	283	294	307	310	309	317	333	335	344	347	340	341	339	
5	Reinf. Concrete (Ready-Mix)	211	220	228	233	239	246	251	259	262	268	274	273	288	278	282	
6	Reinf. Concrete (Plant-Mix)	195	213	225	218	227	238	238	245	249	246	258	241	259	246	250	
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	234	239	249	282	288	300	304	326	319	341	349	349	349	349	357	
10	Lumber for Reinf. Concrete	158	213	237	199	214	245	224	245	242	219	259	178	202	177	187	
11	Steel Bars for Reinf. Concrete	194	212	232	234	234	247	245	229	224	217	229	217	222	219	237	
12	Common Brick	344	355	378	387	378	435	483	524	554	525	533	536	536	547	563	
13	Concrete Block	276	277	279	284	284	284	284	299	301	293	293	293	309	326	323	
14																	
15	<b>Labor</b>																
16	Building Trades Labor	225	229	233	236	240	246	254	264	274	281	280	290	295	298	298	
17	Heavy Constr. Trades Labor	220	224	228	232	240	245	253	258	269	274	275	284	294	284	284	
18	Labor for Reinf. Concrete	212	215	219	221	227	230	239	245	253	259	260	268	288	276	276	
19	Common Labor	205	209	215	213	220	220	232	235	242	247	247	254	295	258	258	
20	Electricians	240	246	253	259	262	269	279	286	295	305	305	318	324	329	329	
21	Pipefitters	239	246	255	257	261	269	278	292	305	317	317	325	322	330	330	
22	Plumbers	234	236	238	240	245	254	262	279	289	300	301	306	302	311	311	
23																	



COST TRENDS OF BUILDING CONSTRUCTION

SOUTH ATLANTIC REGION (1973=100)

Line	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	325	337	339	347	352	360	370	393	398	406	403	384	388	392	398	400
3	Brick Building Construction	347	356	361	367	372	380	392	406	410	416	417	411	417	419	424	425
4	Structural Steel Erected	386	402	405	414	423	432	442	498	510	523	514	467	463	463	479	480
5	Reinf. Concrete (Ready-Mix)	307	311	321	325	337	343	362	367	367	371	381	381	395	402	404	406
6	Reinf. Concrete (Plant-Mix)	276	289	288	301	299	311	313	320	318	326	317	315	323	330	330	333
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	357	357	373	373	421	424	427	432	440	411	511	518	521	528	534	545
10	Lumber for Reinf. Concrete	207	255	213	251	225	257	190	194	189	186	184	179	158	164	160	176
11	Steel Bars for Reinf. Concrete	273	278	347	359	324	361	381	421	394	485	334	325	352	409	415	404
12	Common Brick	579	593	612	612	612	636	639	639	639	639	639	688	688	688	688	688
13	Concrete Block	326	326	342	342	343	344	346	346	346	346	346	346	346	346	346	346
14																	
15	<b>Labor</b>																
16	Building Trades Labor	317	317	323	323	334	334	358	358	364	364	380	380	393	393	395	395
17	Heavy Constr. Trades Labor	311	311	317	317	333	333	366	366	372	372	389	389	405	405	410	410
18	Labor for Reinf. Concrete	307	307	312	312	325	325	356	356	359	359	369	369	387	387	387	387
19	Common Labor	314	314	320	320	332	332	375	375	375	375	385	385	398	398	398	398
20	Electricians	338	338	345	345	351	351	365	365	369	369	392	392	399	399	408	408
21	Pipefitters	340	340	350	350	366	366	385	385	388	388	411	411	427	427	432	432
22	Plumbers	333	333	336	336	354	354	366	366	371	371	394	394	406	406	406	406
23																	

Line	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	404	406	416	411	420	426	428	422	424	427	437	445	458			
3	Brick Building Construction	430	433	442	441	450	454	486	482	484	487	495	501	525			
4	Structural Steel Erected	487	490	501	496	500	506	507	493	486	493	498	507	519			
5	Reinf. Concrete (Ready-Mix)	411	411	414	411	420	424	429	442	433	436	454	459	475			
6	Reinf. Concrete (Plant-Mix)	334	335	346	339	353	359	363	361	367	369	381	392	405			
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	558	558	558	558	560	568	563	656	568	575	609	610	619			
10	Lumber for Reinf. Concrete	171	175	214	187	216	236	228	229	237	236	254	281	285			
11	Steel Bars for Reinf. Concrete	394	393	365	356	364	374	367	325	289	309	315	347	346			
12	Common Brick	688	704	721	744	744	744	1030	1030	1018	1018	1007	1007	1126			
13	Concrete Block	421	431	431	436	435	452	499	376	454	469	456	459	434			
14																	
15	<b>Labor</b>																
16	Building Trades Labor	404	404	408	408	419	419	421	421	430	430	444	444	459			
17	Heavy Constr. Trades Labor	414	414	422	422	430	430	438	438	446	446	466	466	484			
18	Labor for Reinf. Concrete	393	393	398	398	407	407	418	418	433	433	448	448	470			
19	Common Labor	402	402	407	407	412	412	424	424	435	435	466	466	469			
20	Electricians	415	415	418	418	424	424	429	429	433	433	451	451	459			
21	Pipefitters	458	458	463	463	474	474	465	465	466	466	487	487	514			
22	Plumbers	434	434	436	436	464	464	463	463	464	464	485	485	492			
23																	



L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1 9 1 2	1 9 1 3	1 9 1 4	1 9 1 5	1 9 1 6	1 9 1 7	1 9 1 8	1 9 1 9	1 9 2 0	1 9 2 1	1 9 2 2	1 9 2 3	1 9 2 4	1 9 2 5	1 9 2 6	1 9 2 7
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	8	8	8	9	12	19	19	18	20	15	14	17	18	17	16	16
3	Brick Building Construction	9	9	9	9	12	16	17	18	21	18	17	18	18	18	18	18
4	Structural Steel Erected	8	8	8	8	16	29	26	21	22	15	15	19	18	17	16	15
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Reinf. Concrete (Plant-Mix)	7	7	7	8	10	13	14	15	18	15	14	15	17	17	16	16
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Lumber for Reinf. Concrete	7	7	7	7	9	13	18	18	20	14	12	14	18	18	15	14
11	Steel Bars for Reinf. Concrete	15	15	15	17	34	47	37	35	37	24	22	28	29	27	25	24
12	Common Brick	10	10	10	14	17	20	21	27	35	31	30	33	30	29	29	29
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14																	
15	<b>Labor</b>																
16	Building Trades Labor	7	7	7	7	7	8	8	9	12	12	11	12	13	14	14	14
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	5	5	5	5	5	6	6	7	10	10	9	10	10	11	11	11
19	Common Labor	4	4	4	5	5	5	5	7	9	9	8	9	9	9	10	10
20	Electricians	8	8	8	9	8	9	9	10	13	13	13	13	15	16	17	17
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Plumbers	8	8	8	8	8	8	9	10	12	12	11	12	14	14	15	15
23																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1 9 2 8	1 9 2 9	1 9 3 0	1 9 3 1	1 9 3 2	1 9 3 3	1 9 3 4	1 9 3 5	1 9 3 6	1 9 3 7	1 9 3 8	1 9 3 9	1 9 4 0	1 9 4 1	1 9 4 2	1 9 4 3
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	16	16	15	14	13	13	15	15	15	17	16	16	17	18	20	20
3	Brick Building Construction	17	17	17	16	14	15	16	16	16	17	17	17	18	18	20	20
4	Structural Steel Erected	15	16	14	13	12	12	14	14	15	16	15	15	15	18	20	20
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Reinf. Concrete (Plant-Mix)	16	16	16	14	13	13	15	15	15	17	17	17	17	18	19	19
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	-	-	-	-	-	-	34	34	35	35	37	37	37	37	37	37
10	Lumber for Reinf. Concrete	14	14	14	12	10	12	15	13	13	14	14	15	15	18	21	22
11	Steel Bars for Reinf. Concrete	24	25	22	20	20	21	24	23	25	31	29	28	27	28	28	28
12	Common Brick	25	23	21	20	19	20	22	21	21	21	21	21	21	22	23	24
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14																	
15	<b>Labor</b>																
16	Building Trades Labor	15	15	16	17	15	14	14	14	15	16	17	17	17	17	18	18
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	11	12	12	11	9	9	10	11	11	12	13	13	13	13	14	15
19	Common Labor	10	10	10	11	9	9	9	9	10	11	11	11	11	11	12	13
20	Electricians	17	17	18	19	19	17	17	17	17	18	18	18	18	19	20	20
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Plumbers	15	15	15	17	15	14	14	14	15	16	17	17	17	17	18	18
23																	

# B-3

## COST TRENDS OF BUILDING CONSTRUCTION

### NORTH CENTRAL REGION (1973=100)

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1 9 4 4	1 9 4 5	1 9 4 6	1 9 4 7	1 9 4 8	1 9 4 9	1 9 5 0	1 9 5 1	1 9 5 2	1 9 5 3	1 9 5 4	1 9 5 5	1 9 5 6	1 9 5 7	1 9 5 8	1 9 5 9
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	20	21	24	28	33	34	36	38	39	42	43	45	50	54	55	57
3	Brick Building Construction	20	21	24	28	31	33	35	37	38	40	42	44	47	50	52	53
4	Structural Steel Erected	20	20	24	29	36	38	40	41	42	46	46	49	58	64	65	66
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	36	39	40	42	44	47	48	50
6	Reinf. Concrete (Plant-Mix)	20	21	24	28	31	31	34	36	38	39	40	42	44	46	48	50
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	37	38	40	46	51	53	52	55	56	59	61	65	68	69	70	72
10	Lumber for Reinf. Concrete	25	25	30	39	44	38	43	46	47	46	44	49	51	50	51	57
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	26	29	32	34	37	39	42	45	45	49	51	52	54	56	58	60
13	Concrete Block	-	-	-	-	-	59	62	68	67	68	66	63	66	67	69	69
14																	
15	<b>Labor</b>																
16	Building Trades Labor	18	19	21	23	25	26	27	29	31	33	34	36	37	39	40	42
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	15	15	17	20	22	24	25	26	29	31	33	34	35	37	39	41
19	Common Labor	13	14	16	18	21	23	24	25	27	30	32	32	34	36	38	40
20	Electricians	20	21	23	25	27	29	30	31	32	33	35	37	39	40	42	44
21	Pipefitters	-	-	-	-	-	25	26	28	30	32	34	34	35	37	39	40
22	Plumbers	18	19	20	22	24	26	27	29	31	32	33	35	36	38	39	41
23																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1 9 6 0	1 9 6 1	1 9 6 2	1 9 6 3	1 9 6 4	1 9 6 5	1 9 6 6	1 9 6 7	1 9 6 8	1 9 6 9	1 9 7 0	1 9 7 1	1 9 7 2	1 9 7 3	1 9 7 4	1 9 7 5
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	57	56	56	57	58	59	61	64	67	72	78	85	91	100	122	136
3	Brick Building Construction	54	54	55	55	56	58	60	62	66	71	77	86	91	100	118	130
4	Structural Steel Erected	64	60	60	61	61	62	63	64	68	72	76	83	89	100	140	161
5	Reinf. Concrete (Ready-Mix)	52	53	53	54	56	58	60	62	65	71	78	88	94	100	112	120
6	Reinf. Concrete (Plant-Mix)	51	51	52	53	55	57	59	61	65	71	76	86	92	100	111	117
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	74	74	73	72	72	72	77	73	75	78	83	90	95	100	112	128
10	Lumber for Reinf. Concrete	56	49	49	50	52	55	59	59	65	73	68	72	82	100	101	101
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	61	61	63	62	62	64	66	70	72	75	80	85	89	100	124	136
13	Concrete Block	71	71	71	71	71	72	75	75	79	83	85	91	98	100	118	132
14																	
15	<b>Labor</b>																
16	Building Trades Labor	44	46	47	49	51	52	54	57	61	68	78	89	95	100	106	115
17	Heavy Constr. Trades Labor	-	44	46	47	49	50	52	55	59	67	76	88	95	100	107	116
18	Labor for Reinf. Concrete	43	45	46	48	49	51	53	57	60	67	77	89	95	100	107	115
19	Common Labor	42	44	45	46	49	51	53	56	60	66	75	88	95	100	107	116
20	Electricians	46	47	50	52	53	54	56	59	63	73	83	91	96	100	107	116
21	Pipefitters	42	43	45	46	48	50	51	54	59	66	76	87	94	100	107	115
22	Plumbers	42	44	46	47	49	51	54	55	60	68	78	87	94	100	107	115
23																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1 9 7 6	1 9 7 7	1 9 7 8	1 9 7 9	1 9 8 0	1 9 8 1	1 9 8 2	1 9 8 3	1 9 8 4	1 9 9 5	1 9 9 6	1 9 9 7	1 9 9 8	1 9 9 9	1 9 9 0	1 9 9 1
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	135	140	154	171	189	195	193	198	212	220	226	233	243	249	251	242
3	Brick Building Construction	134	142	157	171	186	198	204	211	222	228	234	240	251	262	264	262
4	Structural Steel Erected	152	153	169	194	225	226	202	200	222	236	244	251	268	279	278	251
5	Reinf. Concrete (Ready-Mix)	126	132	144	159	171	178	194	201	208	213	218	224	232	234	237	240
6	Reinf. Concrete (Plant-Mix)	122	130	144	157	166	172	183	192	199	203	207	213	220	221	224	226
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	137	145	160	186	205	204	214	206	208	220	226	234	243	243	238	245
10	Lumber for Reinf. Concrete	111	127	150	160	159	148	135	144	146	145	146	156	162	159	157	155
11	Steel Bars for Reinf. Concrete	145	147	166	206	215	216	203	190	198	201	202	201	223	229	219	198
12	Common Brick	153	176	199	212	226	260	270	276	283	289	294	296	318	360	360	364
13	Concrete Block	138	142	152	159	173	182	197	213	224	229	243	260	263	260	265	257
14																	
15	<b>Labor</b>																
16	Building Trades Labor	121	128	138	147	157	170	192	204	212	217	223	230	236	239	245	253
17	Heavy Constr. Trades Labor	121	128	138	147	157	170	190	204	212	216	222	229	235	239	245	251
18	Labor for Reinf. Concrete	122	128	137	147	157	169	192	205	213	217	223	229	235	238	245	250
19	Common Labor	123	130	138	147	159	172	195	208	217	221	226	232	238	238	245	250
20	Electricians	121	134	144	153	160	180	199	213	221	227	235	241	248	252	260	268
21	Pipefitters	121	127	137	146	157	172	194	206	213	221	228	236	242	247	255	263
22	Plumbers	121	127	136	146	156	169	195	202	207	215	222	230	234	235	240	248
23																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	1 9 9 2	1 9 9 3	1 9 9 4	1 9 9 5	1 9 9 6	1 9 9 7	1 9 9 8	1 9 9 9	2 0 0 0	2001		2002		2003		
											Jan.	Jul.	Jan.	Jul.	Jan.	Jul.	
											1	1	1	1	1	1	
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	247	262	280	289	300	307	311	320	333	334	348	346	352	356	355	
3	Brick Building Construction	263	276	292	304	315	322	328	339	352	357	371	371	380	385	381	
4	Structural Steel Erected	249	267	293	306	319	322	324	332	350	354	363	367	361	364	362	
5	Reinf. Concrete (Ready-Mix)	248	259	273	281	288	299	308	314	324	326	340	343	354	360	363	
6	Reinf. Concrete (Plant-Mix)	235	252	265	270	279	290	292	303	309	306	324	314	327	330	330	
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	252	257	276	291	294	312	320	313	320	326	330	362	358	368	376	
10	Lumber for Reinf. Concrete	172	217	242	230	246	268	241	259	248	221	258	207	219	209	201	
11	Steel Bars for Reinf. Concrete	192	210	232	233	233	246	243	227	223	216	229	217	221	219	238	
12	Common Brick	338	349	367	401	411	409	422	436	450	474	490	493	504	504	486	
13	Concrete Block	269	269	272	277	280	286	307	310	328	336	344	365	374	375	378	
14																	
15	<b>Labor</b>																
16	Building Trades Labor	262	271	280	289	299	308	318	330	343	348	361	366	380	392	392	
17	Heavy Constr. Trades Labor	260	269	278	286	296	305	318	329	343	347	360	364	379	387	387	
18	Labor for Reinf. Concrete	260	268	279	287	296	303	317	329	342	346	361	362	378	385	385	
19	Common Labor	261	270	284	291	299	305	319	331	345	348	365	364	382	388	388	
20	Electricians	277	286	297	306	316	326	336	347	360	364	382	391	410	429	429	
21	Pipefitters	273	279	292	300	308	321	332	341	355	362	375	375	387	393	393	
22	Plumbers	255	269	278	287	295	310	316	329	343	349	361	363	378	381	381	
23																	



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	385	394	404	409	421	425	437	458	473	480	477	459	462	466	481	482
3	Brick Building Construction	404	409	420	425	439	441	456	469	482	487	488	478	485	488	500	501
4	Structural Steel Erected	409	424	429	438	448	457	467	521	534	546	537	491	487	487	510	511
5	Reinf. Concrete (Ready-Mix)	379	381	402	404	414	417	431	436	451	457	457	457	468	473	480	479
6	Reinf. Concrete (Plant-Mix)	349	356	368	370	380	382	392	390	402	409	405	407	412	419	427	429
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	381	383	416	420	425	427	435	451	469	456	460	462	468	468	451	445
10	Lumber for Reinf. Concrete	227	257	242	246	252	241	227	197	201	197	185	195	165	178	172	185
11	Steel Bars for Reinf. Concrete	273	278	345	357	322	359	379	418	396	486	335	327	359	417	418	407
12	Common Brick	498	496	500	512	528	524	552	553	553	555	555	559	559	566	566	567
13	Concrete Block	378	382	386	397	408	422	432	412	424	442	440	442	442	436	437	439
14																	
15	<b>Labor</b>																
16	Building Trades Labor	406	406	422	422	442	442	460	460	480	480	492	492	512	512	526	526
17	Heavy Constr. Trades Labor	400	400	416	416	433	433	451	451	472	472	488	488	499	499	515	515
18	Labor for Reinf. Concrete	402	402	416	416	433	433	451	451	471	471	489	489	501	501	515	515
19	Common Labor	407	407	419	419	436	436	455	455	478	478	494	494	507	507	523	523
20	Electricians	436	436	455	455	477	477	496	496	520	520	525	525	539	539	556	556
21	Pipefitters	413	413	432	432	458	458	480	480	497	497	508	508	542	542	562	562
22	Plumbers	400	400	418	418	445	445	465	465	482	482	492	492	537	537	548	548
23																	

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	490	494	502	500	507	513	518	511	513	519	531	537	548			
3	Brick Building Construction	509	511	519	520	525	528	563	559	561	565	579	584	612			
4	Structural Steel Erected	519	522	533	528	534	540	543	530	524	531	540	548	558			
5	Reinf. Concrete (Ready-Mix)	492	498	507	507	528	520	530	528	537	542	554	558	569			
6	Reinf. Concrete (Plant-Mix)	437	441	447	447	454	460	467	463	471	479	490	498	508			
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	464	496	507	514	585	523	554	560	567	579	591	591	589			
10	Lumber for Reinf. Concrete	176	195	192	195	182	207	215	212	219	253	267	281	286			
11	Steel Bars for Reinf. Concrete	393	391	364	355	361	371	365	323	287	307	316	348	344			
12	Common Brick	567	569	572	584	574	574	766	766	755	755	773	779	890			
13	Concrete Block	498	473	500	554	491	540	540	454	453	413	436	412	409			
14																	
15	<b>Labor</b>																
16	Building Trades Labor	538	538	547	547	558	558	565	565	575	575	594	594	610			
17	Heavy Constr. Trades Labor	533	533	543	543	556	556	574	574	581	581	597	597	614			
18	Labor for Reinf. Concrete	532	532	544	544	557	557	566	566	580	580	593	593	609			
19	Common Labor	537	537	549	549	568	568	572	572	586	586	602	602	616			
20	Electricians	560	560	566	566	574	574	589	589	571	571	596	596	635			
21	Pipefitters	577	577	588	588	600	600	608	608	611	611	629	629	637			
22	Plumbers	559	559	571	571	580	580	566	566	592	592	608	608	612			
23																	

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>	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
2	Reinf. Conc. Bldg. Construction	8	8	8	9	13	20	20	19	21	16	15	17	18	17	16	
3	Brick Building Construction	9	9	9	10	13	17	18	19	23	19	18	19	19	19	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)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	Reinf. Concrete (Plant-Mix)	8	8	8	10	12	15	17	18	20	16	15	16	17	17	16	
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10	Lumber for Reinf. Concrete	7	7	7	8	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	25	
12	Common Brick	12	12	12	16	19	23	25	32	40	36	36	38	35	34	34	
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14																	
15	<b>Labor</b>																
16	Building Trades Labor	8	8	8	8	8	8	10	11	13	14	13	13	13	14	14	
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18	Labor for Reinf. Concrete	6	6	6	7	7	7	9	9	12	11	10	10	10	9	10	
19	Common Labor	5	5	5	6	6	6	8	8	10	10	8	7	7	7	7	
20	Electricians	6	6	6	7	7	7	9	9	12	12	12	12	12	12	13	
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22	Plumbers	8	8	8	9	9	9	10	11	15	16	15	15	16	16	18	
23																	

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>	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	
2	Reinf. Conc. Bldg. Construction	16	16	16	14	12	13	14	15	15	17	16	16	16	18	20	
3	Brick Building Construction	18	18	17	15	14	14	16	16	16	18	17	17	18	19	20	
4	Structural Steel Erected	16	16	14	13	12	12	14	14	15	16	15	15	18	20	20	
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	Reinf. Concrete (Plant-Mix)	16	16	16	14	12	12	15	15	16	17	17	17	17	18	20	
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	-	-	-	-	-	-	34	36	36	36	34	33	34	34	34	
10	Lumber for Reinf. Concrete	15	15	14	13	10	13	16	14	14	15	15	15	17	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	30	27	25	24	22	23	26	25	25	25	25	25	25	25	26	
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14																	
15	<b>Labor</b>																
16	Building Trades Labor	15	15	15	15	13	13	13	14	14	15	16	16	17	18	19	
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18	Labor for Reinf. Concrete	10	10	11	9	7	6	9	11	11	12	12	12	12	13	14	
19	Common Labor	7	7	7	6	6	6	6	9	9	9	9	9	9	11	13	
20	Electricians	14	14	15	15	14	14	14	13	14	15	15	16	17	18	19	
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22	Plumbers	18	19	19	18	17	17	17	16	17	18	18	18	18	19	19	
23																	



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
		4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	
		4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	20	21	24	29	33	35	36	38	39	42	43	45	50	54	55	56
3	Brick Building Construction	21	21	25	29	33	35	36	38	39	41	42	45	49	52	54	55
4	Structural Steel Erected	20	20	24	29	37	39	40	42	42	46	47	49	58	65	66	66
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	37	38	39	41	43	46	47	49
6	Reinf. Concrete (Plant-Mix)	21	22	24	30	33	33	34	36	36	38	39	40	42	43	45	47
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	34	37	41	45	47	49	52	53	55	55	55	56	61	62	64	65
10	Lumber for Reinf. Concrete	23	24	28	40	43	40	40	43	42	43	41	42	44	42	42	45
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	27	28	33	37	41	42	42	45	47	47	47	48	56	61	63	64
13	Concrete Block	-	-	-	-	-	50	53	59	59	59	60	60	60	86	86	86
14																	
15	<b>Labor</b>																
16	Building Trades Labor	19	20	22	25	27	29	31	33	35	36	38	39	41	42	44	46
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	16	17	18	21	24	25	26	28	29	31	33	34	36	38	40	42
19	Common Labor	14	15	16	19	22	22	24	25	26	29	30	31	33	34	36	38
20	Electricians	20	20	21	23	26	29	30	33	34	35	37	39	40	42	44	46
21	Pipefitters	-	-	-	-	-	30	31	33	34	36	38	39	40	43	44	47
22	Plumbers	19	20	22	25	27	29	30	32	34	36	37	39	41	42	44	46
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
		0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	57	56	56	57	59	60	61	63	67	72	76	82	90	100	125	139
3	Brick Building Construction	56	56	57	58	60	61	63	65	68	73	79	84	92	100	120	132
4	Structural Steel Erected	65	61	61	61	62	63	64	65	69	73	76	82	89	100	142	164
5	Reinf. Concrete (Ready-Mix)	51	52	53	55	57	58	60	63	67	71	78	85	92	100	115	123
6	Reinf. Concrete (Plant-Mix)	49	51	51	53	54	56	59	61	64	70	74	82	91	100	111	120
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	64	63	66	68	68	69	67	72	73	79	81	87	89	100	113	121
10	Lumber for Reinf. Concrete	50	51	50	53	53	54	59	59	62	73	62	68	82	100	90	98
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	66	68	68	70	73	73	74	78	83	83	92	88	91	100	120	126
13	Concrete Block	78	78	86	86	86	86	85	82	84	84	84	84	96	100	117	150
14																	
15	<b>Labor</b>																
16	Building Trades Labor	48	49	51	52	54	56	58	60	63	69	79	87	94	100	109	118
17	Heavy Constr. Trades Labor	-	46	48	50	52	54	56	59	63	69	78	86	94	100	110	120
18	Labor for Reinf. Concrete	44	45	47	49	51	52	55	58	62	67	77	85	94	100	110	121
19	Common Labor	40	42	43	45	47	49	52	55	60	65	77	86	94	100	113	124
20	Electricians	48	49	51	53	54	56	57	59	62	69	79	86	92	100	110	119
21	Pipefitters	48	50	52	53	55	57	59	62	65	73	81	89	97	100	108	118
22	Plumbers	48	50	52	53	54	56	59	61	65	70	79	88	96	100	108	119
23																	

COST TRENDS OF BUILDING CONSTRUCTION

SOUTH CENTRAL REGION (1973=100)

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1 9 7 6	1 9 7 7	1 9 7 8	1 9 7 9	1 9 8 0	1 9 8 1	1 9 8 2	1 9 8 3	1 9 8 4	1 9 8 5	1 9 8 6	1 9 8 7	1 9 8 8	1 9 8 9	1 9 9 0	1 9 9 1
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	141	147	161	179	201	213	204	208	218	221	222	223	230	235	237	223
3	Brick Building Construction	137	149	168	189	205	216	216	223	229	228	229	230	233	240	244	237
4	Structural Steel Erected	156	157	173	198	230	234	205	203	226	236	241	247	263	272	270	241
5	Reinf. Concrete (Ready-Mix)	132	140	156	174	189	205	215	224	222	216	211	209	208	208	214	217
6	Reinf. Concrete (Plant-Mix)	129	137	151	168	181	199	203	210	207	204	200	199	198	198	204	202
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	127	138	170	203	226	232	234	239	231	230	218	213	205	198	213	227
10	Lumber for Reinf. Concrete	106	120	140	158	161	178	153	155	140	157	150	153	152	142	159	161
11	Steel Bars for Reinf. Concrete	145	147	166	206	215	216	203	191	202	208	208	207	229	235	225	201
12	Common Brick	135	175	230	278	283	277	274	284	285	285	285	285	285	313	322	321
13	Concrete Block	162	183	211	246	266	269	274	277	278	274	270	269	256	325	368	385
14																	
15	<b>Labor</b>																
16	Building Trades Labor	131	139	148	158	171	190	208	221	223	217	216	215	213	216	222	225
17	Heavy Constr. Trades Labor	132	142	151	161	175	195	214	228	227	220	218	217	214	214	218	223
18	Labor for Reinf. Concrete	132	142	150	161	176	196	214	229	227	216	213	212	209	212	218	219
19	Common Labor	136	146	155	166	182	203	222	235	232	222	217	216	214	218	221	222
20	Electricians	133	142	153	165	177	190	210	224	232	234	234	234	234	236	241	247
21	Pipefitters	128	137	146	156	169	186	202	218	218	214	219	223	223	226	231	235
22	Plumbers	128	137	147	155	167	189	203	218	219	214	219	223	223	226	229	233
23																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
												2001		2002		2003	
		1 9 9 2	1 9 9 3	1 9 9 4	1 9 9 5	1 9 9 6	1 9 9 7	1 9 9 8	1 9 9 9	2 0 0 0	2 0 0 1	2 0 0 1	2 0 0 1	2 0 0 1	2 0 0 1	2 0 0 1	2 0 0 1
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	225	239	258	263	272	278	278	282	292	295	299	300	300	301	300	
3	Brick Building Construction	240	253	267	274	282	294	299	307	316	319	322	326	328	332	331	
4	Structural Steel Erected	238	255	281	292	306	307	306	313	329	332	341	343	337	337	336	
5	Reinf. Concrete (Ready-Mix)	219	225	230	234	248	256	258	264	269	270	280	283	288	289	291	
6	Reinf. Concrete (Plant-Mix)	209	224	240	239	244	257	256	258	261	262	259	254	260	259	258	
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	231	228	226	242	286	301	307	331	339	339	376	377	384	386	390	
10	Lumber for Reinf. Concrete	189	240	293	269	274	312	298	288	286	287	256	211	221	211	203	
11	Steel Bars for Reinf. Concrete	196	214	234	235	235	248	245	229	224	217	229	217	222	220	238	
12	Common Brick	328	354	363	382	391	438	472	493	504	504	506	511	517	527	529	
13	Concrete Block	433	434	441	403	454	485	481	456	446	446	446	392	419	435	472	
14																	
15	<b>Labor</b>																
16	Building Trades Labor	227	230	234	237	244	246	251	258	266	273	276	288	292	299	299	
17	Heavy Constr. Trades Labor	227	228	231	234	242	246	249	254	262	270	273	282	287	289	289	
18	Labor for Reinf. Concrete	221	224	226	229	235	238	240	246	252	254	258	267	272	274	274	
19	Common Labor	224	227	228	231	234	236	240	246	252	256	260	269	275	273	273	
20	Electricians	248	251	263	261	267	262	271	280	291	298	304	314	315	321	321	
21	Pipefitters	240	243	247	252	261	266	273	282	292	303	305	317	324	330	330	
22	Plumbers	239	242	246	252	254	260	270	282	289	300	304	317	324	328	328	
23																	



**COST TRENDS OF BUILDING CONSTRUCTION  
SOUTH CENTRAL REGION (1973=100)**

Line	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	328	339	347	353	355	361	367	393	397	406	402	379	386	388	402	402
3	Brick Building Construction	353	359	367	371	374	379	383	399	403	408	409	396	404	406	417	417
4	Structural Steel Erected	381	397	400	409	417	426	434	490	499	512	501	453	452	452	470	471
5	Reinf. Concrete (Ready-Mix)	303	305	316	318	318	323	329	334	334	344	340	342	356	365	377	380
6	Reinf. Concrete (Plant-Mix)	275	284	296	300	296	301	303	307	302	310	304	302	314	320	331	329
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	390	390	390	391	396	403	410	418	420	427	435	445	451	465	472	493
10	Lumber for Reinf. Concrete	231	272	277	288	270	272	263	260	241	234	231	230	226	225	224	220
11	Steel Bars for Reinf. Concrete	274	279	347	359	324	361	381	421	397	488	337	328	359	417	422	411
12	Common Brick	545	545	545	547	554	559	562	562	562	562	562	562	561	561	561	561
13	Concrete Block	493	498	510	520	532	542	549	553	551	551	551	551	550	550	550	550
14																	
15	<b>Labor</b>																
16	Building Trades Labor	307	307	318	318	323	323	328	328	336	336	353	353	368	368	381	381
17	Heavy Constr. Trades Labor	302	302	309	309	317	317	321	321	326	326	341	341	364	364	380	380
18	Labor for Reinf. Concrete	284	284	291	291	296	296	300	300	303	303	319	319	335	335	351	351
19	Common Labor	290	290	296	296	301	301	309	309	309	309	327	327	353	353	369	369
20	Electricians	328	328	342	342	347	347	355	355	375	375	390	390	412	412	419	419
21	Pipefitters	339	339	359	359	367	367	375	375	381	381	407	407	425	425	436	436
22	Plumbers	341	341	359	359	366	366	376	376	383	383	409	409	425	425	434	434
23																	

Line	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	407	409	418	417	420	426	432	424	421	426	438	444	449			
3	Brick Building Construction	422	426	439	443	448	451	494	490	484	487	509	513	532			
4	Structural Steel Erected	477	481	490	485	490	497	496	482	473	481	487	495	503			
5	Reinf. Concrete (Ready-Mix)	385	385	394	395	399	400	416	413	416	421	434	438	443			
6	Reinf. Concrete (Plant-Mix)	330	330	337	340	343	348	361	359	360	364	378	384	385			
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	504	504	511	517	517	517	526	529	549	558	558	560	581			
10	Lumber for Reinf. Concrete	201	201	203	218	216	228	231	243	250	259	267	277	281			
11	Steel Bars for Reinf. Concrete	394	392	362	353	361	371	367	325	290	309	314	346	340			
12	Common Brick	561	582	614	640	651	651	903	903	875	875	935	935	1033			
13	Concrete Block	591	603	651	668	672	672	673	622	628	623	608	603	625			
14																	
15	<b>Labor</b>																
16	Building Trades Labor	391	391	403	403	408	408	417	417	419	419	443	443	448			
17	Heavy Constr. Trades Labor	385	385	396	396	408	408	419	419	421	421	444	444	448			
18	Labor for Reinf. Concrete	360	360	376	376	380	380	402	402	405	405	425	425	426			
19	Common Labor	370	370	375	375	379	379	410	410	410	410	439	439	438			
20	Electricians	425	425	433	433	437	437	448	448	461	461	474	474	482			
21	Pipefitters	441	441	459	459	466	466	474	474	475	475	497	497	509			
22	Plumbers	441	441	460	460	466	466	474	474	478	478	498	498	508			
23																	



PLATEAU 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	1	1	1	1	1	1	1	2	2	2	2	2	2	2	
		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	9	9	9	9	14	21	21	20	22	17	16	19	19	19	18	17
3	Brick Building Construction	10	10	10	11	14	19	20	21	24	20	19	21	21	21	21	20
4	Structural Steel Erected	9	9	9	8	16	29	26	22	22	16	15	19	19	17	17	16
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Reinf. Concrete (Plant-Mix)	10	10	10	11	14	18	20	21	23	20	19	20	21	21	20	20
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Lumber for Reinf. Concrete	12	12	12	12	14	21	30	30	32	22	20	24	30	30	24	24
11	Steel Bars for Reinf. Concrete	15	15	15	17	34	47	37	35	37	24	22	28	29	27	25	24
12	Common Brick	17	17	17	22	26	32	33	43	55	50	49	53	48	46	46	46
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14																	
15	<b>Labor</b>																
16	Building Trades Labor	7	7	7	7	8	9	10	10	12	13	13	13	14	15	15	15
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	7	7	7	7	7	9	9	10	12	13	12	12	12	12	13	13
19	Common Labor	7	7	7	7	7	8	9	9	10	12	11	9	10	11	11	11
20	Electricians	7	7	7	7	7	7	10	10	11	12	12	12	13	14	15	15
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Plumbers	8	8	8	8	8	9	11	11	12	13	13	14	15	15	17	17
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
		2	2	3	3	3	3	3	3	3	3	3	3	3	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	17	18	17	15	13	14	16	16	16	18	18	18	18	20	21	21
3	Brick Building Construction	20	19	18	17	16	17	18	18	18	20	20	20	20	21	22	23
4	Structural Steel Erected	16	16	14	13	12	12	14	14	15	16	15	15	15	18	20	20
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Reinf. Concrete (Plant-Mix)	20	20	20	17	15	16	18	17	19	21	22	22	22	23	24	24
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	-	-	-	-	-	-	-	-	-	-	27	36	36	36	36	36
10	Lumber for Reinf. Concrete	24	23	22	19	16	20	25	21	21	24	24	24	26	30	32	33
11	Steel Bars for Reinf. Concrete	24	25	22	20	20	21	24	23	25	31	29	28	27	28	28	28
12	Common Brick	40	37	33	32	31	32	35	33	33	33	33	33	33	33	34	36
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14																	
15	<b>Labor</b>																
16	Building Trades Labor	15	15	15	15	15	15	15	15	15	17	17	17	17	18	19	19
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	13	13	13	12	9	9	9	10	13	15	16	16	16	16	17	17
19	Common Labor	11	11	11	11	11	11	11	11	12	13	13	13	13	13	15	15
20	Electricians	15	15	15	15	15	15	15	15	15	16	17	17	17	17	17	17
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Plumbers	17	17	17	17	17	17	17	17	16	17	18	18	18	19	19	19
23																	

# B-5

## COST TRENDS OF BUILDING CONSTRUCTION

### PLATEAU REGION (1973=100)

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1 9 4 4	1 9 4 5	1 9 4 6	1 9 4 7	1 9 4 8	1 9 4 9	1 9 5 0	1 9 5 1	1 9 5 2	1 9 5 3	1 9 5 4	1 9 5 5	1 9 5 6	1 9 5 7	1 9 5 8	1 9 5 9
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	21	22	25	30	34	36	38	41	42	44	45	47	52	57	58	59
3	Brick Building Construction	23	23	28	32	37	39	41	43	44	46	47	49	53	56	55	57
4	Structural Steel Erected	20	20	24	29	37	39	40	42	42	46	47	49	58	65	66	66
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	38	39	40	42	44	46	48	50
6	Reinf. Concrete (Plant-Mix)	25	26	29	34	36	37	39	44	45	44	45	48	51	53	54	55
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	36	38	44	45	48	47	48	49	51	52	52	52	53	53	53	57
10	Lumber for Reinf. Concrete	38	38	41	55	58	55	64	72	77	66	65	70	72	73	73	70
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	36	40	59	68	74	79	81	84	84	84	84	84	88	86	59	69
13	Concrete Block	-	-	-	-	-	53	53	58	58	61	61	61	58	58	58	66
14																	
15	<b>Labor</b>																
16	Building Trades Labor	19	19	21	24	26	28	30	31	33	34	36	37	39	41	42	45
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	17	18	21	23	25	26	27	29	31	32	34	36	38	40	42	44
19	Common Labor	15	16	20	23	26	26	27	29	31	33	34	36	39	41	42	45
20	Electricians	18	19	21	23	26	27	29	31	32	34	35	35	36	38	40	43
21	Pipefitters	-	-	-	-	-	29	29	33	34	35	37	38	40	42	46	46
22	Plumbers	19	21	23	25	28	30	30	33	36	37	38	39	40	42	45	48
23																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1 9 6 0	1 9 6 1	1 9 6 2	1 9 6 3	1 9 6 4	1 9 6 5	1 9 6 6	1 9 6 7	1 9 6 8	1 9 6 9	1 9 7 0	1 9 7 1	1 9 7 2	1 9 7 3	1 9 7 4	1 9 7 5
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	59	58	58	59	60	62	63	65	69	73	77	86	92	100	126	143
3	Brick Building Construction	58	59	60	60	62	63	64	65	69	73	78	87	93	100	122	138
4	Structural Steel Erected	65	61	61	61	62	63	64	65	69	73	77	83	89	100	142	164
5	Reinf. Concrete (Ready-Mix)	51	53	55	56	58	60	61	63	67	72	79	87	94	100	110	123
6	Reinf. Concrete (Plant-Mix)	56	57	58	59	60	63	65	66	71	74	78	87	94	100	114	124
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	58	58	58	58	58	58	58	58	62	76	76	83	93	100	109	126
10	Lumber for Reinf. Concrete	68	62	59	59	60	63	66	65	77	80	66	77	93	100	107	111
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	83	86	86	86	86	62	74	72	75	78	89	92	96	100	129	150
13	Concrete Block	66	66	72	72	72	72	72	74	74	76	82	90	93	100	116	119
14																	
15	<b>Labor</b>																
16	Building Trades Labor	46	49	51	52	54	57	58	62	64	69	78	88	95	100	109	122
17	Heavy Constr. Trades Labor	-	48	51	52	56	58	60	64	68	72	80	89	95	100	109	121
18	Labor for Reinf. Concrete	45	49	51	53	55	58	59	62	66	70	80	90	95	100	109	122
19	Common Labor	46	51	53	55	57	60	62	66	70	74	81	87	94	100	109	123
20	Electricians	45	47	49	51	52	54	55	58	61	66	73	84	92	100	110	121
21	Pipefitters	50	54	52	58	58	58	61	64	68	73	79	90	97	100	112	127
22	Plumbers	50	51	54	55	57	58	60	63	66	72	81	87	95	100	112	127
23																	

COST TRENDS OF BUILDING CONSTRUCTION

PLATEAU REGION (1973=100)

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1 9 7 6	1 9 7 7	1 9 7 8	1 9 7 9	1 9 8 0	1 9 8 1	1 9 8 2	1 9 8 3	1 9 8 4	1 9 8 5	1 9 8 6	1 9 8 7	1 9 8 8	1 9 8 9	1 9 9 0	1 9 9 1
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	144	151	166	184	204	210	202	207	219	223	229	233	240	243	243	233
3	Brick Building Construction	142	150	165	184	211	223	228	235	240	243	249	251	256	258	264	263
4	Structural Steel Erected	156	158	175	199	230	233	206	204	225	238	245	250	266	275	273	244
5	Reinf. Concrete (Ready-Mix)	131	143	155	170	184	195	204	216	220	220	227	226	220	214	221	225
6	Reinf. Concrete (Plant-Mix)	132	145	159	176	184	190	193	205	208	206	214	217	216	211	214	221
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	137	148	162	186	222	245	258	274	278	286	292	273	253	237	245	237
10	Lumber for Reinf. Concrete	126	151	173	190	184	171	133	174	168	152	177	187	187	193	182	198
11	Steel Bars for Reinf. Concrete	145	147	166	206	215	216	203	191	200	206	207	206	228	234	223	200
12	Common Brick	155	159	187	226	333	375	414	419	392	417	426	425	428	442	466	503
13	Concrete Block	124	139	147	182	207	213	223	230	220	265	265	265	243	204	204	206
14																	
15	<b>Labor</b>																
16	Building Trades Labor	131	142	151	161	170	185	206	218	220	214	215	216	215	214	220	225
17	Heavy Constr. Trades Labor	130	142	152	162	173	186	201	211	215	214	216	219	217	213	220	227
18	Labor for Reinf. Concrete	130	142	149	160	172	184	199	208	213	213	217	220	215	210	220	228
19	Common Labor	130	141	151	164	178	186	203	209	212	211	218	226	219	213	228	242
20	Electricians	133	145	155	166	172	191	217	233	233	220	215	214	216	211	218	224
21	Pipefitters	135	144	155	168	177	189	221	237	237	225	227	230	233	241	243	250
22	Plumbers	134	144	155	167	175	189	221	237	237	225	227	229	233	239	239	239
23																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1 9 9 2	1 9 9 3	1 9 9 4	1 9 9 5	1 9 9 6	1 9 9 7	1 9 9 8	1 9 9 9	2 0 0 0	2001		2002		2003		
		Jan.	Jul.	Jan.	Jul.	Jan.	Jul.	Jan.	Jul.	Jan.	Jul.	Jan.	Jul.	Jan.	Jul.	Jan.	Jul.
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	235	249	266	272	284	289	290	294	306	312	314	317	319	317	317	317
3	Brick Building Construction	268	280	295	313	327	332	335	342	351	358	361	364	367	367	367	367
4	Structural Steel Erected	240	257	283	295	308	309	317	333	338	346	350	342	344	343	343	343
5	Reinf. Concrete (Ready-Mix)	234	248	255	254	266	275	281	276	283	289	289	293	304	301	303	303
6	Reinf. Concrete (Plant-Mix)	230	246	257	251	266	278	278	269	277	282	276	277	290	277	280	280
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	244	269	278	285	301	313	344	333	335	340	355	355	370	385	390	390
10	Lumber for Reinf. Concrete	228	283	327	285	341	381	357	285	305	311	266	248	294	222	227	227
11	Steel Bars for Reinf. Concrete	195	211	227	228	228	241	240	224	220	213	225	213	218	215	233	233
12	Common Brick	515	533	556	667	704	709	712	736	736	736	746	746	746	746	746	746
13	Concrete Block	212	234	245	246	252	254	265	286	286	286	318	318	318	318	318	327
14																	
15	<b>Labor</b>																
16	Building Trades Labor	231	236	238	246	254	257	264	275	284	295	297	304	308	315	315	315
17	Heavy Constr. Trades Labor	233	237	239	242	247	249	255	264	271	278	280	287	290	295	295	295
18	Labor for Reinf. Concrete	234	239	239	241	246	249	253	262	268	276	277	286	291	294	294	294
19	Common Labor	249	257	254	245	250	251	253	262	267	278	277	286	290	292	292	292
20	Electricians	237	239	242	258	269	262	277	292	300	319	321	328	330	337	337	337
21	Pipefitters	255	262	275	271	282	291	295	307	319	328	334	341	351	358	358	358
22	Plumbers	244	261	266	272	283	290	295	308	319	327	333	341	351	357	357	357
23																	



COST TRENDS OF BUILDING CONSTRUCTION

PLATEAU 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	345	356	365	370	376	381	388	416	425	433	427	403	420	422	435	435
3	Brick Building Construction	387	394	403	406	411	415	421	438	446	452	450	435	453	455	465	465
4	Structural Steel Erected	388	403	409	418	426	434	444	499	509	521	510	463	469	469	488	490
5	Reinf. Concrete (Ready-Mix)	315	321	333	334	341	343	346	347	357	358	361	355	363	367	372	374
6	Reinf. Concrete (Plant-Mix)	294	303	317	318	320	324	326	330	336	344	336	333	357	363	367	366
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	406	413	430	430	460	464	471	471	473	463	466	437	367	380	380	393
10	Lumber for Reinf. Concrete	262	303	309	309	311	309	280	282	268	264	261	260	258	258	254	252
11	Steel Bars for Reinf. Concrete	267	272	343	355	320	356	377	416	391	480	330	322	349	405	409	399
12	Common Brick	753	753	753	753	753	754	754	754	754	754	754	754	754	754	754	754
13	Concrete Block	331	331	331	345	345	348	348	348	348	348	348	348	349	349	349	348
14																	
15	<b>Labor</b>																
16	Building Trades Labor	323	323	335	335	342	342	350	350	362	362	372	372	402	402	413	413
17	Heavy Constr. Trades Labor	302	302	310	310	316	316	322	322	340	340	348	348	390	390	397	397
18	Labor for Reinf. Concrete	300	300	309	309	312	312	319	319	336	336	348	348	379	379	386	386
19	Common Labor	296	296	303	303	303	303	310	310	330	330	351	351	374	374	378	378
20	Electricians	349	349	364	364	370	370	380	380	381	381	387	387	414	414	418	418
21	Pipefitters	363	363	385	385	394	394	407	407	419	419	448	448	469	469	494	494
22	Plumbers	363	363	385	385	393	393	406	406	419	419	448	448	468	468	494	494
23																	

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	444	446	451	449	455	460	464	457	454	459	474	479	488			
3	Brick Building Construction	473	475	488	486	496	500	536	532	539	543	565	568	595			
4	Structural Steel Erected	497	501	513	508	511	518	519	506	495	503	514	522	529			
5	Reinf. Concrete (Ready-Mix)	385	386	401	404	412	413	422	425	431	425	442	444	458			
6	Reinf. Concrete (Plant-Mix)	375	376	374	374	384	389	392	390	395	400	417	419	431			
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	400	404	483	494	490	490	525	545	557	516	524	531	544			
10	Lumber for Reinf. Concrete	248	248	248	251	251	256	268	273	274	285	296	293	303			
11	Steel Bars for Reinf. Concrete	387	385	360	352	357	367	359	317	284	304	311	343	337			
12	Common Brick	754	754	828	828	866	866	1129	1129	1191	1191	1251	1251	1409			
13	Concrete Block	354	354	354	354	397	415	425	391	382	388	388	379	387			
14																	
15	<b>Labor</b>																
16	Building Trades Labor	423	423	427	427	433	433	445	445	449	449	473	473	481			
17	Heavy Constr. Trades Labor	412	412	415	415	423	423	435	435	438	438	460	460	471			
18	Labor for Reinf. Concrete	403	403	405	405	418	418	420	420	428	428	449	449	465			
19	Common Labor	405	405	405	405	426	426	429	429	440	440	449	449	468			
20	Electricians	430	430	430	430	431	431	461	461	464	464	473	473	479			
21	Pipefitters	499	499	502	502	512	512	518	518	531	531	543	543	557			
22	Plumbers	498	498	502	502	511	511	525	525	530	530	554	554	555			
23																	

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	8	8	8	8	13	19	20	19	21	16	15	17	17	17	16	16
3	Brick Building Construction	9	9	9	9	12	16	17	18	21	18	17	18	18	17	17	17
4	Structural Steel Erected	9	9	9	8	16	29	26	22	22	16	15	19	19	17	17	16
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Reinf. Concrete (Plant-Mix)	8	8	8	9	11	14	16	17	19	16	15	16	17	17	16	16
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Lumber for Reinf. Concrete	6	6	6	7	8	12	17	17	18	13	12	13	17	17	14	13
11	Steel Bars for Reinf. Concrete	15	15	15	17	34	47	37	35	37	24	22	28	29	27	25	24
12	Common Brick	9	9	9	11	14	16	17	22	28	26	25	27	25	24	24	24
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14																	
15	<b>Labor</b>																
16	Building Trades Labor	8	8	8	8	8	8	9	11	13	14	13	12	12	12	13	14
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	6	6	6	6	6	7	8	9	12	13	11	11	11	11	11	12
19	Common Labor	5	5	5	5	5	6	7	9	12	13	11	9	9	9	10	11
20	Electricians	6	6	6	6	6	8	8	9	12	13	11	10	11	10	10	11
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Plumbers	9	9	9	9	9	9	10	13	13	13	13	13	13	13	14	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	1
		9	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	3	4	4	4
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	16	16	15	14	13	13	15	15	15	17	17	16	17	18	21	21
3	Brick Building Construction	17	17	16	15	14	14	15	15	16	17	17	17	17	18	20	20
4	Structural Steel Erected	16	17	15	13	12	12	14	15	15	17	15	15	15	18	20	20
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Reinf. Concrete (Plant-Mix)	16	16	16	15	13	14	16	15	15	17	17	17	17	19	21	21
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	-	-	-	-	-	-	34	36	35	36	36	35	34	34	36	36
10	Lumber for Reinf. Concrete	13	13	13	11	9	11	14	12	12	13	13	14	15	18	22	22
11	Steel Bars for Reinf. Concrete	24	25	22	20	20	21	24	23	25	31	29	28	27	28	28	28
12	Common Brick	21	19	17	16	16	16	18	17	17	17	17	17	17	18	19	20
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14																	
15	<b>Labor</b>																
16	Building Trades Labor	14	14	14	14	14	12	12	12	14	15	16	16	16	17	18	19
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	12	12	12	12	10	10	11	11	12	13	14	14	14	15	16	17
19	Common Labor	11	11	11	11	11	10	10	10	11	12	13	13	13	14	15	16
20	Electricians	11	11	11	11	10	10	11	13	13	14	14	14	14	15	17	18
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Plumbers	14	15	15	15	15	13	12	13	15	16	16	17	17	18	20	20
23																	



# B-6

## COST TRENDS OF BUILDING CONSTRUCTION

### PACIFIC 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
		4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	21	21	25	29	34	35	37	39	40	42	44	46	51	54	56	57
3	Brick Building Construction	21	21	24	28	32	34	35	38	39	40	42	44	47	50	52	54
4	Structural Steel Erected	20	20	24	29	37	39	40	42	43	47	48	50	59	66	66	67
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	38	40	42	44	46	48	50	52
6	Reinf. Concrete (Plant-Mix)	22	22	27	31	34	34	36	38	39	40	42	45	46	47	48	51
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	36	36	40	45	50	51	51	53	53	57	60	62	64	65	66	66
10	Lumber for Reinf. Concrete	23	25	32	41	43	36	42	45	44	41	42	48	48	44	43	48
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	20	21	23	28	31	32	33	36	38	39	38	42	43	45	47	49
13	Concrete Block	-	-	-	-	-	41	45	48	48	52	54	50	59	59	62	63
14																	
15	<b>Labor</b>																
16	Building Trades Labor	19	19	21	25	27	28	29	31	33	34	35	37	39	40	43	45
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	17	18	21	23	26	27	28	30	31	33	35	37	39	40	43	45
19	Common Labor	17	17	20	23	26	27	28	30	31	33	35	37	39	41	44	46
20	Electricians	17	17	19	22	25	26	27	29	31	32	33	34	37	38	41	43
21	Pipefitters	-	-	-	-	-	28	29	32	33	33	36	37	38	40	43	45
22	Plumbers	20	20	22	26	27	30	31	32	34	35	36	38	42	43	45	47
23																	

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
		6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7
		0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	58	57	58	59	60	61	63	66	69	74	76	83	91	100	124	141
3	Brick Building Construction	55	55	56	58	60	62	64	66	69	74	77	84	91	100	118	133
4	Structural Steel Erected	66	62	62	62	63	63	64	66	70	74	77	83	89	100	141	164
5	Reinf. Concrete (Ready-Mix)	54	56	57	59	61	63	65	68	70	75	79	86	93	100	114	128
6	Reinf. Concrete (Plant-Mix)	52	53	54	56	56	59	62	65	69	74	74	82	92	100	113	123
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	67	67	67	73	75	74	73	74	74	77	83	89	90	110	112	130
10	Lumber for Reinf. Concrete	45	43	43	46	45	45	49	50	60	65	52	64	83	100	105	90
11	Steel Bars for Reinf. Concrete	72	72	72	72	74	81	82	81	81	81	84	91	100	157	156	
12	Common Brick	53	55	55	61	65	67	66	66	65	75	76	86	90	100	111	119
13	Concrete Block	75	64	62	84	75	73	67	73	76	79	82	90	90	100	115	120
14																	
15	<b>Labor</b>																
16	Building Trades Labor	48	50	52	54	56	58	61	64	68	73	80	87	94	100	109	124
17	Heavy Constr. Trades Labor	-	49	51	53	55	58	61	65	68	73	79	86	95	100	109	125
18	Labor for Reinf. Concrete	48	51	52	54	55	58	62	65	69	74	79	86	95	100	109	127
19	Common Labor	50	53	54	55	57	60	63	67	70	74	78	88	95	100	110	131
20	Electricians	46	48	50	52	55	57	60	63	66	72	78	86	96	100	108	119
21	Pipefitters	47	51	51	55	56	60	64	67	71	77	82	88	97	100	110	128
22	Plumbers	51	53	55	57	60	58	60	63	66	72	81	87	95	100	112	127
23																	

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	
		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
		7	7	7	7	8	8	8	8	8	8	8	8	8	9		
		6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	143	149	164	182	204	215	214	217	229	238	242	247	258	266	268	260
3	Brick Building Construction	141	150	162	180	205	221	232	235	243	250	254	258	267	275	279	279
4	Structural Steel Erected	156	157	173	198	230	233	208	206	229	243	250	256	273	284	282	256
5	Reinf. Concrete (Ready-Mix)	137	145	158	175	192	209	226	232	236	241	244	247	252	261	265	271
6	Reinf. Concrete (Plant-Mix)	133	141	156	170	184	197	210	214	216	222	224	228	235	242	245	250
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	139	149	169	206	225	232	233	232	228	226	226	227	233	239	240	240
10	Lumber for Reinf. Concrete	100	111	140	157	161	149	140	135	116	119	117	122	129	136	134	133
11	Steel Bars for Reinf. Concrete	145	147	166	206	215	216	203	191	201	210	214	209	233	240	229	205
12	Common Brick	141	159	165	188	234	257	283	272	271	283	286	289	297	305	315	324
13	Concrete Block	143	172	193	215	234	259	272	274	284	301	309	311	335	339	282	269
14																	
15	<b>Labor</b>																
16	Building Trades Labor	136	147	157	168	185	210	236	249	256	258	262	265	269	276	283	293
17	Heavy Constr. Trades Labor	137	145	156	166	184	203	227	239	247	251	255	259	264	272	280	290
18	Labor for Reinf. Concrete	138	146	155	165	183	206	232	243	251	257	261	265	268	277	285	296
19	Common Labor	142	149	159	168	188	212	239	250	259	264	268	279	285	293	298	306
20	Electricians	138	158	170	184	206	231	261	277	278	265	265	267	276	280	287	299
21	Pipefitters	138	148	161	170	187	217	243	260	272	279	285	288	289	291	292	311
22	Plumbers	136	151	164	173	190	221	248	264	277	284	290	293	294	296	298	308
23																	

L i n e	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1	1	1	1	1	1	1	1	1	2	2001		2002		2003	
		9	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	
		2	3	4	5	6	7	8	9	0							
1	<b>Building Construction</b>																
2	Reinf. Conc. Bldg. Construction	264	279	297	304	313	321	326	333	344	348	352	357	357	361	360	
3	Brick Building Construction	285	294	306	315	325	333	340	347	357	362	366	372	375	380	380	
4	Structural Steel Erected	253	271	296	308	320	323	324	332	349	352	360	364	358	358	356	
5	Reinf. Concrete (Ready-Mix)	276	284	296	303	311	323	330	336	341	345	352	355	363	369	372	
6	Reinf. Concrete (Plant-Mix)	259	274	288	289	294	308	316	322	326	330	331	332	337	342	343	
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	241	255	267	277	291	309	319	321	322	325	339	343	359	363	369	
10	Lumber for Reinf. Concrete	161	220	253	229	221	256	270	272	270	271	253	245	245	242	238	
11	Steel Bars for Reinf. Concrete	200	218	241	243	242	256	253	236	231	223	236	223	228	225	244	
12	Common Brick	333	324	320	337	354	362	372	377	384	394	399	400	405	409	409	
13	Concrete Block	277	273	272	277	279	289	297	302	312	317	321	323	339	343	347	
14																	
15	<b>Labor</b>																
16	Building Trades Labor	301	311	319	328	336	343	351	361	369	375	378	394	400	409	409	
17	Heavy Constr. Trades Labor	297	302	311	318	326	336	345	355	365	371	374	385	392	398	398	
18	Labor for Reinf. Concrete	303	304	314	322	332	339	347	356	365	371	377	382	390	398	398	
19	Common Labor	310	312	322	331	340	348	355	366	374	379	386	387	399	406	406	
20	Electricians	308	323	327	339	347	356	368	378	389	392	393	432	437	455	455	
21	Pipefitters	316	332	341	361	365	370	374	382	387	392	393	406	416	422	422	
22	Plumbers	320	338	351	364	371	375	379	388	393	399	400	413	423	429	429	
23																	



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	387	394	408	413	425	430	442	465	478	486	486	466	479	481	498	499
3	Brick Building Construction	397	401	414	417	428	431	443	456	468	473	477	466	481	482	496	496
4	Structural Steel Erected	403	418	423	432	445	453	464	518	530	542	533	487	491	491	515	516
5	Reinf. Concrete (Ready-Mix)	382	383	407	409	419	423	440	443	452	463	466	466	484	490	501	500
6	Reinf. Concrete (Plant-Mix)	354	354	377	380	389	390	403	402	410	418	420	418	435	440	448	448
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	370	370	380	388	389	397	414	419	424	438	439	444	448	451	455	455
10	Lumber for Reinf. Concrete	247	246	258	268	270	257	255	230	229	228	229	226	225	225	218	219
11	Steel Bars for Reinf. Concrete	279	284	358	370	334	371	394	435	411	506	343	334	372	432	434	423
12	Common Brick	409	409	409	412	413	416	423	424	421	422	422	422	422	422	422	422
13	Concrete Block	352	352	358	362	325	366	374	374	375	376	376	376	376	376	376	376
14																	
15	<b>Labor</b>																
16	Building Trades Labor	420	420	440	440	458	458	472	472	497	497	515	515	546	546	565	565
17	Heavy Constr. Trades Labor	407	407	427	427	444	444	460	460	478	478	498	498	525	525	540	540
18	Labor for Reinf. Concrete	408	408	429	429	447	447	465	465	479	479	504	504	525	525	539	539
19	Common Labor	415	415	434	434	449	449	468	468	482	482	507	507	527	527	541	541
20	Electricians	465	465	480	480	493	493	507	507	535	535	547	547	586	586	597	597
21	Pipefitters	436	436	454	454	476	476	485	485	528	528	552	552	593	593	620	620
22	Plumbers	444	444	462	462	484	484	493	493	538	538	562	562	604	604	630	630
23																	

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	505	506	513	510	520	523	531	525	528	533	551	557	569			
3	Brick Building Construction	501	502	507	504	513	515	561	557	567	570	590	593	625			
4	Structural Steel Erected	521	525	533	528	532	539	540	527	520	527	540	548	555			
5	Reinf. Concrete (Ready-Mix)	508	508	518	518	530	531	542	539	548	557	569	577	597			
6	Reinf. Concrete (Plant-Mix)	453	453	456	456	468	470	482	480	489	494	514	520	536			
7																	
8	<b>Building Material</b>																
9	Ready-Mix Concrete	464	464	509	509	506	506	500	506	504	536	519	543	566			
10	Lumber for Reinf. Concrete	211	209	209	209	211	213	224	227	229	248	284	299	299			
11	Steel Bars for Reinf. Concrete	406	404	376	367	372	383	374	331	295	315	321	354	350			
12	Common Brick	417	418	416	407	407	407	602	602	624	624	645	645	753			
13	Concrete Block	424	422	420	414	414	422	424	374	378	378	390	400	393			
14																	
15	<b>Labor</b>																
16	Building Trades Labor	576	576	587	587	602	602	616	616	633	633	636	657	673			
17	Heavy Constr. Trades Labor	551	551	561	561	577	577	594	594	615	615	632	636	657			
18	Labor for Reinf. Concrete	552	552	559	559	578	578	595	595	613	613	643	632	657			
19	Common Labor	560	560	564	564	584	584	602	602	624	624	697	643	669			
20	Electricians	606	606	621	621	636	636	656	656	675	675	750	697	736			
21	Pipefitters	640	640	660	660	685	685	698	698	718	718	757	750	748			
22	Plumbers	651	651	671	671	697	697	710	710	731	731	763	763	759			
23																	



# 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	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															

# 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	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	43	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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															

# 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	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															



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

# 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
		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
1	Boilers	76	78	83	89	94	100	119	143	159	172	186	203	221	245
2	Coal & Ash Handling Equipment	79	84	88	93	95	100	124	150	154	162	175	192	213	225
3	Pumps	78	80	85	89	93	100	127	154	177	183	195	212	235	259
4	Steam Pipe	78	82	86	92	98	100	112	131	143	155	178	206	223	236
5	Cranes	68	72	78	82	88	100	122	139	147	171	186	215	237	267
6	Regulators	84	87	90	92	97	100	128	150	165	170	174	179	189	206
7	Switchboards	92	93	94	96	97	100	131	196	212	222	234	238	261	295
8	Power Transformers	93	95	97	95	93	100	129	157	162	172	182	193	210	223
9	Oil Switches	96	92	93	93	95	100	123	140	143	174	186	195	203	229
10	Motors	89	94	100	104	100	100	110	155	167	186	186	188	195	210
11	Line Transformers	109	106	105	104	100	100	110	133	136	147	158	166	165	194
12	Meters-Electric	92	95	98	101	101	100	107	126	135	140	144	148	144	160
13	Treated Pine Poles	62	66	69	73	77	100	150	205	192	190	206	234	265	289
14	Standard Cross Arms	44	50	65	60	58	100	162	157	146	155	161	223	244	252
15	Standard Galv. Steel Guy Wire	63	64	72	86	97	100	133	153	151	162	178	205	214	244
16	Fibre Conduit	72	78	83	82	85	100	119	130	133	149	173	203	218	235
17	Plastic Conduit	116	105	100	98	100	100	118	133	129	144	161	187	199	190
18	Mercury Luminaires w/Standard	74	78	94	101	102	100	125	173	194	211	234	263	288	314
19	Power Wire & Control Cable	81	86	84	74	86	100	115	95	97	95	101	109	135	142
20	Overhead Conductor-Transmission	75	84	97	107	103	100	121	167	204	220	189	201	232	250
21	Underground Conductor-Transmission	76	82	86	83	89	100	149	142	142	154	148	188	238	259
22	Overhead Conductor-Distribution	75	84	97	107	102	100	121	166	203	220	192	210	246	257
23	Underground Conductor-Distribution	76	86	94	92	100	100	135	130	132	140	148	196	231	222
24	Service Cable	71	77	92	98	99	100	105	124	126	131	149	183	221	217
25	Condensers & Tubes	80	84	89	94	99	100	109	128	142	157	171	189	209	229
26	Turbo-Generators	72	75	81	89	96	100	111	131	144	158	170	188	206	230
27															
28	Gas Compressors	84	88	91	91	90	100	120	150	161	172	188	213	237	265
29	Gas Transmission Line Pipe	75	80	83	89	98	100	122	145	172	187	212	225	253	290
30	Steel Distribution Pipe	73	76	82	89	97	100	127	142	155	170	194	213	225	254
31	Plastic Pipe	123	111	98	96	100	100	112	116	120	125	129	142	152	142
32	Meters-Gas	88	89	94	100	100	100	111	128	131	136	139	143	149	158
33	House Regulators	81	83	92	98	100	100	106	125	132	136	144	171	201	210
34															
35	Cast Iron Pipe	95	95	96	100	100	100	153	178	180	183	195	201	217	235
36	Cast Iron Fittings	77	80	87	99	99	100	144	142	148	152	163	173	194	209
37	Ductile Iron Pipe	96	96	97	100	100	100	153	182	186	189	201	207	215	228
38	Chemical Feeders-Small	81	81	86	90	92	100	126	180	209	230	249	257	287	316
39	Chemical Feeders-Large	80	81	87	92	94	100	125	177	194	195	201	212	232	249
40	Gate Valves	74	74	79	91	96	100	127	160	191	197	220	252	270	289
41	Meter Yokes	79	87	93	95	95	100	132	139	160	227	246	262	296	320
42	Corporation Stops	85	90	96	99	99	100	126	133	133	136	139	154	168	178
43	Curb Stops	86	90	96	99	99	100	126	133	135	140	146	161	177	187
44	Hydrants	71	76	84	94	95	100	143	185	214	229	261	279	293	315
45	Meters-Water	101	107	108	108	106	100	93	93	98	101	105	108	122	127
46															
47															
48															
49															
50	Construction Equipment	80	84	88	93	95	100	117	141	153	164	178	197	222	246
51															
52															
53															
54															
55															
56															



# 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	
		9	9	9	9	9	9	9	9	9	9	9	9	9	
		8	8	8	8	8	8	8	8	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															

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
						2000		2001		2002		2003		2004	
		1 9 9 6	1 9 9 7	1 9 9 8	1 9 9 9	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	Boilers	433	443	452	460	464	466	471	474	478	481	483	490	493	519
2	Coal & Ash Handling Equipment	328	333	344	351	350	354	355	356	360	357	360	362	365	399
3	Pumps	440	476	496	510	520	531	530	530	506	531	531	548	549	555
4	Steam Pipe	215	204	190	183	176	180	177	166	169	166	166	158	158	173
5	Cranes	615	656	689	728	742	749	749	749	749	749	749	749	749	817
6	Regulators	234	232	234	237	241	243	241	240	239	238	255	254	255	258
7	Switchboards	620	656	662	689	720	738	800	805	841	893	939	979	1035	1059
8	Power Transformers	370	371	400	400	400	400	400	400	400	377	377	374	376	513
9	Oil Switches	399	409	415	415	411	408	409	409	405	398	396	391	385	382
10	Motors	475	467	476	497	531	534	534	534	539	540	543	543	543	602
11	Line Transformers	219	206	210	210	208	208	211	217	221	224	223	229	217	240
12	Meters-Electric	172	187	193	181	172	172	186	205	229	242	252	252	295	295
13	Treated Pine Poles	463	473	471	473	464	472	474	493	496	508	508	518	514	541
14	Standard Cross Arms	466	477	443	413	411	416	425	437	448	431	420	423	376	379
15	Standard Galv. Steel-Guy Wire	261	280	314	313	313	319	319	231	213	222	222	228	228	276
16	Fibre Conduit	204	209	199	225	258	240	246	217	222	293	293	238	238	239
17	Plastic Conduit	252	256	251	266	281	273	298	285	295	327	328	302	312	312
18	Mercury Luminaires w/Standard	460	471	469	472	474	478	486	492	499	526	566	573	573	579
19	Power Wire & Control Cable	121	121	119	112	106	109	114	107	105	105	96	99	105	105
20	Overhead Conductor-Transmission	402	405	420	354	335	419	419	428	428	402	402	402	410	463
21	Underground Conductor-Transmission	487	487	487	493	480	482	495	459	459	462	462	462	462	539
22	Overhead Conductor-Distribution	386	387	399	345	331	397	398	405	405	382	384	385	395	443
23	Underground Conductor-Distribution	266	263	265	268	262	270	277	250	250	246	239	240	236	262
24	Service Cable	267	264	264	249	249	263	264	264	266	254	260	264	274	300
25	Condensers & Tubes	305	306	309	290	283	283	287	286	289	292	291	305	314	400
26	Turbo-Generators	348	364	369	371	385	385	391	360	375	378	387	395	401	387
27															
28	Gas Compressors	461	470	478	480	481	484	484	485	494	496	495	496	501	502
29	Gas Transmission Line Pipe	269	272	273	267	270	261	261	258	256	255	256	257	257	400
30	Steel Distribution Pipe	376	388	389	399	430	427	427	422	423	418	423	424	521	576
31	Plastic Pipe	249	251	252	255	256	256	292	292	304	304	305	305	316	316
32	Meters-Gas	192	196	196	191	201	202	202	210	215	197	197	197	180	183
33	House Regulators	303	303	307	306	306	307	301	313	320	318	318	321	311	322
34															
35	Cast Iron Pipe	268	279	281	285	287	292	292	299	299	299	299	299	308	287
36	Cast Iron Fittings	368	379	379	378	378	378	378	378	400	496	510	496	496	519
37	Ductile Iron Pipe	251	268	270	279	283	292	292	292	292	292	292	292	292	269
38	Chemical Feeders-Small	462	476	514	522	523	554	554	561	567	561	561	561	579	603
39	Chemical Feeders-Large	493	506	537	569	569	560	560	576	612	612	612	612	612	600
40	Gate Valves	553	592	611	630	645	646	668	691	691	691	691	691	691	703
41	Meter Yokes	670	673	677	679	684	701	708	708	708	708	726	740	740	769
42	Corporation Stops	329	329	329	329	329	341	341	341	341	341	353	353	353	367
43	Curb Stops	361	361	361	361	361	374	374	374	374	374	387	387	387	403
44	Hydrants	625	795	840	874	899	901	935	970	970	970	970	970	970	981
45	Meters-Water	207	197	197	198	200	206	206	206	207	207	207	207	207	207
46															
47															
48															
49															
50	Construction Equipment	336	351	380	385	387	390	390	391	390	397	398	403	403	412
51															
52															
53															
54															
55															
56															

# M

## UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	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													



# M

## UTILITY PLANT MATERIALS

### ALL REGIONS (1973=100)

Line	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															

# M

## UTILITY PLANT MATERIALS

### 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													
2	Coal & Ash Handling Equipment	596													
3	Pumps	1248													
4	Steam Pipe	407													
5	Cranes	1041													
6	Regulators	420													
7	Switchboards	4461													
8	Power Transformers	868													
9	Oil Switches	503													
10	Motors	910													
11	Line Transformers	982													
12	Meters-Electric	304													
13	Treated Pine Poles	665													
14	Standard Cross Arms	450													
15	Standard Galv. Steel Guy Wire	515													
16	Fibre Conduit	511													
17	Plastic Conduit	514													
18	Mercury Luminaires w/Standard	964													
19	Power Wire & Control Cable	246													
20	Overhead Conductor-Transmission	838													
21	Underground Conductor-Transmission	1252													
22	Overhead Conductor-Distribution	785													
23	Underground Conductor-Distribution	561													
24	Service Cable	496													
25	Condensers & Tubes	516													
26	Turbo-Generators	507													
27															
28	Gas Compressors	747													
29	Gas Transmission Line Pipe	615													
30	Steel Distribution Pipe	1218													
31	Plastic Pipe	410													
32	Meters-Gas	475													
33	House Regulators	533													
34															
35	Cast Iron Pipe	867													
36	Cast Iron Fittings	1481													
37	Ductile Iron Pipe	715													
38	Chemical Feeders-Small	1618													
39	Chemical Feeders-Large	900													
40	Gate Valves	771													
41	Meier Yokes	1706													
42	Corporation Stops	723													
43	Curb Stops	780													
44	Hydrants	1735													
45	Meters-Water	434													
46															
47															
48															
49															
50	Construction Equipment	580													
51															
52															
53															
54															
55															
56															

**BULLETIN No. 188**

1912 to July 1, 2018

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

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

**Preliminaries**

*Compiled and Published by*

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Baltimore, Maryland 21231  
(410) 235-3450

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 188

BUILDING INDEXES 7/1/18

LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
2	611	476	570	470	510	588
3	647	537	625	544	609	636
4	617	558	596	543	568	594
5	609	482	574	448	464	603
6	561	413	523	392	441	542
9	488	624	586	579	550	571
10	309	299	332	292	330	308
11	393	398	395	391	387	402
12	725	1126	890	1033	1409	753
13	443	473	446	573	385	394
16	696	459	610	448	481	673
17	696	484	614	448	471	657
18	690	470	609	426	465	657
19	705	469	616	438	468	669
20	753	459	635	482	479	736
21	755	514	637	509	557	748
22	716	492	612	508	555	759

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 188

MATERIAL INDEXES 7/1/18

LINE	INDEX
1	707
2	608
3	1345
4	462
5	1083
6	430
7	4629
8	879
9	507
10	917
11	1008
12	304
13	668
14	450
15	515
16	511
17	514
18	1008
19	253
20	838
21	1271
22	801
23	572
24	544
25	569
26	537
28	759
29	693
30	1382
31	410
32	477
33	533
35	868
36	1481
37	715
38	1707
39	920
40	789
41	1706
42	723
43	780
44	1759
45	434
50	575

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 188

ELECTRIC INDEXES 7/1/18

LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
1	772	678	728	677	696	758
2	768	678	725	678	0	759
3	766	670	725	676	680	735
6	744	671	707	655	693	730
7	714	594	680	538	662	708
8	631	538	602	592	535	613
9	743	682	716	642	694	731
10	0	0	0	676	0	0
11	719	609	662	599	630	705
12	663	614	633	596	619	642
13	1236	1139	1179	1140	1163	1240
14	790	706	734	688	712	778
17	686	634	650	624	647	735
18	578	533	564	488	520	573
19	652	584	621	586	600	647
22	586	507	566	489	533	558
23	714	594	680	538	662	708
24	570	475	549	466	506	543
25	541	512	528	511	512	536
28	977	922	964	942	927	911
29	702	622	669	622	640	696
30	990	968	977	964	966	975
33	788	663	753	658	658	742
34	856	799	828	784	807	861
35	647	546	613	520	557	626
36	684	547	626	557	555	673
37	724	629	780	642	637	717
38	711	536	639	531	533	691
39	1205	1089	1173	1127	1118	1181
42	799	702	752	710	724	792
43	868	741	765	648	768	795
44	669	513	604	520	521	655
45	936	757	869	791	784	893
46	668	497	605	489	498	653
47	779	675	741	694	690	772
48	974	935	959	942	939	973
49	770	713	750	716	718	764
50	637	472	570	483	482	624
51	496	413	463	417	418	488
52	384	330	360	334	334	378
53	803	714	773	721	716	801
54	740	662	712	669	666	738
55	843	745	811	750	747	841

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 188

GAS INDEXES 7/1/18

LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
1	871	764	823	761	785	865
4	704	614	683	642	658	726
5	658	551	610	558	587	655
14	549	434	507	410	445	524
25	684	602	646	594	600	669
26	619	488	578	465	488	605
27	682	602	644	594	595	667
29	740	677	711	669	688	727
30	838	749	790	751	764	839
42	619	488	578	465	488	605
43	911	871	886	872	879	911
44	933	842	886	844	860	943
45	579	510	547	506	518	567
46	740	677	711	669	688	727
47	815	712	759	715	730	813
48	814	719	763	720	734	813
49	759	633	699	623	629	744
50	665	500	587	488	513	646
51	477	477	477	477	477	477
52	1011	985	979	957	991	1077
53	533	533	533	533	533	533
54	985	866	946	919	951	1051

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 188

WATER INDEXES 7/1/18

LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
2	570	475	549	466	506	543
8	706	587	673	574	653	700
9	1216	1216	1216	1216	1216	1216
15	706	587	673	574	653	700
16	809	714	770	718	729	823
17	930	852	901	861	871	949
23	820	820	820	820	820	820
24	1200	1200	1200	1200	1200	1200
27	814	766	794	777	787	831
28	770	695	734	723	710	768
29	626	561	600	564	573	627
34	797	725	758	702	720	783
35	858	824	849	800	816	856
36	765	614	670	592	623	651
37	717	611	666	604	619	715
38	397	343	375	341	347	384
39	667	509	603	516	519	640
40	434	434	434	434	434	434
41	750	602	690	615	626	732
42	1021	953	978	962	963	1038
46	2258	2230	2248	2270	2252	2314
47	1394	1285	1375	1304	1347	1412
48	802	645	748	683	727	836



**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Cost Approach  
AUS Telephone Plant Indices – General Plant  
General Plant – Northeastern United States**

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## AUS Telephone Plant Index

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Bulletin No. 58

To July 1, 2018

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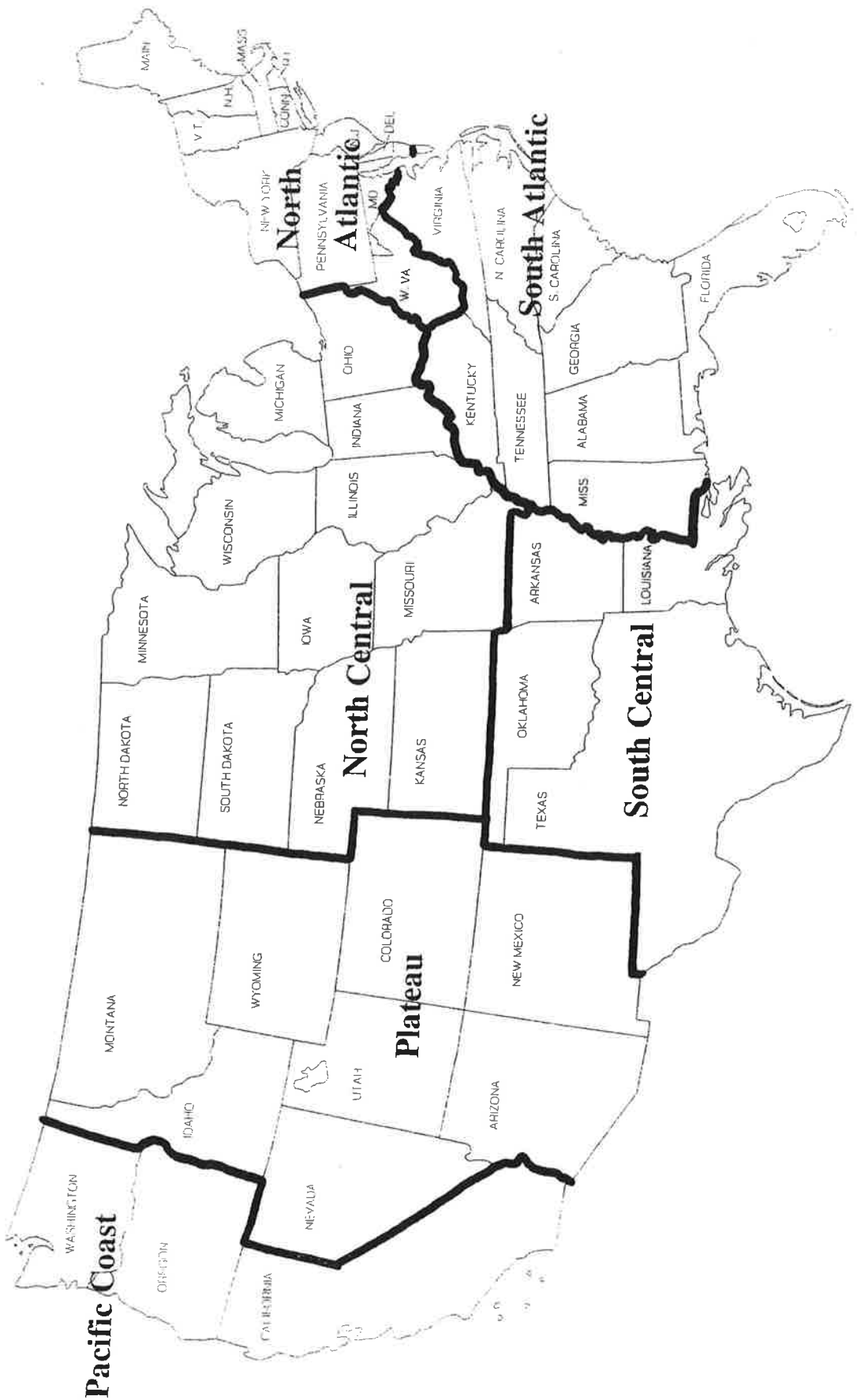
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## Telephone Plant Index

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## 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.

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.

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

AUS TELEPHONE INDEX BULLETIN NO. 58

Cost Approach





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



L I N E  N O	COST INDEX NUMBER																				L I N E  N O				
	1	1	1	1	1	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	9	9	9	9		9			
6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7				
2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3				
		1974		1975		1976		1977		1978		1979													
		J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J				
		a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a				
		n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n				
		y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y				
		l	l	l	l	l	l	l	l	l	l	l	l	l	l	l	l	l	l	l	l				
1	95	94	94	94	95	96	96	97	101	101	102	105	108	113	116	116	117	120	122	123	125	128	131	135	1
2																									2
3																									3
4	87	86	86	85	85	86	88	89	92	97	99	100	102	105	116	116	123	124	131	132	140	143	149	155	4
5	85	85	84	84	84	84	86	88	91	96	99	100	102	109	119	123	128	131	136	140	146	151	157	163	5
6	67	68	70	72	74	77	81	85	89	93	96	100	103	114	130	141	147	151	158	162	171	177	187	195	6
7	71	71	72	73	76	79	82	85	90	94	96	100	114	118	134	139	143	147	153	159	165	172	180	189	7
8	78	79	79	79	81	85	88	93	98	100	100	100	100	111	118	122	119	122	124	130	131	137	141	147	8
9																									9
10																									10
11	53	54	56	57	59	61	64	68	74	84	91	100	107	119	125	128	126	131	132	136	140	148	154	163	11
12	71	71	72	72	73	77	80	83	89	91	93	100	103	114	130	128	129	135	136	144	149	155	160	171	12
13	89	90	90	90	91	92	93	93	96	97	99	100	101	105	109	111	110	112	111	113	114	118	119	123	13
14	89	90	90	90	91	92	93	93	96	97	99	100	100	100	102	103	100	100	98	90	90	90	90	90	14
15																									15
16																									16
17	0	0	0	0	0	0	0	0	0	0	0	104	103	106	110	111	111	113	113	113	115	119	122	125	17
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	105	105	100	95	95	95	96	96	18
19																									19
20																									20
21	71	76	78	75	72	71	75	81	84	88	98	104	106	110	115	120	124	127	132	136	140	145	151	156	21
22																									22
23	73	77	79	76	72	71	76	81	85	89	98	104	106	108	111	114	117	119	121	122	125	128	132	136	23
24																									24
25																									25
26																									26
27	46	49	52	60	58	63	62	66	78	97	102	104	102	102	102	97	98	103	104	106	106	103	103	27	
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
29	273	234	228	214	224	210	173	159	163	128	108	104	105	108	111	112	111	111	115	118	118	119	120	122	29
30	0	0	0	0	0	0	0	0	0	0	0	104	104	104	105	105	110	116	121	126	126	127	123	120	30
31																									31
32	165	165	166	130	122	123	120	118	108	107	108	107	106	107	110	109	109	111	112	114	116	119	123	127	32
33																									33
34																									34
35	62	63	65	66	68	71	76	79	83	88	97	107	119	131	144	157	158	160	164	169	176	183	196	208	35
36	70	70	70	73	77	81	84	88	96	97	100	107	114	125	129	126	130	135	140	144	148	152	158	170	36
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
38	74	73	72	75	80	84	87	91	100	99	100	107	114	127	130	125	129	134	138	143	145	149	155	168	38
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
40	76	74	73	77	81	85	88	91	101	99	100	107	114	128	131	124	128	133	138	142	144	147	153	167	40
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
42	70	70	71	73	77	81	84	88	95	96	101	107	113	123	128	126	131	136	141	145	150	154	160	171	42
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
44	70	70	70	73	77	81	84	88	96	96	100	107	114	125	129	126	130	136	140	145	148	152	158	170	44
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
46	63	65	66	70	73	75	78	84	91	93	100	107	114	125	130	131	134	139	142	146	145	150	158	172	46
47	74	77	78	79	82	84	84	87	89	94	102	107	111	117	127	130	135	139	144	150	159	163	169	180	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



L I N E  N O	PLANT IN SERVICE  DESCRIPTION	F C C  A c c o u n t	COST INDEX NUMBER														L I N E  N O		
			1980		1981		1982		1983		1984		1985		1986			1987	
			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 .....		140	146	146	149	150	152	156	159	156	154	156	158	156	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	



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	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	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	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	213	216	215	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	218	220	223	224	224	227	231	231	236	238	236	239	240	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	73	74	74	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	89	89	88	88	87	88	89	91	92	93	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



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		
			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	0	100	97	95	92	89	88	87	49
50	Underground Cable-FTTP (Dist.)...	24223	0	0	0	0	0	0	0	0	0	100	99	98	98	97	96	96	50
51	Buried Cable-FTTP (Distribution)...	24233	0	0	0	0	0	0	0	0	0	100	102	105	104	103	103	102	51
52	Submarine Cable-FTTP (Dist.)...	24243	0	0	0	0	0	0	0	0	0	100	99	98	98	97	96	96	52
53	Intra Building Cable-FTTP (Dist.)...	24263	0	0	0	0	0	0	0	0	0	100	100	100	100	101	103	103	53
54																		54	



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				
	J a n 1	J u l 1	J a n 1	J u l 1	J a n 1	J u l 1	J a n 1	J u l 1	J a n 1	J u l 1	J a n 1	J u l 1	J a n 1	J u l 1	J a n 1	J u l 1	J a n 1	J u l 1	J a n 1	J u l 1	J a n 1	J u l 1			
1	251	256	245	248	258	260	279	282	282	282	285	283	284	285	289	287	283	282	288	290	298	302		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		4	
5	461	471	495	480	485	490	497	502	514	520	523	528	532	537	541	543	543	547	548	553	557	562		5	
6	476	485	499	504	503	503	507	518	529	541	548	555	557	564	566	570	572	576	577	581	583	578		6	
7	435	445	457	457	456	458	462	474	479	485	489	494	497	503	505	509	510	513	514	519	522	533		7	
8	281	286	290	286	286	288	288	290	291	294	295	296	304	307	309	315	318	322	322	324	327	331		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	633		11	
12	389	402	417	415	418	420	415	429	433	437	433	437	439	450	449	454	454	455	457	461	464	480		12	
13	162	171	184	171	169	169	170	171	173	173	164	165	166	166	171	172	172	172	173	171	171	169		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		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		17	
18	24	24	25	25	25	25	25	25	26	26	26	26	27	27	27	28	28	28	28	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		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		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		27	
28	131	132	134	134	135	137	138	138	137	138	138	138	138	138	139	140	140	140	140	141	141	142		28	
29	140	139	139	139	138	138	137	138	137	137	137	138	138	139	139	140	140	141	141	141	142	143		29	
30	41	41	41	41	40	40	40	41	41	42	42	42	42	43	43	44	44	44	45	45	46	46		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		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		35	
36	494	507	461	473	506	509	573	582	577	576	582	572	573	573	578	570	555	551	566	568	591	601		36	
37	123	124	126	127	128	130	131	133	135	136	137	138	140	142	143	144	146	148	149	151	153	155		37	
38	465	481	421	435	475	476	555	562	554	552	556	544	542	540	544	533	513	506	523	524	549	559		38	
39	100	100	102	103	103	105	106	108	109	110	111	112	113	114	116	116	118	119	120	122	123	125		39	
40	459	475	410	425	467	467	553	560	550	547	552	538	536	533	537	524	501	493	511	511	538	547		40	
41	95	96	97	98	99	100	101	103	104	105	106	107	108	109	111	111	113	114	115	116	118	120		41	
42	468	479	447	458	484	486	535	541	539	540	545	539	541	542	547	544	534	532	546	548	567	575		42	
43	155	157	159	161	163	164	166	168	170	172	173	174	177	179	181	183	185	187	189	191	194	196		43	
44	491	504	459	471	504	507	570	578	573	573	578	569	569	570	575	567	553	549	564	566	588	598		44	
45	124	125	127	128	129	131	132	134	135	137	138	139	141	142	144	145	147	148	150	152	154	156		45	
46	475	488	469	478	496	501	519	528	525	527	531	530	533	538	543	543	540	541	551	556	569	578		46	
47	502	507	525	530	516	521	526	532	545	550	549	552	559	565	571	577	581	586	591	596	611	618		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	51		49	
50	94	92	89	87	83	80	75	70	66	62	58	54	54	54	53	53	54	54	54	53	52	53		50	
51	92	82	78	74	71	68	66	63	61	59	57	54	54	55	54	54	54	53	53	54	54	55		51	
52	94	92	89	87	83	80	75	70	66	62	58	54	54	54	53	53	54	54	54	53	52	53		52	
53	104	105	90	75	68	61	54	47	43	39	39	39	39	39	38	38	39	44	43	43	43		53		
54																								54	



**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

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**Professional Labor Indices**

**AUS Consultants  
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8555 West Forest Home Avenue  
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J. Weinert's Cell: 414-698-8371  
J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**



# Databases, Tables & Calculators by Subject

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## CPI-All Urban Consumers (Current Series)

Series Id: CUUR0000SA0  
 Not Seasonally Adjusted  
 Series Title: All items in U.S. city average, all urban consumers, not seasonally adjusted  
 Area: U.S. city average  
 Item: All items  
 Base Period: 1982-84=100

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Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
1913	9.8	9.8	9.8	9.8	9.7	9.8	9.9	9.9	10.0	10.0	10.1	10.0	9.9		
1914	10.0	9.9	9.9	9.8	9.9	9.9	10.0	10.2	10.2	10.1	10.2	10.1	10.0		
1915	10.1	10.0	9.9	10.0	10.1	10.1	10.1	10.1	10.1	10.2	10.3	10.3	10.1		
1916	10.4	10.4	10.5	10.6	10.7	10.8	10.8	10.9	11.1	11.3	11.5	11.6	10.9		
1917	11.7	12.0	12.0	12.6	12.8	13.0	12.8	13.0	13.3	13.5	13.5	13.7	12.8		
1918	14.0	14.1	14.0	14.2	14.5	14.7	15.1	15.4	15.7	16.0	16.3	16.5	15.1		
1919	16.5	16.2	16.4	16.7	16.9	16.9	17.4	17.7	17.8	18.1	18.5	18.9	17.3		
1920	19.3	19.5	19.7	20.3	20.6	20.9	20.8	20.3	20.0	19.9	19.8	19.4	20.0		
1921	19.0	18.4	18.3	18.1	17.7	17.6	17.7	17.7	17.5	17.5	17.4	17.3	17.9		
1922	16.9	16.9	16.7	16.7	16.7	16.7	16.8	16.6	16.6	16.7	16.8	16.9	16.8		
1923	16.8	16.8	16.8	16.9	16.9	17.0	17.2	17.1	17.2	17.3	17.3	17.3	17.1		
1924	17.3	17.2	17.1	17.0	17.0	17.0	17.1	17.0	17.1	17.2	17.2	17.3	17.1		
1925	17.3	17.2	17.3	17.2	17.3	17.5	17.7	17.7	17.7	17.7	18.0	17.9	17.5		
1926	17.9	17.9	17.8	17.9	17.8	17.7	17.5	17.4	17.5	17.6	17.7	17.7	17.7		
1927	17.5	17.4	17.3	17.3	17.4	17.6	17.3	17.2	17.3	17.4	17.3	17.3	17.4		
1928	17.3	17.1	17.1	17.1	17.2	17.1	17.1	17.1	17.3	17.2	17.2	17.1	17.1		
1929	17.1	17.1	17.0	16.9	17.0	17.1	17.3	17.3	17.3	17.3	17.3	17.2	17.1		
1930	17.1	17.0	16.9	17.0	16.9	16.8	16.6	16.5	16.6	16.5	16.4	16.1	16.7		
1931	15.9	15.7	15.6	15.5	15.3	15.1	15.1	15.1	15.0	14.9	14.7	14.6	15.2		
1932	14.3	14.1	14.0	13.9	13.7	13.6	13.6	13.5	13.4	13.3	13.2	13.1	13.7		
1933	12.9	12.7	12.6	12.6	12.6	12.7	13.1	13.2	13.2	13.2	13.2	13.2	13.0		
1934	13.2	13.3	13.3	13.3	13.3	13.4	13.4	13.4	13.6	13.5	13.5	13.4	13.4		
1935	13.6	13.7	13.7	13.8	13.8	13.7	13.7	13.7	13.7	13.7	13.8	13.8	13.7		
1936	13.8	13.8	13.7	13.7	13.7	13.8	13.9	14.0	14.0	14.0	14.0	14.0	13.9		
1937	14.1	14.1	14.2	14.3	14.4	14.4	14.5	14.5	14.6	14.6	14.5	14.4	14.4		
1938	14.2	14.1	14.1	14.2	14.1	14.1	14.1	14.1	14.1	14.0	14.0	14.0	14.1		
1939	14.0	13.9	13.9	13.8	13.8	13.8	13.8	13.8	14.1	14.0	14.0	14.0	13.9		
1940	13.9	14.0	14.0	14.0	14.0	14.1	14.0	14.0	14.0	14.0	14.0	14.1	14.0		
1941	14.1	14.1	14.2	14.3	14.4	14.7	14.7	14.9	15.1	15.3	15.4	15.5	14.7		
1942	15.7	15.8	16.0	16.1	16.3	16.3	16.4	16.5	16.5	16.7	16.8	16.9	16.3		
1943	16.9	16.9	17.2	17.4	17.5	17.5	17.4	17.3	17.4	17.4	17.4	17.4	17.3		
1944	17.4	17.4	17.4	17.5	17.5	17.6	17.7	17.7	17.7	17.7	17.7	17.8	17.6		
1945	17.8	17.8	17.8	17.8	17.9	18.1	18.1	18.1	18.1	18.1	18.1	18.2	18.0		
1946	18.2	18.1	18.3	18.4	18.5	18.7	19.8	20.2	20.4	20.8	21.3	21.5	19.5		
1947	21.5	21.5	21.9	21.9	21.9	22.0	22.2	22.5	23.0	23.0	23.1	23.4	22.3		
1948	23.7	23.5	23.4	23.8	23.9	24.1	24.4	24.5	24.5	24.4	24.2	24.1	24.1		
1949	24.0	23.8	23.8	23.9	23.8	23.9	23.7	23.8	23.9	23.7	23.8	23.6	23.8		



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
<b>2013</b>	230.280	232.166	232.773	232.531	232.945	233.504	233.596	233.877	234.149	233.546	233.069	233.049	232.957	232.366	233.548
<b>2014</b>	233.916	234.781	236.293	237.072	237.900	238.343	238.250	237.852	238.031	237.433	236.151	234.812	236.736	236.384	237.088
<b>2015</b>	233.707	234.722	236.119	236.599	237.805	238.638	238.654	238.316	237.945	237.838	237.336	236.525	237.017	236.265	237.769
<b>2016</b>	236.916	237.111	238.132	239.261	240.229	241.018	240.628	240.849	241.428	241.729	241.353	241.432	240.007	238.778	241.237
<b>2017</b>	242.839	243.603	243.801	244.524	244.733	244.955	244.786	245.519	246.819	246.663	246.669	246.524	245.120	244.076	246.163
<b>2018</b>	247.867	248.991	249.554	250.546	251.588	251.989	252.006	252.146						250.089	

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# Databases, Tables & Calculators by Subject

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include graphs  include annual averages

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Data extracted on: September 26, 2018 (12:27:36 PM)

## PPI Industry Data

Series Id: PCU3342--3342--  
 Series Title: PPI industry group data for Communications equipment mfg, not seasonally adjusted  
 Industry: Communications equipment mfg  
 Product: Communications equipment mfg  
 Base Date: 198512

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Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1985												100.0	
1986	100.7	100.7	101.1	101.1	101.3	101.3	102.5	102.2	102.8	102.9	102.9	102.9	101.9
1987	103.6	103.4	103.4	103.4	103.4	103.0	103.6	103.6	103.4	103.6	103.7	103.8	103.5
1988	104.3	104.3	103.3	103.5	103.7	103.2	103.8	103.8	103.9	104.1	104.3	104.3	103.9
1989	105.0	105.0	104.9	105.2	105.3	105.5	106.5	106.3	106.3	106.4	106.4	106.5	105.8
1990	107.6	107.2	107.1	107.2	107.2	107.3	107.6	107.5	107.6	107.7	107.8	107.9	107.5
1991	108.0	108.0	108.2	108.4	108.4	108.4	108.7	108.7	108.7	108.7	108.9	108.9	108.5
1992	109.4	109.5	109.7	109.7	109.7	109.8	109.6	109.8	109.8	109.9	109.9	110.1	109.7
1993	111.0	111.3	111.4	111.1	111.1	111.2	111.6	112.0	112.0	112.6	112.3	112.6	111.7
1994	113.3	113.5	113.8	113.7	113.7	113.4	113.4	113.2	113.2	113.0	112.9	112.8	113.3
1995	114.0	114.0	114.1	114.3	114.3	113.8	113.7	113.8	113.8	113.8	113.7	113.6	113.9
1996	114.6	114.7	114.7	114.8	114.7	114.7	114.9	115.1	115.1	115.3	115.6	115.6	115.0
1997	115.7	115.8	115.4	115.5	115.7	115.7	116.0	115.7	115.8	115.8	115.7	115.7	115.7
1998	115.9	115.8	115.5	115.1	114.7	114.7	114.9	114.8	114.8	114.8	114.7	114.1	115.0
1999	114.5	113.8	113.8	113.5	113.4	113.1	113.2	113.2	111.9	112.1	111.9	111.3	113.0
2000	111.4	110.9	110.7	110.4	110.1	110.1	110.2	110.2	110.3	110.2	110.2	110.2	110.4
2001	110.4	110.4	110.4	108.5	108.6	108.5	108.1	107.6	107.8	107.8	107.7	107.7	108.6
2002	107.5	106.6	106.5	105.7	105.6	105.3	104.3	104.5	104.5	103.6	103.5	102.8	105.0
2003	102.7	101.9	102.8	102.7	102.6	102.1	101.0	101.1	101.4	100.5	100.9	100.9	101.7
2004	100.7	98.6	98.6	98.5	98.6	98.2	97.9	98.3	97.9	97.3	97.9	97.8	98.4
2005	97.5	97.3	97.4	97.5	97.4	97.2	97.1	97.0	96.6	96.6	96.5	96.4	97.0
2006	95.7	96.1	95.9	96.0	96.0	96.1	95.8	96.0	96.1	95.8	95.8	95.3	95.9
2007	95.5	95.7	95.9	95.8	95.8	95.8	95.8	95.8	95.8	95.9	95.8	95.8	95.8
2008	96.2	96.9	96.8	96.9	97.2	97.1	97.3	97.3	97.3	97.2	97.4	97.4	97.1
2009	97.5	97.2	97.2	97.2	97.1	97.1	97.2	97.1	97.2	97.2	97.2	97.2	97.2
2010	97.2	97.1	97.1	96.9	96.8	96.7	97.0	96.9	96.8	96.8	96.9	96.9	96.9
2011	96.8	96.7	96.8	96.4	96.4	96.2	96.3	96.4	96.4	95.9	95.9	95.9	96.3
2012	96.0	96.0	96.0	96.0	96.1	96.1	96.0	95.9	95.0	94.8	94.8	94.8	95.6
2013	95.0	95.1	95.1	95.3	95.2	95.5	95.5	95.6	95.8	95.4	95.4	95.5	95.4
2014	95.5	95.7	95.7	95.7	95.6	95.7	95.7	95.4	95.6	95.7	95.5	95.7	95.6
2015	95.8	95.8	95.9	95.9	96.1	96.1	96.0	95.9	95.4	95.7	95.7	95.6	95.8
2016	95.5	95.7	95.6	95.7	95.6	95.4	95.3	95.4	95.2	94.5	94.7	93.9	95.2
2017	94.1	93.9	94.1	94.0	93.8	93.9	93.9	93.6	93.3	93.2	93.5	93.4	93.7
2018	93.3	93.4	93.2	93.1	93.1(P)	93.1(P)	93.2(P)	92.9(P)					

P : Preliminary. All indexes are subject to revision four months after original publication.

S Cost Indexes/BLS Indexes/BLS Indexes

Year	BLS Technical Labor ecu111221				Professional scientific technical CIU2015400000000				Professional & Related Occupations CIU20100001200001				Professional Labor							
	Qtr1	Qtr2	Qtr3	Qtr4	Average	Index 1996=100	Splice Factor	Qtr1	Qtr2	Qtr3	Qtr4	Average	Splice Factor	Qtr1	Qtr2	Qtr3	Qtr4	Average	Index	Year
1985					86.1	86													65	1985
1986	87.1	87.8	88.6	89.3	88.6	88													66	1986
1987	90.3	90.8	92.1	92.9	92.9	92													66	1987
1988	94.3	95.4	96.9	97.5	96	96													69	1988
1989	99	100	101.8	102.9	101	76													72	1989
1990	104.9	105.8	107.5	108.7	107	80													80	1990
1991	110.1	111.1	112.8	113.9	112	84													80	1991
1992	115.3	116.4	118	119	117	88													84	1992
1993	120.4	121.3	122.2	122.9	122	92													88	1993
1994	124.6	125.3	126.3	126.8	126	95													92	1994
1995	127.7	128.4	129.3	129.9	129	97													95	1995
1996	131.6	132.6	133.3	133.7	133	100													97	1996
1997	134.6	135.9	136.7	137.8	136	102													100	1997
1998	138.8	140.1	141.6	142.6	141	106													102	1998
1999	142.9	144.1	145.2	146.7	145	109													97	1999
2000	148.4	150.7	152.2	153.7	151	114													100	2000
2001	156.3	157.5	159.2	160.3	158	119	86.2	86.9	89.9	90.3	89.325							114	2001	
2002	161.5	162.5	163.6	164.4	163	123	90.3	91	91.2	91.2	90.925							119	2002	
2003	166.5	167.7	169.4	170.5	169	127	92.2	92.9	94.1	94.8	93.5							123	2003	
2004	173.4	174.7	176.8	178.1	176	132	96.1	97.1	98.2	98.6	97.55							127	2004	
2005	178.1				178	134	1.353152	99.7	99.6	99.5	100	99.7						132	2005	
2006							1.353152	101.5	102.7	103.6	104.4	103.05						135	2006	
2007							1.353152	106	107.5	108.4	109.1	107.75						139	2007	
2008							1.353152	111.1	111.9	112.8	113.9	112.425						146	2008	
2009							1.353152	114.3	114.1	114.3	114.5	114.3						146	2009	
2010							1.353152	115.2	115.7	116.4	117.2	116.125						152	2010	
2011							1.353152	118.2	119.2	119.2	119.8	119.1						157	2011	
2012							1.353152	120.7	121	121.3	121.9	121.225						161	2012	
2013							1.353152	122.6	123.4	123.7	124	123.425		118.9	119.5	120.2	120.5	119.775	164	2013
2014							1.353152	124	124	124	124	124	0.970427	121	121.9	122.5	122.9	122.075	167	2014
2015							1.353152	124	124	124	124	124	0.970427	121	121.9	122.5	122.9	122.075	170	2015
2016							1.353152	124	124	124	124	124	0.970427	127.8	128.7	129.1	129.6	128.325	173	2016
2017							1.353152	124	124	124	124	124	0.970427	130.8	131.6	131.8	131.6	128.8	176	2017
2018							1.353152	124	124	124	124	124	0.970427	130.8	131.6	131.8	131.6	128.8	183	2018

Technical Labor



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# Databases, Tables & Calculators by Subject

SHARE ON:

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From: 2001 To: 2018



include graphs

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Data extracted on: September 26, 2018 (1:00:53 PM)

## Employment Cost Index (NAICS)

Series Id: CIU20100001200001 (B)  
 Not seasonally adjusted  
 Series Title: Total compensation for Private industry workers in Professional and related, Index  
 Ownership: Private industry workers  
 Component: Total compensation  
 Occupation: Professional and related occupations  
 Industry: All workers  
 Subcategory: All workers  
 Area: United States (National)  
 Periodicity: Index number

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Year	Qtr1	Qtr2	Qtr3	Qtr4
2001	84.1	85.0	86.0	86.5
2002	87.3	87.9	88.5	89.1
2003	90.3	91.0	92.0	92.6
2004	94.1	94.8	95.8	96.5
2005	98.0	98.8	99.5	100.0
2006	101.0	101.8	103.1	103.9
2007	104.9	105.9	106.7	107.3
2008	108.3	109.0	109.9	110.3
2009	111.0	111.1	111.4	111.4
2010	112.2	112.6	113.3	113.5
2011	114.6	115.1	115.4	115.7
2012	116.8	117.3	117.7	118.2
2013	118.9	119.5	120.2	120.5
2014	121.0	121.9	122.5	122.9
2015	123.7	124.1	124.5	124.9
2016	125.7	126.2	126.7	126.7
2017	127.8	128.7	129.1	129.6
2018	130.8	131.6		

B : Includes wages, salaries, and employer costs for employee benefits.

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From:  To:

include graphs  include annual averages

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### PPI Industry Data

**Series Id:** PCU335312335312  
**Series Title:** PPI industry data for Motor and generator mfg, not seasonally adjusted  
**Industry:** Motor and generator mfg  
**Product:** Motor and generator mfg  
**Base Date:** 198306

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Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1947	21.2	21.2	21.3	21.4	23.3	23.6	23.5	23.5	23.5	23.5	23.5	23.5	22.7
1948	23.1	23.0	22.9	22.9	22.6	22.6	23.1	23.2	23.3	23.5	23.5	23.5	23.1
1949	23.6	23.6	23.5	23.5	23.3	23.0	22.9	22.8	22.8	22.8	22.8	22.8	23.1
1950	22.8	22.7	23.1	23.2	23.2	23.3	23.5	25.1	25.2	25.6	25.8	27.4	24.3
1951	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
1952	28.1	28.1	28.1	28.0	28.0	27.8	27.8	27.7	27.7	27.4	27.4	27.5	27.8
1953	27.5	27.6	27.7	27.7	28.2	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.3
1954	28.6	28.6	28.6	28.5	28.5	28.5	28.4	28.3	28.3	28.0	28.0	28.0	28.4
1955	28.0	27.8	27.7	27.7	27.8	27.8	28.0	28.0	28.8	28.8	29.2	29.1	28.2
1956	29.1	29.2	29.2	30.0	30.4	30.4	30.6	30.7	31.3	31.5	32.2	32.3	30.6
1957	32.3	32.3	32.4	32.5	32.5	32.4	32.8	32.8	33.0	32.9	32.9	33.0	32.6
1958	33.0	33.1	33.1	33.4	33.5	33.7	33.7	33.7	33.9	33.8	33.5	33.5	33.5
1959	33.5	33.5	33.5	33.5	33.6	33.4	33.4	33.2	33.2	33.1	33.1	33.1	33.3
1960	33.3	33.6	33.6	33.6	32.6	32.7	32.5	32.5	32.4	32.4	32.4	32.4	32.8
1961	32.4	32.6	32.6	31.3	30.8	30.8	30.6	30.2	30.0	30.0	30.0	30.0	30.9
1962	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.7	29.7	29.7	29.8
1963	29.6	29.5	29.5	29.5	29.5	29.9	30.0	30.0	30.0	30.0	30.0	30.0	29.8
1964	29.8	29.8	29.8	29.9	29.5	28.9	28.9	29.0	28.7	28.8	28.7	28.7	29.2
1965	28.7	28.8	28.8	28.8	28.8	28.7	28.6	28.6	28.6	28.8	28.8	28.8	28.7
1966	28.8	29.1	29.1	29.2	29.2	29.2	29.4	29.4	29.4	29.4	30.2	30.3	29.4
1967	30.7	30.8	30.7	30.7	30.7	30.9	30.9	30.9	30.9	30.9	31.2	31.4	30.9
1968	31.4	31.5	31.5	31.3	31.3	31.4	31.4	31.6	31.8	31.9	32.0	32.3	31.6
1969	32.3	32.4	32.6	32.7	33.0	33.0	33.1	33.4	33.8	34.0	34.5	34.6	33.3
1970	34.7	35.1	35.5	35.7	35.9	36.2	36.4	36.6	36.6	36.7	36.7	36.7	36.1
1971	36.7	37.0	36.9	37.0	37.0	37.0	37.0	37.3	37.3	37.2	37.3	37.3	37.1
1972	37.4	37.4	37.4	37.6	37.9	38.1	38.2	38.2	38.5	38.3	38.5	38.5	38.0
1973	38.6	38.6	38.7	38.8	39.6	39.8	39.8	39.8	39.9	40.0	40.2	40.4	39.5
1974	40.8	41.4	41.5	41.7	42.6	43.5	45.4	45.9	47.3	48.1	50.5	50.6	44.9
1975	51.8	52.1	52.3	52.7	53.3	53.9	54.9	54.9	54.9	55.7	56.0	56.1	54.0
1976	57.9	58.2	58.2	58.5	58.4	58.8	59.3	59.4	60.1	60.5	60.5	60.6	59.2
1977	60.8	61.3	61.4	61.4	61.5	61.6	62.0	62.5	62.9	64.8	64.8	64.9	62.5
1978	65.5	65.6	65.8	66.9	67.3	67.5	67.6	67.7	67.9	68.0	69.1	69.9	67.4
1979	70.2	70.6	70.7	70.8	71.3	71.9	72.8	73.1	73.9	74.8	74.9	75.0	72.5
1980	77.3	78.8	79.8	80.9	80.9	81.8	83.5	84.0	84.5	85.0	85.1	85.6	82.3
1981	88.2	89.0	89.1	89.5	89.7	90.4	91.6	93.3	94.1	94.4	94.4	94.4	91.5
1982	95.0	95.2	95.3	95.5	94.5	94.6	95.0	95.6	96.2	96.5	97.1	98.1	95.7
1983	99.1	99.8	99.8	100.4	100.5	100.0	103.0	103.0	103.1	103.1	103.2	103.2	101.5

P : Preliminary. All indexes are subject to revision four months after original publication.

## Databases, Tables & Calculators by Subject

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 include graphs  include annual averages

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Data extracted on: September 26, 2018 (1:42:30 PM)

### PPI Industry Data

Series Id: PCU3342903342901  
 Series Title: PPI industry data for Other communications equipment mfg-Alarm systems, including electric sirens and horns, not seasonally adjusted  
 Industry: Other communications equipment mfg  
 Product: Alarm systems, including electric sirens and horns  
 Base Date: 198512

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Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>1985</b>													100.0
<b>1986</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.1	100.1	100.1	100.1	100.1	100.1	100.0
<b>1987</b>	100.1	100.1	100.1	99.6	99.6	99.7	100.7	100.5	100.5	100.5	100.0	100.0	100.1
<b>1988</b>	99.8	100.8	101.7	102.1	102.1	102.1	102.1	102.1	102.1	101.4	101.4	101.4	101.6
<b>1989</b>	101.5	101.8	101.8	105.2	105.2	105.2	105.2	105.2	105.2	105.4	104.8	104.8	104.3
<b>1990</b>	104.8	105.4	105.4	105.4	105.2	105.2	105.2	100.6	100.9	100.9	100.9	100.9	103.4
<b>1991</b>	100.9	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	101.6	101.9
<b>1992</b>	102.9	102.1	102.1	102.2	102.4	102.3	102.3	102.3	101.8	101.5	102.0	102.1	102.2
<b>1993</b>	103.1	103.0	103.0	103.6	103.1	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2
<b>1994</b>	103.2	104.0	105.0	103.9	103.9	104.7	104.7	104.5	104.5	104.7	103.7	103.7	104.2
<b>1995</b>	104.6	106.4	106.4	106.6	107.1	106.9	106.9	106.6	106.6	106.6	106.7	107.0	106.5
<b>1996</b>	107.3	107.7	107.7	107.8	107.8	107.9	108.0	108.8	109.4	109.3	109.1	109.2	108.3
<b>1997</b>	109.4	109.4	109.4	109.4	109.2	109.5	109.5	109.4	109.4	109.4	109.4	109.3	109.4
<b>1998</b>	111.3	111.4	111.5	111.0	111.3	111.3	111.6	111.6	111.6	111.6	110.7	110.7	111.3
<b>1999</b>	110.7	110.7	110.7	110.7	108.6	108.6	108.6	108.6	109.0	108.9	109.1	109.1	109.4
<b>2000</b>	109.1	109.1	108.6	108.6	108.5	108.0	108.2	108.2	108.2	108.3	108.3	108.3	108.4
<b>2001</b>	108.1	108.1	108.1	108.2	108.2	108.2	108.2	108.2	110.5	110.5	110.5	111.0	109.0
<b>2002</b>	110.3	110.3	110.5	110.6	110.6	110.3	110.3	110.3	110.3	110.3	110.6	110.6	110.4
<b>2003</b>	110.6	110.8	110.8	110.8	110.8	110.8	110.8	110.8	110.8	110.8	110.8	110.8	110.8
<b>2004</b>	110.8	110.2	110.0	110.0	110.1	110.1	110.1	110.1	110.1	110.1	108.2	108.2	109.8
<b>2005</b>	108.2	108.2	108.2	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.6	111.6	110.6
<b>2006</b>	111.8	111.8	111.8	114.0	113.5	113.5	113.5	113.5	113.5	113.5	113.5	113.5	113.1
<b>2007</b>	113.0	113.0	113.0	113.0	113.3	113.3	113.3	113.3	115.2	115.0	115.0	115.0	113.8
<b>2008</b>	115.8	115.8	115.8	115.8		115.9	116.2	116.3	116.3	116.3	116.3	116.3	
<b>2009</b>	116.3	116.3	116.4	116.4	116.4	116.4	116.4	117.8	117.7	117.7	117.7	117.7	116.8
<b>2010</b>	117.7	117.7	117.7	117.7	117.7	117.7	117.7	117.9	117.9	117.9	117.9	117.9	117.8
<b>2011</b>	117.9	118.0	118.0	118.0	118.0	118.0	118.0	118.4	119.3	119.1	119.1	119.0	118.4
<b>2012</b>	119.4	119.7	119.7	119.9	119.9	119.9	119.9	119.9	119.9	119.9	119.9	119.9	119.9
<b>2013</b>	119.9	119.9	120.6	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	121.5
<b>2014</b>	122.0	122.0	122.0	122.0	122.0	122.0	122.4	122.4	122.4	122.4	122.4	122.4	122.2
<b>2015</b>	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4
<b>2016</b>	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4
<b>2017</b>	122.4	122.4	122.4	122.6	122.6	122.6	122.6	122.6	122.6	122.6	122.6	122.6	122.6
<b>2018</b>	120.7				120.7(P)								

P : Preliminary. All indexes are subject to revision four months after original publication.

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**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Depreciation & Obsolescence**

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## DEPRECIATION AND FUNCTIONAL OBSOLESCENCE

An important step in the appraisal of property using the cost approach is the determination of the depreciation or condition of the property. Depreciation in this appraisal was segregated into normal (mostly physical) depreciation, functional obsolescence, and economic obsolescence (addressed based on the income and market approaches). The normal depreciation was determined based on the age of the property and its normal service life; while, functional obsolescence was based on the impact on the property's remaining life caused by factors such as changing technology, service requirements, and competition.

Depreciation - The depreciation was determined based on the property's age and its normal service life using the following formula:

$$\text{Condition} = \frac{\text{Remaining Life}}{\text{Age} + \text{Remaining Life}}$$

or

$$\text{Depreciation} = \frac{\text{Age}}{\text{Age} + \text{Remaining Life}}$$

Where: Remaining Life =  $f(\text{Age, Survival Characteristic, Normal Service life})$

Functional Obsolescence - The obsolescence inherent in the property was determined using the above described normal service life in comparison to the property's service life is adjusted for functional factors. The obsolescence was quantified based on the difference between the property's normal service life and its functional service life. The following formula was used to calculate the obsolescence:

$$\text{Obsolescence} = \frac{\text{Normal Service Life} - \text{Functional Service Life}}{\text{Normal Service Life}}$$

Service Lives - (normal versus functional) - The service life of property is that period of time in which it provides the service to which it was designed and placed into service. In most industrial properties there is a difference between a property's normal or physical life and its functional life. A piece of equipment may physically last for an extended period; however, as that property ages changing technology, improvements or enhancement in similar equipment, functional and or service requirements change resulting in decreased utility of the existing equipment, and therefore decrease in value to its owner, this additional deterioration over that defined by the equipment's normal life is functional obsolescence.

### Water Industry Service Lives

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. The following



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

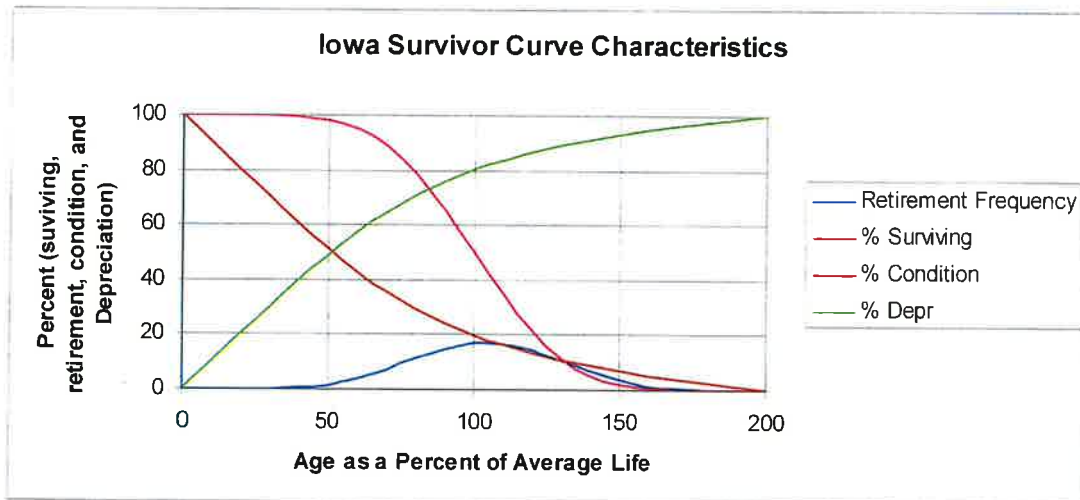
Pennsylvania-American Water Company  
 Swoellon Borough (Water) Authority  
 Water System  
 Investor-Owned Utility  
 July 1, 2018

Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies											
(1)	(2)	(3)			(4)	(5)	(6)				
Account Number	Description	Costing Parameters		Linkup	Reproduction in Replacement Cost Factor	Iowa Survivor / Retirement Curve	Normal Service Life - years	Economic Obsolescence - years	Tax Depreciation		
		Index Series	Table						Line Reference	AUS Input	Table
303.00	Land & Land Rights	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0
303.10	Land & Land Rights	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0
303.20	Land & Land Rights - Distribution	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0
303.30	Land & Land Rights - Pumping	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0
303.40	Land & Land Rights - Treatment	USBSL	PPI	1	USBSL1	1.000	Non-Depr	0	0%	Non-Depr	0
303.50	Land & Land Rights - Right of Way	USBSL	PPI	3	USBSL2	1.000	Non-Depr	0	0%	Non-Depr	0
304.00	Structures & Improvements	HW	W-1	8	HW-18	1.000	R4.0	45	0%	MACRS	25
304.10	Structures & Improvements - Pumping	HW	W-1	8	HW-18	1.000	R4.0	45	0%	MACRS	25
304.20	Structures & Improvements - Treatment	HW	W-1	15	HW-115	1.000	R4.0	55	0%	MACRS	25
304.30	Structures & Improvements - Storage	HW	W-1	15	HW-115	1.000	R4.0	55	0%	MACRS	25
306.00	Water Intake Structure	HW	W-1	2	HW-12	1.000	R3.0	35	0%	MACRS	25
306.10	Water Intake Structure	HW	W-1	2	HW-12	1.000	R3.0	35	0%	MACRS	25
309.00	Piping	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25
309.10	Piping	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25
310.00	Power Generation	USBSL	PPI	4	USBSL4	1.000	R3.0	35	0%	MACRS	25
310.10	Power Generation	USBSL	PPI	4	USBSL4	1.000	R3.0	35	0%	MACRS	25
311.00	Pumping	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25
311.10	Pumping	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25
320.00	Treatment - Chemical Treatment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25
320.10	Treatment - Chemical Treatment	HW	W-1	17	HW-117	1.000	R3.0	35	0%	MACRS	25
330.00	Distribution Reservoirs	HW	W-1	23	HW-123	1.000	R3.0	60	0%	MACRS	25
330.10	Distribution Reservoirs	HW	W-1	23	HW-123	1.000	R3.0	60	0%	MACRS	25
331.00	Mains Distribution	HW	W-1	44	HW-144	1.000	R3.0	60	0%	MACRS	25
331.10	Distribution - Mains	HW	W-1	44	HW-144	1.000	R3.0	60	0%	MACRS	25
331.200	Distribution - Mains - PVC	HW	W-1	38	HW-138	1.000	R3.0	60	0%	MACRS	25
331.300	Distribution - Mains - Cast Iron	HW	W-1	35	HW-135	1.000	R3.0	60	0%	MACRS	25
331.40	Distribution - Mains - Cast Iron	HW	W-1	45	HW-145	1.000	R3.0	65	0%	MACRS	25
334.00	Meters & Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
334.10	Meters & Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
336.00	Backflow Preventer	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
336.10	Backflow Preventer	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
339.00	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
339.10	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
344.00	Laboratory Equipment	HW	W-1	17	HW-139	1.000	R3.0	55	0%	MACRS	25
344.10	Laboratory Equipment	HW	W-1	17	HW-139	1.000	R3.0	55	0%	MACRS	25
347.00	Miscellaneous Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
347.10	Miscellaneous Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
348.00	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
348.10	Other Equipment	HW	W-1	17	HW-117	1.000	R3.0	55	0%	MACRS	25
335.00	Hydrants	HW	W-1	42	HW-142	1.000	R3.0	55	0%	MACRS	25
335.10	Hydrants	HW	W-1	42	HW-142	1.000	R3.0	55	0%	MACRS	25
354.00	Restoration	HW	W-1	35	HW-135	1.000	R3.0	55	0%	MACRS	25
354.10	Restoration	HW	W-1	35	HW-135	1.000	R3.0	55	0%	MACRS	25
364.00	Metering and Meter Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
364.10	Metering	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
364.20	Meter Installations	HW	W-1	40	HW-140	1.000	R3.0	35	0%	MACRS	25
371.00	Pumping Equipment	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25
371.10	Pumping Equipment	HW	W-1	9	HW-19	1.000	R3.0	35	0%	MACRS	25
380.00	Treatment and Disposal Equipment	HW	W-1	17	HW-117	1.000	R3.0	45	0%	MACRS	25
380.10	Treatment and Disposal Equipment	HW	W-1	17	HW-117	1.000	R3.0	45	0%	MACRS	25
390.00	General Plant	AUS	T-1	15	AUST-15	1.000	R3.0	12	0%	MACRS	12
390.10	Office Furniture and Equipment	AUS	T-1	4	AUST-4	1.000	R3.0	10	0%	MACRS	10
391.10	Transportation Equipment	AUS	T-1	7	AUST-7	1.000	R3.0	5	0%	MACRS	5
392.10	Stores Equipment	AUS	T-1	7	AUST-7	1.000	R3.0	5	0%	MACRS	5
393.10	Tools, Shop, & Garage Equipment	AUS	T-1	7	AUST-7	1.000	R3.0	5	0%	MACRS	5
394.10	Laboratory Equipment	AUS	T-1	3	AUST-3	1.000	R3.0	20	0%	MACRS	20
395.10	Power Operated Equipment	AUS	T-1	8	AUST-8	1.000	R3.0	15	0%	MACRS	15
396.10	Communications Equipment	USBSL	PPI	2	USBSL2	1.000	R3.0	12	0%	MACRS	12
397.10	Miscellaneous Equipment	AUS	T-1	8	AUST-8	1.000	R3.0	20	0%	MACRS	20
398.10	Not Used	AUS	T-1	8	AUST-8	1.000	R3.0	20	0%	MACRS	20
399.10	Not Used	AUS	T-1	8	AUST-8	1.000	R3.0	20	0%	MACRS	20

## Iowa Survivor Curves

The Iowa Survivor Curves recommended in this appraisal are used to determine the remaining life of the property, and therefore its condition, recognizing the properties' service life and age. The Iowa Survivor Curves allows the appraiser to recognize the property being studied (mains, treatment and pumping plant equipment etc placed in a particular year, say 1985) is part of a larger group of property, i.e., all the property i.e., mains, treatment and pumping plant equipment, etc. As such, the service lives which we refer to in our appraisal are an average service lives for the group, i.e., the average life of all mains, treatment and pumping plant equipment, etc. The Iowa Survivor curve allows the appraiser to calculate the remaining life, and therefore condition, of a subset

of the group (the mains placed in 1985) based on the groups': (1) Iowa Survivor Curve, (2) Service Life and the (3) age of property at the appraisal date. An Iowa Survivor Curves depicts how property from a group survives and retires about that groups' average life.

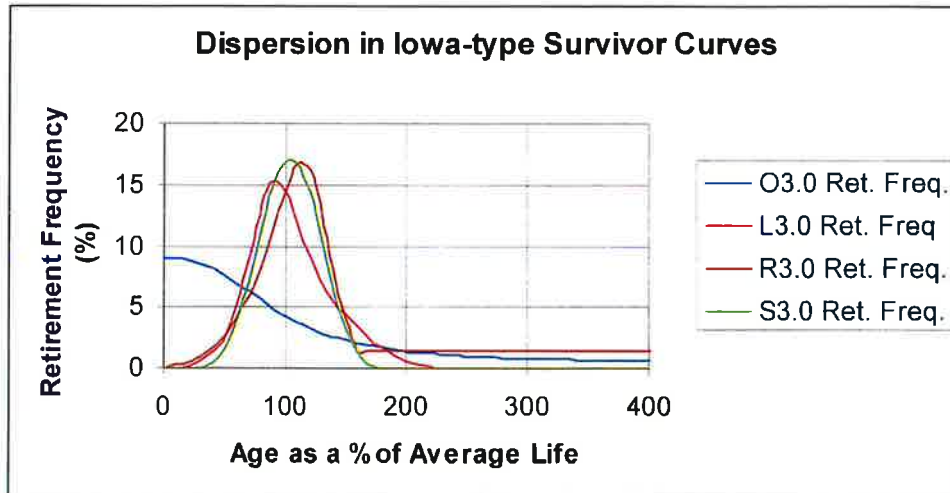


The above figure depicts a typical Iowa-type survivor curve, an S3.0 Iowa-type survivor curve. In this case the survivor curve has been generalized to a service life of 100% of the property's average life, in this generalized form the survivor curve statistics can be utilized with any individual service life in the age-life service life and depreciation calculations. There are four characteristics displayed in the above chart depicting the manner in which property survives and retires about the group's average life, those characteristics are: the retirement frequency (blue), the percent surviving (red), the percent condition (brown) and the percent depreciated (green). The retirement frequency represents the retirement of individual property items about the group's average service life. As can be seen the retirements are distributed about the group's average life with some items retiring before the average life and some items retiring at or after the group's service life. The group's survivor curve is developed from subtracting the retirements as they occur as the property ages. The depreciation curve depicts how much of the property group's life has been consumed; while, the condition curve depicts how much of the property group's life remains. The condition and depreciation curves are complementary in that condition equals 100% minus depreciation and vice versa.

The theory of Iowa Survivor Curves was presented in the 1920s and 30s by Robley Winfrey based on research at Iowa State University (then the Iowa Engineering Experiment Station). Winfrey's research was first published in Bulletin 103 - Life Characteristics of Physical Property and Bulletin 125 - Statistical Analysis of Industrial Property Retirements. (Incidentally, both publications are out of print, I have a copy of Bulletin 125 but not Bulletin 103, I'm still trying to get a copy of that piece of depreciation literature.). Bulletin 125 was updated in 1967 by Professor Harold Cowles of Iowa State University's Department of Industrial Engineering. In conducting his research, Winfrey collected data on industrial property survival and retirement from various sources and

analyzed that data as a function of property's age at retirement and ultimately the property groups' service life when all the property in the group was fully retired.

Winfrey discovered the industrial property's survival and retirement fits three basic patterns with relationship to the property's average life:



Symmetrically moded (S-type lowa Survivor Curves) (green) – The S-type lowa Survivor Curve is one wherein the property's retirements are symmetrically distributed about the mode. Mode in statistics is defined as the highest frequency, in this case retirement frequency. Thus, an S-type lowa curve is like a normal curve; however, its shape is not identical to a normal distribution function.

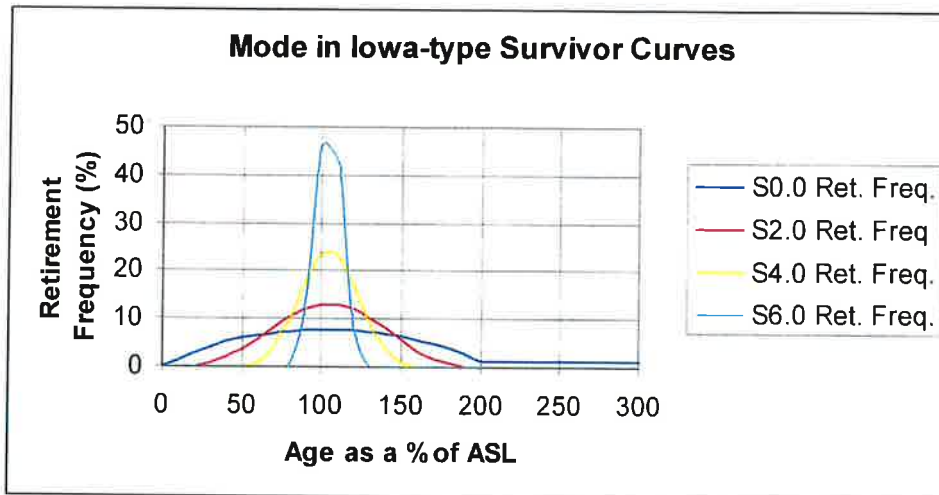
Right moded (R-type lowa Curves) (brown) – the R-type lowa curve has its mode skewed to the right of the property's average life; therefore, the retirements tend to be distributed later in the property's life and there are less retirements earlier in the property's life.

Left moded (L-type lowa Curve) (red) – The L-type lowa curve has its mode skewed to the left of the property's average life; therefore, the retirements tend to be distributed earlier in the property's life and there are less retirements later in the property's life.

In the utility industry, the plant, i.e., mains, treatment and pumping plant equipment tends to have a R-type survival/retirement dispersion as it is designed to provide service over extended periods, requiring little maintenance, and its designers have significant experience in designing and placing such property.

In conjunction with the above described R-, S-, and L-type survival/retirement patterns, Winfrey determines that there were several patterns of the manner in which the retirements' peakedness occur around the average life. In this case, Winfrey described the peakedness of the property retirements with peakedness enumerations of 0, 1, 2, 3, 4, 5, and 6. The low peakedness numbers 0 and 1 represent low levels of retirements being distributed over the property entire life, while high peakedness numbers, 5 and 6 represent retirement patterns where the majority or all the retirement occur tightly

grouped around the property's average life. Peakedness numbers 2, 3, and 4 are middle of the road, so to speak, in terms of peakedness.



Origin moded (O-type) survivor curve (blue) – Harold Cowles in his 1967 update of Bulletin 125 introduced the O-type survivor curve with the mode of the curve at the origin or at age equal to zero (0) years. This class of lowa curves was over looked by Winfrey possibly because it made little intuitive sense that industrial retirement of property would have their maximum retirement frequency at age equal to zero. However, Cowles felt for completeness they should be included. O-type survivor curves do reflect the survival pattern of intangible assets.

lowa-type survivor curves are parametric, as opposed to formalistic, in that they were derived from empirical survival/retirement data which Winfrey collected. There are lowa curve equations are presented in Bulletin 125; however, in most cases users reference standardized lowa Survivor Curve tables. The lowa-type survivor curves used in this appraisal have been generalized to a service life of 100% of the property's average life. By generalizing the service life to 100% of average life these tables can be used to generate survival and retirement statistics for property of any service life.

It should be apparent that lowa-types survivor curves are valid for any type property as the curves only depict how that property survives and retires about the average life of a group of similar property.

#### Generalized lowa-type Survivor Curves

As was discussed earlier, most users of the lowa-type survivor curves use standardized tables of lowa curves. The most usable form of these standardized tables are tables which have been generalized to a standard life of 100% of the property's average life. Based on these generalized tables the user can determine the property's remaining life by knowing the lowa-type survivor curve (mode and peakedness characteristics), the property's (group's) service life, and the specific property's (for which the remaining life

is desired) age. The following table reflects how the remaining life, as well as its condition, is determined:

Year	Study Date	Age	Iowa Curve	Service Life	Age % of ASL	Iowa Lookup	Iowa Condition	Remaining Life	Total Life	Condition
		years		ASL	%			years	years	%
Input		Calc	Input	Input	Calc	Calc	lookup	Calc	Calc	Calc
1970	2006	35.5	R3.0	25	142	R3.0142	0.066388	1.7	37.2	4.47%
1980	2006	25.5	R3.0	25	102	R3.0102	0.192543	4.8	30.3	15.88%
1990	2006	15.5	R3.0	25	62	R3.0062	0.442050	11.1	26.6	41.62%
2000	2006	5.5	R3.0	25	22	R3.0022	0.787294	19.7	25.2	78.16%
2004	2006	1.5	R3.0	25	6	R3.0006	0.941117	23.5	25.0	94.01%
2005	2006	0.5	R3.0	25	2	R3.0002	0.980320	24.5	25.0	98.00%

The above table was developed with reference to the standardized Iowa Survivor curves contained and represent a R3.0 25-year Iowa curve and life table. The standardized Iowa Curves are located in tab database. In order to reference the proper line of the Iowa Curve data the user looks up that data by reference to the property's age as percent of the service life (age % of ASL column) and the Iowa Survivor curve (Iowa Curve column), combining these two criteria the Iowa Lookup column will get the user to the proper Iowa Curve data.

In the above calculation the Iowa-type survivor curve is R3, the service life of the group is 25 years, and its age is defined by property's accounting records which specifies the investment in property by account (A group in service life terms) and by the year of installation of that property. The age is dependent upon the appraisal year (study date) and the year of placement. It is customary to assume that the property placed in any particular placement year was placed continuously during that year and therefore its age is best represented as if that investment was placed in the middle of the year, i.e., July 1; hence, the adoption of the "mid-year" convention where all property is treated as if placed the mid-year.

#### Service Life and Survival / Retirement Pattern

The service life and survival/retirement pattern are determined by an analysis of historical survival and retirement experience of the company's property. This historical experience must be adjusted for factor which are known to be impacting the property's service life but may not exhibited their effect on the property's retirement. Here it is important that a distinction is made between industrial property's physical service life and its functional service life. While physically a type of property may be deployed and remain in use for many years, over those years, factors of changing technology, consumers demand and patterns, and even regulation, lessen the property functional life when compared to its physical life. In an industry such as the communications industry, function obsolescence is the primary driver of depreciation.

The following table details the impact of the above described lives on the condition calculations:

Year	Study Date	Age	Iowa Curve	Service Life	Age % of ASL	Iowa Lookup	Iowa Condition	Remaining Life	Total Life	Condition
		years		years	%			years	years	%
Input		Calc	Input	Input	Calc	Calc	lookup	Calc	Calc	Calc
1970	2006	35.5	R3.0	30	118	R3.0118	0.131771	4.0	39.5	10.02%
1979	2006	26.5	R3.0	30	88	R3.0088	0.264919	7.9	34.4	23.07%
1981	2006	24.5	R3.0	25	98	R3.0098	0.211333	5.3	29.8	17.74%
1989	2006	16.5	R3.0	25	66	R3.0066	0.411848	10.3	26.8	38.42%
1990	2006	15.5	R3.0	20	78	R3.0078	0.327281	6.5	22.0	29.69%
2000	2006	5.5	R3.0	20	28	R3.0028	0.731331	14.6	20.1	72.67%
2004	2006	1.5	R3.0	20	8	R3.0008	0.921605	18.4	19.9	92.47%
2005	2006	0.5	R3.0	20	3	R3.0003	0.970499	19.4	19.9	97.49%

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
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Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Cost Approach**

**Depreciation Parameters  
R3.0 & R4.0 Iowa-type Survivor Curves**

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1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R3.0000	R3.0	0	0.015479	100	100	0
R3.0001	R3.0	1	0.01684	99.98452	99.015404	0.984596193
R3.0002	R3.0	2	0.018295	99.967682	98.031998	1.968000412
R3.0003	R3.0	3	0.019851	99.949387	97.04985	2.950147629
R3.0004	R3.0	4	0.021511	99.929535	96.069031	3.930968285
R3.0005	R3.0	5	0.023281	99.90802	95.089607	4.910391808
R3.0006	R3.0	6	0.025166	99.884743	94.111656	5.888344765
R3.0007	R3.0	7	0.02717	99.859581	93.135246	6.864753723
R3.0008	R3.0	8	0.0293	99.832405	92.160454	7.839542389
R3.0009	R3.0	9	0.03156	99.803108	91.18737	8.812632561
R3.0010	R3.0	10	0.033958	99.771545	90.216057	9.783946037
R3.0011	R3.0	11	0.036495	99.737587	89.246597	10.7534008
R3.0012	R3.0	12	0.03918	99.701096	88.279083	11.72091484
R3.0013	R3.0	13	0.042019	99.661911	87.313591	12.68640614
R3.0014	R3.0	14	0.045014	99.619896	86.350212	13.64978981
R3.0015	R3.0	15	0.048176	99.574883	85.389023	14.61097908
R3.0016	R3.0	16	0.051506	99.526703	84.430107	15.56988907
R3.0017	R3.0	17	0.055012	99.475197	83.473572	16.52643204
R3.0018	R3.0	18	0.0587	99.420189	82.519478	17.48052025
R3.0019	R3.0	19	0.062574	99.361488	81.567932	18.43206596
R3.0020	R3.0	20	0.066643	99.298912	80.619019	19.38097954
R3.0021	R3.0	21	0.07091	99.232269	79.672829	20.32717323
R3.0022	R3.0	22	0.075379	99.161362	78.729446	21.2705574
R3.0023	R3.0	23	0.080064	99.085983	77.788956	22.21104431
R3.0024	R3.0	24	0.08496	99.00592	76.851456	23.14854431
R3.0025	R3.0	25	0.090077	98.920959	75.91703	24.08296585
R3.0026	R3.0	26	0.095426	98.830879	74.985771	25.01422882
R3.0027	R3.0	27	0.101003	98.735451	74.057762	25.94223976
R3.0028	R3.0	28	0.106819	98.634453	73.133087	26.86691475
R3.0029	R3.0	29	0.112879	98.527634	72.21183	27.78816986
R3.0030	R3.0	30	0.119187	98.414757	71.294083	28.70591927
R3.0031	R3.0	31	0.125748	98.295563	70.379921	29.62007904
R3.0032	R3.0	32	0.132568	98.169815	69.469429	30.53056717
R3.0033	R3.0	33	0.139652	98.037247	68.562691	31.43730545
R3.0034	R3.0	34	0.147004	97.897598	67.659782	32.34021378
R3.0035	R3.0	35	0.154631	97.750595	66.760788	33.23921204
R3.0036	R3.0	36	0.162534	97.595963	65.865768	34.13423157

Iowa Curves



1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R3.0037	R3.0	37	0.170721	97.433426	64.974808	35.02519226
R3.0038	R3.0	38	0.179194	97.262711	64.087982	35.91202164
R3.0039	R3.0	39	0.187962	97.083511	63.205349	36.79465103
R3.0040	R3.0	40	0.197024	96.895554	62.326984	37.67301559
R3.0041	R3.0	41	0.206389	96.698524	61.452961	38.54703903
R3.0042	R3.0	42	0.216061	96.492134	60.583336	39.41666412
R3.0043	R3.0	43	0.226044	96.276077	59.71817	40.28182983
R3.0044	R3.0	44	0.23634	96.050034	58.857533	41.1424675
R3.0045	R3.0	45	0.246962	95.81369	58.001484	41.99851608
R3.0046	R3.0	46	0.257909	95.566734	57.150078	42.84992218
R3.0047	R3.0	47	0.269187	95.308823	56.303375	43.69662476
R3.0048	R3.0	48	0.280803	95.039635	55.46143	44.5385704
R3.0049	R3.0	49	0.292764	94.758835	54.624298	45.3757019
R3.0050	R3.0	50	0.305077	94.466072	53.792038	46.20796204
R3.0051	R3.0	51	0.317745	94.160995	52.964703	47.03529739
R3.0052	R3.0	52	0.330783	93.843246	52.142345	47.85765457
R3.0053	R3.0	53	0.34419	93.512466	51.325016	48.67498398
R3.0054	R3.0	54	0.35798	93.168274	50.512779	49.48722076
R3.0055	R3.0	55	0.372163	92.810295	49.705685	50.29431534
R3.0056	R3.0	56	0.386746	92.438133	48.90379	51.09621048
R3.0057	R3.0	57	0.40174	92.051384	48.107155	51.89284515
R3.0058	R3.0	58	0.417155	91.649643	47.315838	52.68416214
R3.0059	R3.0	59	0.433006	91.232491	46.5299	53.4701004
R3.0060	R3.0	60	0.449305	90.799484	45.749409	54.25059128
R3.0061	R3.0	61	0.46606	90.350182	44.97443	55.02556992
R3.0062	R3.0	62	0.483288	89.884117	44.205036	55.79496384
R3.0063	R3.0	63	0.501001	89.400833	43.441299	56.55870056
R3.0064	R3.0	64	0.519216	88.899834	42.683296	57.3167038
R3.0065	R3.0	65	0.537946	88.380615	41.931114	58.0688858
R3.0066	R3.0	66	0.557201	87.842667	41.184837	58.81516266
R3.0067	R3.0	67	0.577002	87.285469	40.444557	59.55544281
R3.0068	R3.0	68	0.597356	86.708466	39.710369	60.28963089
R3.0069	R3.0	69	0.61828	86.111107	38.982372	61.01762772
R3.0070	R3.0	70	0.639786	85.492828	38.260674	61.73932648
R3.0071	R3.0	71	0.66188	84.853043	37.545387	62.45461273
R3.0072	R3.0	72	0.684575	84.191162	36.836624	63.16337585
R3.0073	R3.0	73	0.707868	83.506592	36.134506	63.86549377

Iowa Curves

	1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve	Percent
R3.0074	R3.0	74	0.731787	82.798721	35.439156	64.56084442	
R3.0075	R3.0	75	0.756307	82.066933	34.750706	65.24929047	
R3.0076	R3.0	76	0.781439	81.310631	34.069286	65.93070984	
R3.0077	R3.0	77	0.807169	80.52919	33.395039	66.60496521	
R3.0078	R3.0	78	0.833493	79.722023	32.728092	67.27190399	
R3.0079	R3.0	79	0.860388	78.888527	32.068596	67.93140411	
R3.0080	R3.0	80	0.887836	78.028137	31.416693	68.58330536	
R3.0081	R3.0	81	0.915805	77.140305	30.772522	69.22747803	
R3.0082	R3.0	82	0.944262	76.224495	30.136234	69.8637619	
R3.0083	R3.0	83	0.973166	75.280235	29.507971	70.49202728	
R3.0084	R3.0	84	1.00246	74.307068	28.887875	71.11212158	
R3.0085	R3.0	85	1.032092	73.304611	28.276087	71.7239151	
R3.0086	R3.0	86	1.061992	72.272522	27.672745	72.32725525	
R3.0087	R3.0	87	1.092078	71.210526	27.077982	72.92201996	
R3.0088	R3.0	88	1.122272	70.118446	26.49193	73.5080719	
R3.0089	R3.0	89	1.152474	68.996178	25.914705	74.08529663	
R3.0090	R3.0	90	1.182581	67.843704	25.346432	74.65357208	
R3.0091	R3.0	91	1.212479	66.661125	24.78721	75.21279144	
R3.0092	R3.0	92	1.242044	65.448639	24.237146	75.76285553	
R3.0093	R3.0	93	1.271142	64.206596	23.696331	76.30367279	
R3.0094	R3.0	94	1.299636	62.935455	23.164841	76.8351593	
R3.0095	R3.0	95	1.327378	61.635818	22.642744	77.35725403	
R3.0096	R3.0	96	1.354211	60.308441	22.130102	77.86989594	
R3.0097	R3.0	97	1.379982	58.954231	21.626959	78.37303925	
R3.0098	R3.0	98	1.404515	57.574249	21.133345	78.86665344	
R3.0099	R3.0	99	1.427653	56.169735	20.649277	79.35072327	
R3.0100	R3.0	100	1.449223	54.742081	20.174763	79.82523346	
R3.0101	R3.0	101	1.46906	53.292858	19.709789	80.29020691	
R3.0102	R3.0	102	1.486988	51.823799	19.254333	80.7456665	
R3.0103	R3.0	103	1.502857	50.336811	18.808352	81.19165039	
R3.0104	R3.0	104	1.516493	48.833954	18.371788	81.62821198	
R3.0105	R3.0	105	1.527763	47.317459	17.944567	82.05543518	
R3.0106	R3.0	106	1.536522	45.789696	17.526602	82.4733963	
R3.0107	R3.0	107	1.542639	44.253174	17.117785	82.88221741	
R3.0108	R3.0	108	1.546003	42.710537	16.717993	83.28200531	
R3.0109	R3.0	109	1.546521	41.164532	16.327087	83.6729126	
R3.0110	R3.0	110	1.544108	39.618011	15.94491	84.05509186	

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R3.0111	R3.0	111	1.53871	38.073902	15.571287	84.42871094
R3.0112	R3.0	112	1.530281	36.535194	15.206026	84.79397583
R3.0113	R3.0	113	1.518814	35.004913	14.848918	85.1510849
R3.0114	R3.0	114	1.504311	33.486099	14.499736	85.50026703
R3.0115	R3.0	115	1.48681	31.981789	14.158234	85.84176636
R3.0116	R3.0	116	1.466368	30.494978	13.824153	86.17584991
R3.0117	R3.0	117	1.443057	29.02861	13.497217	86.50278473
R3.0118	R3.0	118	1.416993	27.585552	13.177128	86.82286835
R3.0119	R3.0	119	1.388291	26.16856	12.863578	87.1364212
R3.0120	R3.0	120	1.357119	24.78027	12.556236	87.44376373
R3.0121	R3.0	121	1.32364	23.423151	12.254765	87.74523163
R3.0122	R3.0	122	1.288039	22.09951	11.958811	88.0411911
R3.0123	R3.0	123	1.250527	20.811472	11.668006	88.3319931
R3.0124	R3.0	124	1.211323	19.560944	11.381974	88.61802673
R3.0125	R3.0	125	1.170654	18.349621	11.100332	88.89966583
R3.0126	R3.0	126	1.12876	17.178967	10.822688	89.17731476
R3.0127	R3.0	127	1.085877	16.050207	10.548649	89.45134735
R3.0128	R3.0	128	1.042247	14.96433	10.277822	89.7221756
R3.0129	R3.0	129	0.998112	13.922083	10.009819	89.99018097
R3.0130	R3.0	130	0.953699	12.923971	9.744257	90.25574493
R3.0131	R3.0	131	0.909233	11.970272	9.4807682	90.5192337
R3.0132	R3.0	132	0.86492	11.061039	9.2189999	90.78099823
R3.0133	R3.0	133	0.820961	10.196119	8.9586191	91.04138184
R3.0134	R3.0	134	0.777531	9.3751583	8.6993198	91.30068207
R3.0135	R3.0	135	0.734788	8.5976267	8.4408312	91.55916595
R3.0136	R3.0	136	0.69287	7.8628387	8.1829081	91.8170929
R3.0137	R3.0	137	0.651897	7.1699691	7.9253459	92.07465363
R3.0138	R3.0	138	0.611965	6.5180721	7.6679811	92.33201599
R3.0139	R3.0	139	0.57315	5.9061069	7.410696	92.58930206
R3.0140	R3.0	140	0.535511	5.3329573	7.1534119	92.84658813
R3.0141	R3.0	141	0.499088	4.7974458	6.8960929	93.10390472
R3.0142	R3.0	142	0.463903	4.298358	6.638751	93.36125183
R3.0143	R3.0	143	0.429969	3.834455	6.381434	93.61856842
R3.0144	R3.0	144	0.397285	3.4044859	6.124229	93.87577057
R3.0145	R3.0	145	0.365845	3.007201	5.8672543	94.13274384
R3.0146	R3.0	146	0.335636	2.641356	5.6106529	94.38934326
R3.0147	R3.0	147	0.306641	2.3057201	5.3545909	94.64540863

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R3.0148	R3.0	148	0.278862	1.999079	5.099246	94.90075684
R3.0149	R3.0	149	0.252277	1.720217	4.8448219	95.15517426
R3.0150	R3.0	150	0.226885	1.46794	4.591516	95.40848541
R3.0151	R3.0	151	0.202693	1.241055	4.3395143	95.66048431
R3.0152	R3.0	152	0.17971	1.038362	4.0890002	95.91100311
R3.0153	R3.0	153	0.15796	0.858652	3.840153	96.15984344
R3.0154	R3.0	154	0.137469	0.700692	3.5931401	96.40686035
R3.0155	R3.0	155	0.118275	0.563223	3.3480971	96.65190125
R3.0156	R3.0	156	0.100417	0.444948	3.1051631	96.89483643
R3.0157	R3.0	157	0.083942	0.344531	2.86448	97.13552094
R3.0158	R3.0	158	0.068893	0.260589	2.6261499	97.37384796
R3.0159	R3.0	159	0.055316	0.191696	2.3902581	97.60974121
R3.0160	R3.0	160	0.043249	0.13638	2.1569581	97.84304047
R3.0161	R3.0	161	0.032716	0.0931315	1.926362	98.07363892
R3.0162	R3.0	162	0.023736	0.0604152	1.698779	98.30122375
R3.0163	R3.0	163	0.016303	0.0366793	1.47451	98.52548981
R3.0164	R3.0	164	0.010391	0.020376	1.254269	98.74572754
R3.0165	R3.0	165	0.005943	0.0099847	1.039243	98.96075439
R3.0166	R3.0	166	0.002865	0.0040413	0.83229	99.16770935
R3.0167	R3.0	167	0.00101	0.0011767	0.641307	99.35869598
R3.0168	R3.0	168	0.000166	0.0001662	0.499982	99.50001526
R3.0169	R3.0	169	0	0	0	100
R4.0000	R4.0	0	0.000828	100	100	0
R4.0001	R4.0	1	0.000963	99.999168	99.00132	0.998683929
R4.0002	R4.0	2	0.001114	99.998207	98.002266	1.997736931
R4.0003	R4.0	3	0.001289	99.997093	97.003319	2.99668026
R4.0004	R4.0	4	0.001486	99.995804	96.004593	3.995406151
R4.0005	R4.0	5	0.001711	99.994316	95.006012	4.993987083
R4.0006	R4.0	6	0.001964	99.992607	94.007629	5.992369652
R4.0007	R4.0	7	0.002254	99.990646	93.009468	6.990531921
R4.0008	R4.0	8	0.002577	99.988388	92.011551	7.988448143
R4.0009	R4.0	9	0.002943	99.985817	91.013908	8.986088753
R4.0010	R4.0	10	0.003354	99.982872	90.016579	9.98342514
R4.0011	R4.0	11	0.003816	99.979515	89.019577	10.98042107
R4.0012	R4.0	12	0.004333	99.9757	88.022957	11.97704315
R4.0013	R4.0	13	0.00491	99.971367	87.026749	12.97325039
R4.0014	R4.0	14	0.005556	99.966461	86.030998	13.96899986

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R4.0015	R4.0	15	0.006274	99.960907	85.035751	14.96424675
R4.0016	R4.0	16	0.007075	99.954628	84.041061	15.95893955
R4.0017	R4.0	17	0.007961	99.947556	83.046974	16.95302773
R4.0018	R4.0	18	0.008948	99.93959	82.053551	17.94644928
R4.0019	R4.0	19	0.010038	99.930641	81.060852	18.93914795
R4.0020	R4.0	20	0.011243	99.920609	80.068947	19.93105507
R4.0021	R4.0	21	0.012573	99.909363	79.077896	20.92210007
R4.0022	R4.0	22	0.014037	99.89679	78.087791	21.91221046
R4.0023	R4.0	23	0.015652	99.882751	77.098694	22.90130615
R4.0024	R4.0	24	0.017422	99.867104	76.110695	23.88930321
R4.0025	R4.0	25	0.019363	99.849678	75.123886	24.87611008
R4.0026	R4.0	26	0.021491	99.830315	74.138367	25.86163521
R4.0027	R4.0	27	0.023816	99.808823	73.154221	26.84577942
R4.0028	R4.0	28	0.026358	99.785011	72.171562	27.82843781
R4.0029	R4.0	29	0.029126	99.758652	71.190498	28.80950165
R4.0030	R4.0	30	0.032143	99.729523	70.211143	29.7888546
R4.0031	R4.0	31	0.035422	99.69738	69.23362	30.76638222
R4.0032	R4.0	32	0.038982	99.661957	68.258049	31.74195099
R4.0033	R4.0	33	0.042844	99.622978	67.284561	32.71543884
R4.0034	R4.0	34	0.047025	99.580132	66.313293	33.68670273
R4.0035	R4.0	35	0.051542	99.533112	65.344391	34.65561295
R4.0036	R4.0	36	0.056425	99.481567	64.377983	35.62201309
R4.0037	R4.0	37	0.061689	99.42514	63.414238	36.58576202
R4.0038	R4.0	38	0.067358	99.363449	62.453297	37.54670334
R4.0039	R4.0	39	0.073454	99.296097	61.495323	38.50467682
R4.0040	R4.0	40	0.080002	99.222641	60.540478	39.45952225
R4.0041	R4.0	41	0.087027	99.142639	59.588928	40.41107178
R4.0042	R4.0	42	0.094549	99.055611	58.640839	41.35916138
R4.0043	R4.0	43	0.102598	98.961067	57.696388	42.30361176
R4.0044	R4.0	44	0.111198	98.858467	56.755749	43.24425125
R4.0045	R4.0	45	0.120373	98.747269	55.819096	44.18090439
R4.0046	R4.0	46	0.130148	98.626892	54.886612	45.11338806
R4.0047	R4.0	47	0.140551	98.49675	53.958477	46.04152298
R4.0048	R4.0	48	0.151608	98.356194	53.03487	46.96512985
R4.0049	R4.0	49	0.163342	98.20459	52.115971	47.88402939
R4.0050	R4.0	50	0.17578	98.041245	51.201969	48.79803085
R4.0051	R4.0	51	0.188947	97.865463	50.293037	49.70696259

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R4.0052	R4.0	52	0.202866	97.676521	49.389355	50.61064529
R4.0053	R4.0	53	0.217559	97.473656	48.491104	51.50889587
R4.0054	R4.0	54	0.232654	97.256096	47.598461	52.40153885
R4.0055	R4.0	55	0.249758	97.023438	46.711594	53.28840637
R4.0056	R4.0	56	0.266512	96.773682	45.830666	54.16933441
R4.0057	R4.0	57	0.284517	96.507172	44.955853	55.04414749
R4.0058	R4.0	58	0.3034	96.222656	44.087299	55.91270065
R4.0059	R4.0	59	0.323171	95.91925	43.22517	56.77482986
R4.0060	R4.0	60	0.343842	95.596085	42.369606	57.63039398
R4.0061	R4.0	61	0.365426	95.252243	41.520748	58.47925186
R4.0062	R4.0	62	0.387929	94.886818	40.678726	59.3212738
R4.0063	R4.0	63	0.411355	94.498886	39.843666	60.15633392
R4.0064	R4.0	64	0.435709	94.087532	39.015678	60.98432159
R4.0065	R4.0	65	0.460985	93.651825	38.19487	61.80513
R4.0066	R4.0	66	0.487181	93.190834	37.381332	62.6186676
R4.0067	R4.0	67	0.514286	92.703659	36.575153	63.42484665
R4.0068	R4.0	68	0.542285	92.189369	35.776402	64.22359467
R4.0069	R4.0	69	0.571165	91.647087	34.985134	65.01486206
R4.0070	R4.0	70	0.600901	91.07592	34.201405	65.79859924
R4.0071	R4.0	71	0.631463	90.475021	33.425236	66.57476807
R4.0072	R4.0	72	0.662824	89.843559	32.656651	67.34335327
R4.0073	R4.0	73	0.694943	89.180733	31.895649	68.10434723
R4.0074	R4.0	74	0.727777	88.485786	31.142221	68.85778046
R4.0075	R4.0	75	0.761278	87.758011	30.396338	69.60366058
R4.0076	R4.0	76	0.795393	86.996735	29.657949	70.34204865
R4.0077	R4.0	77	0.830056	86.20134	28.926994	71.07300568
R4.0078	R4.0	78	0.865204	85.371284	28.203388	71.7966156
R4.0079	R4.0	79	0.900763	84.506081	27.487024	72.5129776
R4.0080	R4.0	80	0.936655	83.605316	26.777782	73.22222137
R4.0081	R4.0	81	0.97279	82.668663	26.075516	73.92448425
R4.0082	R4.0	82	1.009202	81.695877	25.380054	74.61994171
R4.0083	R4.0	83	1.046485	80.686668	24.691248	75.30875397
R4.0084	R4.0	84	1.085589	79.64019	24.009125	75.99087524
R4.0085	R4.0	85	1.127481	78.554596	23.334009	76.66599274
R4.0086	R4.0	86	1.172955	77.427116	22.666513	77.33348846
R4.0087	R4.0	87	1.222555	76.254166	22.007483	77.99251556
R4.0088	R4.0	88	1.276553	75.031609	21.357924	78.64207458

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R4.0089	R4.0	89	1.334905	73.755058	20.718931	79.28106689
R4.0090	R4.0	90	1.397342	72.420151	20.091623	79.9083786
R4.0091	R4.0	91	1.463254	71.022812	19.477079	80.5229187
R4.0092	R4.0	92	1.531871	69.559555	18.876282	81.12371826
R4.0093	R4.0	93	1.602235	68.027687	18.290085	81.70991516
R4.0094	R4.0	94	1.67327	66.425446	17.719196	82.2808075
R4.0095	R4.0	95	1.743798	64.752182	17.16416	82.83583832
R4.0096	R4.0	96	1.812611	63.008381	16.625351	83.37464905
R4.0097	R4.0	97	1.878502	61.19577	16.10298	83.89701843
R4.0098	R4.0	98	1.940306	59.317268	15.597109	84.40289307
R4.0099	R4.0	99	1.996924	57.376961	15.107644	84.89235687
R4.0100	R4.0	100	2.047356	55.380035	14.634375	85.36562347
R4.0101	R4.0	101	2.090724	53.33268	14.176971	85.82302856
R4.0102	R4.0	102	2.126279	51.241959	13.735006	86.26499176
R4.0103	R4.0	103	2.153455	49.115677	13.307965	86.69203186
R4.0104	R4.0	104	2.171804	46.962223	12.895275	87.1047287
R4.0105	R4.0	105	2.181072	44.790421	12.496299	87.50370026
R4.0106	R4.0	106	2.181142	42.609348	12.110361	87.88964081
R4.0107	R4.0	107	2.172064	40.428204	11.736752	88.26324463
R4.0108	R4.0	108	2.154024	38.256142	11.37474	88.6252594
R4.0109	R4.0	109	2.127339	36.102116	11.023578	88.97642517
R4.0110	R4.0	110	2.092451	33.974777	10.682514	89.31748962
R4.0111	R4.0	111	2.049888	31.882328	10.350797	89.64920044
R4.0112	R4.0	112	2.000286	29.832439	10.027679	89.97232056
R4.0113	R4.0	113	1.94433	27.832153	9.71243	90.28756714
R4.0114	R4.0	114	1.882747	25.887823	9.4043379	90.59566498
R4.0115	R4.0	115	1.816296	24.005075	9.1027164	90.89728546
R4.0116	R4.0	116	1.745761	22.18878	8.8069038	91.19309235
R4.0117	R4.0	117	1.671897	20.443018	8.516284	91.48371887
R4.0118	R4.0	118	1.595454	18.771122	8.2302752	91.76972198
R4.0119	R4.0	119	1.51714	17.175669	7.9483428	92.05165863
R4.0120	R4.0	120	1.437624	15.658528	7.6700058	92.3299942
R4.0121	R4.0	121	1.357518	14.220904	7.3948388	92.60516357
R4.0122	R4.0	122	1.277373	12.863386	7.1224761	92.87752533
R4.0123	R4.0	123	1.197688	11.586013	6.852612	93.14738464
R4.0124	R4.0	124	1.118879	10.388325	6.5850129	93.41498566
R4.0125	R4.0	125	1.041318	9.2694464	6.3195138	93.68048859

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R4.0126	R4.0	126	0.965304	8.2281284	6.056006	93.94399261
R4.0127	R4.0	127	0.891089	7.2628241	5.7944579	94.20554352
R4.0128	R4.0	128	0.818876	6.3717351	5.5348883	94.46511078
R4.0129	R4.0	129	0.748836	5.5528588	5.2773809	94.7226181
R4.0130	R4.0	130	0.68111	4.8040233	5.0220637	94.97793579
R4.0131	R4.0	131	0.61582	4.1229129	4.769114	95.23088837
R4.0132	R4.0	132	0.553078	3.507093	4.5187402	95.48126221
R4.0133	R4.0	133	0.493008	2.954015	4.2715211	95.72847748
R4.0134	R4.0	134	0.435735	2.4610071	4.027349	95.97264862
R4.0135	R4.0	135	0.3814	2.0252719	3.7864599	96.21353912
R4.0136	R4.0	136	0.330168	1.643872	3.549021	96.45098114
R4.0137	R4.0	137	0.282216	1.313704	3.3315156	66.68484497
R4.0138	R4.0	138	0.237738	1.0314879	3.0849781	96.9150238
R4.0139	R4.0	139	0.196928	0.79375	2.8585811	97.14141846
R4.0140	R4.0	140	0.15997	0.596822	2.6360509	97.36395264
R4.0141	R4.0	141	0.127022	0.436852	2.4174759	97.58252716
R4.0142	R4.0	142	0.098187	0.30983	2.202934	97.79706573
R4.0143	R4.0	143	0.073496	0.211643	1.992503	98.00749969
R4.0144	R4.0	144	0.0529	0.138147	1.786284	98.2137146
R4.0145	R4.0	145	0.036261	0.0852467	1.584401	98.41559601
R4.0146	R4.0	146	0.023346	0.048986	1.38709	98.61290741
R4.0147	R4.0	147	0.013831	0.0256397	1.194826	98.80517578
R4.0148	R4.0	148	0.007295	0.011809	1.0086401	98.99136353
R4.0149	R4.0	149	0.003234	0.0045142	0.830607	99.16939545
R4.0150	R4.0	150	0.001074	0.0012803	0.665729	99.33427429
R4.0151	R4.0	151	0.0002	0.0002061	0.529278	99.47071838
R4.0152	R4.0	152	6.05E-06	6.045E-06	0.500083	99.49991608
R4.0153	R4.0	153	0	0	0	100

Iowa Curves



# **HRG Engineers' Assessment**



# HRG

Herbert, Rowland & Grubic, Inc.  
Engineering & Related Services

AN EMPLOYEE-OWNED COMPANY

## Steelton Borough Authority

Water System  
Assessment of Tangible Assets  
Pursuant to PUC Code §1329 (A)(4)  
Borough of Steelton, Dauphin County, PA

October 2018



[ BUILDING RELATIONSHIPS.  
DESIGNING SOLUTIONS. ]

**WATER SYSTEM  
ASSESSMENT OF TANGIBLE ASSETS**

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## **WATER SYSTEM ASSESSMENT OF TANGIBLE ASSETS**

### **STEELTON BOROUGH AUTHORITY, DAUPHIN COUNTY, PENNSYLVANIA**

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#### **1.0 – EXECUTIVE SUMMARY**

As required by PA Act 12 (HB1329) and following the guidelines of the "Uniform System of Accounts for Class A Water Utilities", an assessment of the tangible assets of facilities and equipment for the Steelton Borough Authority (Authority) water treatment, storage and distribution system was prepared. Each facility and class of equipment was coded based on Section 300 of the "Water Utility Plant Accounts" outlined in the Guidelines. The Asset Survey included the Water Treatment Plant (WTP), water booster station, two (2) finished water storage tanks, one (1) interconnect, and approximately 28 miles of water main distribution pipe. Information was derived from various sources including Tapping Fee calculations, record drawings, site visits, discussions with Borough staff, and other sources to provide an inventory and listing.

#### **2.0 – PURPOSE OF REPORT**

The purpose of this report is to "conduct an assessment of tangible assets of the selling utility" per the requirements of PA Act 12 (HB1329). The engineering assessment followed the practices and procedures of the Public Utility Commission and National Association of Regulatory Utility Commissioners (NARUC) Uniform Systems of Accounts. The engineering assessment report documents the approximate age and original costs of the Authority's assets that will be used to develop an appraisal of the system. The engineering assessment does not include vehicles.

This report contains the following:

- Inventory of the used and useful depreciable assets to be transferred, compiled by year and account.
- List of non-depreciable assets such as land and rights-of-way.
- Review of system components, plans and reports of key facilities.
- Assessment of the identified assets, including approximate age.
- Determination and/or establishment of an original cost of construction for each asset.
- Grants and dedicated facilities.
- Known and estimated overhead costs that includes engineering design, permitting, legal, bidding, construction administration and construction observation costs.

#### **3.0 – SYSTEM DESCRIPTION**

The Authority under permit PWSID 7220036 provides water to approximately 6,311 consumers through 2,421 metered service connections. The existing water system consists of two components, the water treatment plant (WTP) and the storage and distribution system.

The Authority's WTP obtains all water from a raw water intake located in the Susquehanna River in Dauphin County. Constructed in 1973, the WTP serves the community of Steelton and some customers in Swatara Township. While the WTP's permitted capacity is 3.0 MGD (2,083 gpm), the WTP maintains a typical daily production rate of 1.6 to 2.4 MGD (1,111 to 1,670 gpm). The WTP is staffed 24 hours per day however, the time of operation is typically 13 to 16 hours per day, 7 days per week. The existing treatment process at the WTP currently consists of potassium permanganate for disinfection by-products (DBP) control, alum for coagulation, flash mixing, two upflow sludge blanket clarifiers for flocculation and sedimentation, four multimedia filters and chlorine

disinfection. A polymer is also added to the flash mixer to aid in clarifier blanket formation. The existing filtration system was manufactured by INFILCO and was originally installed in 1973. Various upgrades to the filtration system have been performed over the years with the most recent upgrades being completed in 2017 (new clearwell, for DBP removal).

Two (2) vertical turbine raw water pumps with variable frequency drives (VFD's) convey the water from the raw water pumping station to the up-flow clarifier rapid mix tank. From there, the water flows by gravity through the treatment process into the existing clearwell. Two (2) centrifugal finished water pumps with VFD's convey the water from the clearwell to the distribution system. Production at the WTP typically ends when the finished water storage tanks have been filled to their maximum operating levels. During the hours when the WTP is not in production, the distribution system is fed from the finished water storage tanks.

The existing Authority distribution system generally consists of a network of water distribution piping including approximately 28 miles of pipe ranging from 4 inch diameter to 20 inch diameter, one water booster station, two – 2 million gallon (MG) finished water storage tanks, and two interconnections with Suez that provide water service to various residential, commercial, institutional, and industrial properties throughout the Borough. The interconnect metering chamber with Suez, located on S. 19<sup>th</sup> Street, is owned by the Authority. The interconnect pumping station with Suez, located near the finished water storage tanks, is owned by Suez.

Table 3.1 provides a breakdown of the water main distribution pipe by size and Table 3.2 provides a breakdown of the water main distribution pipe by material. The estimated linear foot of water pipe shown was obtained from a WaterCAD model that consists of a GIS map performed in 2003 and information collected between 2003 through 2016 from Steelton Borough Authority staff. HRG can not confirm the accuracy of the information. To the best of HRG knowledge, the approximate lengths are the most accurate data available at the time of preparing this report. The total length does not include abandoned pipe, private pipe, or fire hydrant laterals, etc.

**Table 3.1 Water Main Distribution Pipe by Size**

Water Main Size (in.)	Approximate Length (ft.)
4	12,080
6	40,514
8	51,779
10	13,017
12	23,142
16	3,445
20	1,511

**Table 3.2 Water Main Distribution Pipe by Material**

Water Main Material	Approximate Length (ft.)
Cast Iron Pipe	75,659
Ductile Iron Pipe	69,829



**APPENDIX A**  
**SUMMARY OF WATER ASSETS**

## Summary of Water Assets

Category	Original Cost
<b>Construction Cost:</b>	
Original 1973 Construction Cost <sup>[1]</sup>	\$2,527,558
Land Assets	\$31,305
Water Treatment Plant <sup>[2]</sup>	\$5,488,926
Distribution System <sup>[3]</sup>	\$8,465,914
Trended Cost Back to 1973 <sup>[4]</sup>	(\$717,500)
<b>Total</b>	<b>\$15,796,203</b>
<b>Estimated and Known Overhead Cost: <sup>[5]</sup></b>	
Original 1973 Construction Cost	\$606,614
Land Assets	\$939
Water Treatment Plant	\$1,150,757
Distribution System	\$1,305,262
Trended Cost Back to 1973	(\$147,431)
<b>Total</b>	<b>\$2,916,141</b>
<b>Grants and Dedications:</b>	
Grant: Power Generator Equipment <sup>[6]</sup>	\$545,102
Dedication: UGIES Water main <sup>[7]</sup>	\$481,665
<b>Total</b>	<b>\$1,026,767</b>
<b>Total</b>	<b>\$19,739,111</b>

Footnotes:

- [1] The original construction cost of the water treatment plant and water storage facilities built in 1973 was \$2,527,558.
- [2] Per Note 1 above, the water treatment plant was constructed as part of a larger project. The original cost shown for water treatment plant is the original cost added to the system since 1973.
- [3] The estimated linear foot of water pipe shown was obtained from a WaterCAD model that consists of a GIS map performed in 2003 and information collected between 2003 through 2016 from Steelton Borough Authority staff. HRG can not confirm the accuracy of the information. To the best of HRG knowledge, the approximate lengths are the most accurate data available at the time of preparing this report. The total length does not include abandoned pipe, private pipe, or fire hydrant laterals, etc.
- [4] Per Notes 1 and 2 above, so that costs are not counted twice, replaced equipment costs were trended back to 1973 and subtracted from the \$2,527,558 project cost. The amount shown is the sum of all of the trended cost deductions for replacements. Refer to the detail pages for additional information. The ENR index was used to trend the cost to 1973.
- [5] Overhead costs includes engineering design, permitting, legal, construction administration, construction observation and financing.
- [6] Item shown in Appendix C under generator with NARUC Code 310.
- [7] Item shown in Appendix G under 'Installation Years 2011-2018', Item 3.



**APPENDIX B**  
**LAND AND LAND RIGHTS ASSETS**



NARUC Code	Asset	Parcel Number	Site Address	Acres	Purchase Date	Original Cost	Overhead Cost	Source [4]	Notes
303	Land and Land Rights	61-013-047	304 Christian Street	0.03	N/A	N/A			[1]
		61-013-048	302 Christian Street	0.03	N/A	N/A			
		61-014-025	Christian Street	0.37	1972	\$1			Book A, Vol 59, Page 661
		61-014-026	262 Christian Street	0.03	1972	\$6,700	\$201	[5]	Book X, Vol 57, Page 506
		61-014-027	260 Christian Street	0.03	1972	\$8,000	\$240	[5]	Book V, Vol 57, Page 646
		61-014-028	256 Christian Street	0.03	1972	\$5,000	\$150	[5]	Book M, Vol 58, Page 388
		61-014-029	254 Christian Street	0.09	1972	\$6,500	\$195	[5]	Book W, Vol 57, Page 335
		61-014-030	244 and 246 Christian Street	0.09	1972	\$5,100	\$153	[5]	Book Y, Vol 57, Page 423
		63-045-115	Reservoir Road	2.34	1971	\$1			Book S, Vol 56, Page 140
		63-045-126	Kelker Road	1.14	1985	\$1			Book 675, Page 421
303	Right-of-way	57-029-005	Water line right-of-way (southern side of south Front Street between R Street and T Street)	0.56	2001	\$1		Book 4002, Page 338	
303	Easement	62-043-051	Water line easement	0.06	2010	\$1		Instrument # 20110015567	
<b>Total</b>							<b>\$31,305</b>	<b>\$939</b>	

Footnotes:

- [1] These parcels are owned by Dauphin County Redevelopment Authority. Components of the water treatment plant are located on these parcels including the water intake, screen, cleanwell and grinder.
- [2] Two water storage tanks are currently located on this property.
- [3] This is an open parcel that is located adjacent to the Reservoir Road parcel discussed in Note 3.
- [4] The Authority may have other land assets not shown in the above table.
- [5] Estimated at 3% of original cost for legal expenses.



**APPENDIX C**  
**WATER TREATMENT PLANT ASSETS**

NARUC Code	Description	Original Year Installed	Age	Construction Cost		Overhead Cost	
				Original Cost	Cost Deduction for Trending Back to 1973 <sup>(6)</sup>	Original Cost	Cost Deduction for Trending Back to 1973 <sup>(6)</sup>
<b>Water Treatment Plant</b>							
<b>Water Treatment Plant Building</b>							
	Main Floor: Approx. 8,470 sq. ft.; Lower Floor: Approx. 5,940 sq. ft.; Chemical Floor: Approx. 2,030 sq. ft.	1973	45	See Footnote 1			
<b>Raw Water Pumping Station</b>							
306	Concrete	1973	45	See Footnote 1			
309	Water Intake Line	1973	45	See Footnote 1			
304	1- 160 L.F. - 36" Cast Iron Pipe 382 L.F. - 24" Cast Iron Pipe 1 - 24" Gate Valve	1973	45	See Footnote 1			
311	17.5x16x8' CMU Structure	1973	45	See Footnote 1			
334	1 - 24"x30" Sluice Gate (Floor Stand, Electric Operator) 2 - Vertical Turbine Pumps w/ VFD's; 40 HP/2100 gpm 1 - Flow Meter	1973	45	See Footnote 1			
304	2 - 12" Butterfly Valves (Floor Stand with Hand Wheel) 1 - 10" Butterfly Valve (Electric Operator) 34 V.F. - Aluminum Ladder and Cage with Walkway 2 - 12" Check Valve	1973	45	See Footnote 1			
320	Hydrolyne Traveling Screen with Compactor 17.5x16x12' CMU Structure	2010 <sup>(6)</sup> 1973	8 45	See Footnote 2 See Footnote 1			
	1 - Roof Exhaust	2014 <sup>(6)</sup>	4	\$11,000	(\$2,126)	\$980	(\$170)
304	2 - Roof Domes 2 - Aluminum Windows 1 - Single Metal Door Aluminum Stairwell 4' Square Aluminum Hatch 3' Square Aluminum Hatch Electrical and Ventilation Wiring and Controls	1973	45	See Footnote 1			
<b>Chemical Treatment</b>							
320	4 - 150 lb. Cylinder 3 - Gas Chlorinator (Regal Model 220, Capacity 250 lbd) Chemical Feed Lines and Apparatuses	1973	45	See Footnote 1			
320	2 - 2,800 Gallon Fiberglass Tanks 1 - Peristaltic Pump (Blue White Rex-Pro)	1973 2016 <sup>(6)</sup>	45 2	See Footnote 1 \$3,700	(\$678)	\$296	(\$-4)
320	Chemical Feed Lines and Apparatuses 1 - Peristaltic Pump (Blue White Rex-Pro)	1973 <sup>(6)</sup> 2017 <sup>(6)</sup>	45 1	See Footnote 1 \$3,700	(\$659)	\$296	(\$-2)
320	Chemical Feed Lines and Apparatuses 1 - Volumetric Dry Feeder (OMEGA-BIF, Model 21-02, 250 lbd)	2015 <sup>(6)</sup> 1973	3 45	\$14,000 See Footnote 1	(\$2,644)	\$1,120	(\$212)
320	Chemical Feed Lines and Apparatuses 1 - Volumetric Dry Feeder (OMEGA-BIF, Model CFX 1000, 250 lbd) Chemical Feed Lines and Apparatuses	2004 <sup>(7)</sup> 2016 <sup>(6)</sup>	14 2	\$15,000 \$14,724	(\$2,693)	\$1,178	(\$216)
320	Soda Ash System Chemical Feed Lines and Apparatuses	1973	45	See Footnote 1			
<b>Rapid (Flash) Mixer</b>							
304	7 x 7.5' x 9.2' Concrete Structure (3,613 Gallon) 2 - 4' x 17.5' Aluminum Hatches 2 - 12" Sluice Gate with Floor Stand	1973	45	See Footnote 1			
320	1 - Vertical Mixer	2018 <sup>(6)</sup>	0	\$1,000	(\$173)	\$80	(\$14)
<b>Clarification System</b>							
304	2 - Circular Clarifiers; 35' Radius x 15' Deep (137,455 Gallon, each)	2010	8	\$2,959,000	(\$637,256)	\$621,390	(\$133,826)
311	2 - Sludge Pumps (KSB/100gpm/26 TDH/3HP)	2012	6	\$8,000	(\$1,627)	\$640	(\$130)
334	2 - Flow Meters (3' Mag Meter)	2015 <sup>(7)</sup>	3	\$6,000			
<b>Filtration System</b>							
320	4 - Dual Media Filters: Anthracite/Sand (138 sq. ft., each) 1 - Filter Control System; Inflico Greenleaf Vacuum System	2010 <sup>(6)</sup> 1973	8 45	See Footnote 2 See Footnote 1			
311	1 - Filter Vacuum Pump (Nash, Single Stage, 3HP)	2014 <sup>(6)</sup>	4	\$7,400	(\$1,469)	\$608	(\$117)
304	Concrete Baffled Tank (79,617 Gallon, max.)	1973	45	See Footnote 1			
311	2 - Centrifugal Pumps w/ VFD's (250 HP/2,083gpm)					\$20,457	

NARIUC Code	Description	Original Year Installed	Age	Construction Cost		Overhead Cost	
				Original Cost	Cost Deduction for Trending Back to 1973 <sup>(1)</sup>	Original Cost	Cost Deduction for Trending Back to 1973 <sup>(1)</sup>
334	Meters and Meters Installation <b>Cleanwell Booster System</b>						
	1- Flow Meter						
304	Structure						
311	Pumps						
334	Meters and Meters Installation						
309	Piping and Appurtenances						
339	Other Plant and Miscellaneous Equipment						
	<b>Backwash System</b>						
304	Structure						
311	Pumps						
	<b>Generator</b>						
310	Power Generation Equipment						
	<b>Constellation Energy</b>						
339	Other Plant and Miscellaneous Equipment						
347	Miscellaneous Equipment						
344	Laboratory Equipment						
	<b>Instrumentation/Monitors</b>						
339	Other Plant and Miscellaneous Equipment						
<b>Total</b>							

Footnotes:

- [1] The original construction cost of the water treatment plant, booster station, and finished water storage tanks built in 1973 was \$2,527,558. The original construction cost per component is not known.
- [2] Component included in the \$2,959,000 construction cost of the 2010 water treatment plant improvement project. Work include refurbishing of the clarifier and filter units. This cost is shown in the "Clarification System" category.
- [3] Work included new 250 HP VFD's and motors, new 40 HP VFD's and motors, new motor control center (MCC), and new lighting.
- [4] New control system added.
- [5] The generator equipment was installed in 2015 at a cost of \$545,902 and was fully paid for by grant funding. The grant is listed in the 'Summary of Water Assets'.
- [6] Original component included in the 1973 water treatment plant construction cost, but has since been replaced.
- [7] New construction. Component not part of the 1973 water treatment plant construction.
- [8] So that costs are not counted twice, the replacement component costs identified by footnote 6) were trended back to 1973 and subtracted from the 1973 water treatment plant construction cost of \$2,527,558. Refer to the summary page for the deduction total. The ENR index was used to trend the cost to 1973.
- [9] Estimated at 8% of original cost for engineering design.
- [10] Estimated at 14% of construction cost that consists of 8% for engineering design, 4% for permitting, 2% for bidding, 3% construction administration and 4% for construction observation.
- [11] Actual engineering cost.

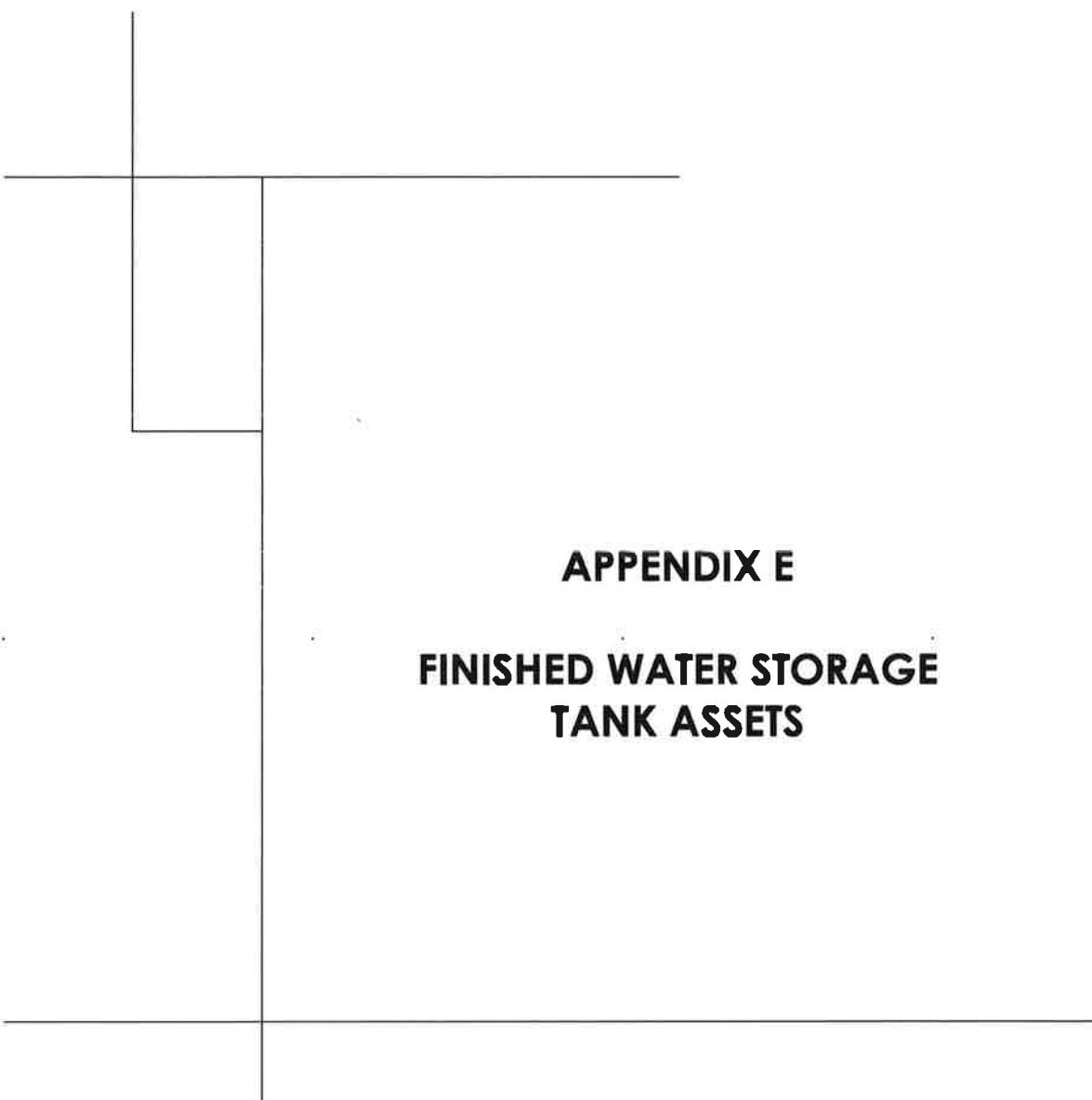


**APPENDIX D**  
**BOOSTER STATION ASSETS**

NARUC Code	Description		Original Year Installed	Age	Original Cost
<b>Booster Pump Station</b>					
304	Building	18' x 16' CMU Structure w/ Brick Facade, with 2'-8" x 7'-4" x 6'-8" Dry Pit	1973	45	See Footnote 1
		1 - Door 3 - Windows			
311	Pumps	2 - Centrifugal Pump with VFDs (Aurora, 15HP/480GPM)	1973		See Footnote 1
309	Piping and Appurtenances	8" Cast Iron Piping and Fittings	1973		See Footnote 1
		4" Cast Iron Piping and Fittings			
		2 - 8" Butterfly Valve			
		1 - 8" Check Valve			
		2 - 6" Butterfly Valve			
2 - 4" Check Valve					
2 - 4" Butterfly Valve					
348	Other	Electrical and HVAC Wiring and Controls	1973	See Footnote 1	

Footnotes:

[1] The original construction cost of the water treatment plant, booster station, and finished water storage tanks built in 1973 was \$2,527,558. The original construction cost per component is not known.



**APPENDIX E**  
**FINISHED WATER STORAGE**  
**TANK ASSETS**

NARUC Code	Description		Original Year Installed	Age	Original Cost
<b>Finished Water Storage Tank</b>					
330	Distribution Reservoirs	2 - 2 MG Steel Tanks (110' Diameter x 28' Height)	1973	45	See Footnote 1
		20" Screened Roof Vent (each)			
		Cage Ladder (each)			
		8" Steel Overflow Pipe (each)			
		24" Roof Hatch (each)			
		24" Shell Hatch (each)			
<b>Valve Pits</b>					
304	Structure	2 - 10' x 7'-6" x 6'-6" Concrete Valve Pit	1973	45	See Footnote 1
		5' x 2'-6" Double Leaf Hatch (each)			
		12" Ductile Iron Influent/Effluent Piping (each)			
		6" Cast Iron Drain Piping (each)			
		2" Sump			
		1 - 12" Butterfly Valve (each)			
1 - 6" Butterfly Valve (each)					

Footnotes:

- [1] The original construction cost of the water treatment plant, booster station, and finished water storage tanks built in 1973 was \$2,527,558. The original construction cost per component is not known.



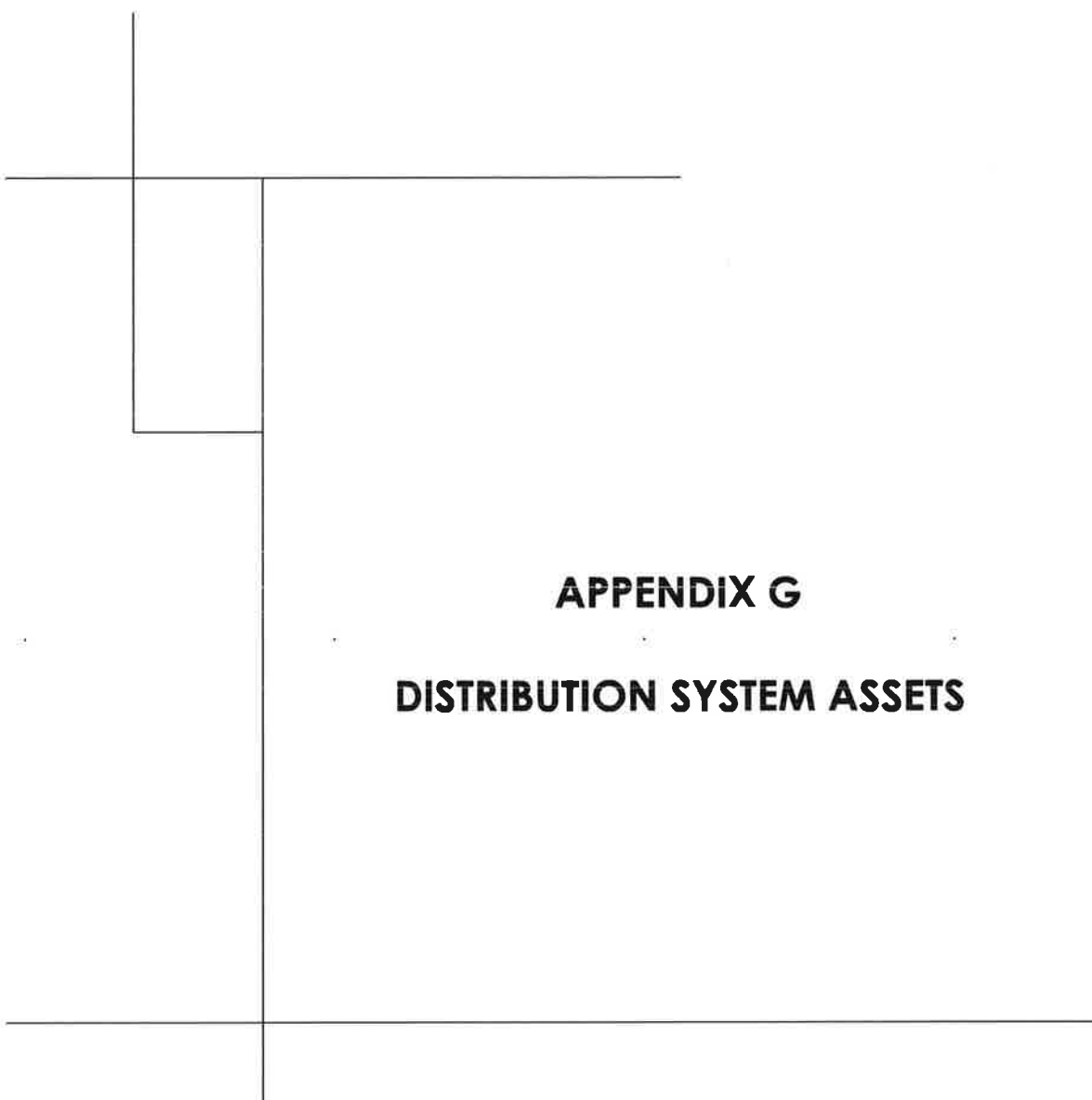


**APPENDIX F**  
**INTERCONNECTION ASSETS**

NARUC Code	Description		Original Year Installed	Age	Original Cost
<b>Interconnection with Suez (S. 19th Street)</b>					
304	Structure	15'-8.5" x 6' x 6' Concrete Metering Chamber	2010	8	See Footnote 1
		1 - 54" x 48" Access Hatch			
309	Piping and Appurtenances	6" Ductile Iron Piping and Fittings			
		2 - 6" Gate Valve			
		1 - 6" Flow Control Valve (Cla-Val; Model 40-01)			
336	Backflow Prevention Devices	1 - 6" Backflow Preventer (Watts; Model Series 709)			
334	Meters	1 - 6" Flow Meter (Sensus)			
348	Other	Electric Unit Heater			

Footnotes:

- [1] Component included in the \$2,959,000 construction cost of the water treatment plant improvement project. Work include refurbishing of the clarifier and filter units. This cost is shown in the Water Treatment Plant Assets "Clarification System" category.



**APPENDIX G**  
**DISTRIBUTION SYSTEM ASSETS**

**Distribution System Assets <sup>[14]</sup>**

Installation Years 1903 - 1910 <sup>[2]</sup>							
NARUC Code	Item No.	Description	Est. Qty.	Unit	Estimated Original Cost <sup>[1]</sup>	Age	Overhead Costs
331	1	4" Ductile Iron Pipe	1,106	L.F.	\$ 383	111	
	2	6" Ductile Iron Pipe	5,798	L.F.	\$ 2,261	111	
	3	8" Ductile Iron Pipe	3,720	L.F.	\$ 2,095	111	
	4	10" Ductile Iron Pipe	4,523	L.F.	\$ 3,528	111	
	5	4" Gate Valve	5	Ea.	\$ 50	111	
	6	6" Gate Valve	16	Ea.	\$ 218	111	
	7	8" Gate Valve	9	Ea.	\$ 193	111	
	8	10" Gate Valve	4	Ea.	\$ 139	111	
335	9	Fire Hydrant Assembly	18	Ea.	\$ 1,131	111	
354	10	Excavation And Aggregate Backfill	15,147	L.F.	\$ 3,938	111	
	11	Surface Restoration	15,147	L.F.	\$ 5,513	111	
Total					\$ 19,449		\$ 1,556 <sup>[11]</sup>

Installation Years 1911 - 1920 <sup>[2]</sup>							
NARUC Code	Item No.	Description	Est. Qty.	Unit	Estimated Original Cost <sup>[1]</sup>	Age	Overhead Costs
331	1	4" Ductile Iron Pipe	374	L.F.	\$ 194	102	
	2	6" Ductile Iron Pipe	1,068	L.F.	\$ 623	102	
	3	8" Ductile Iron Pipe	733	L.F.	\$ 617	102	
	4	12" Ductile Iron Pipe	5,837	L.F.	\$ 7,183	102	
	5	4" Gate Valve	3	Ea.	\$ 45	102	
	6	6" Gate Valve	6	Ea.	\$ 122	102	
	7	8" Gate Valve	1	Ea.	\$ 32	102	
	8	12" Gate Valve	16	Ea.	\$ 1,145	102	
335	9	Fire Hydrant Assembly	18	Ea.	\$ 1,690	102	
354	10	Excavation And Aggregate Backfill	8,012	L.F.	\$ 3,113	102	
	11	Surface Restoration	8,012	L.F.	\$ 4,359	102	
Total					\$ 19,123		\$ 1,530 <sup>[11]</sup>

Installation Years 1921 - 1930 <sup>[2]</sup>							
NARUC Code	Item No.	Description	Est. Qty.	Unit	Estimated Original Cost <sup>[1]</sup>	Age	Overhead Costs
331	1	4" Ductile Iron Pipe	6,414	L.F.	\$ 4,798	92	
	2	6" Ductile Iron Pipe	6,934	L.F.	\$ 5,836	92	
	3	8" Ductile Iron Pipe	2,050	L.F.	\$ 2,492	92	
	4	10" Ductile Iron Pipe	420	L.F.	\$ 707	92	
	5	12" Ductile Iron Pipe	3,697	L.F.	\$ 6,568	92	
	6	4" Gate Valve	26	Ea.	\$ 559	92	
	7	6" Gate Valve	28	Ea.	\$ 825	92	
	8	8" Gate Valve	10	Ea.	\$ 463	92	
	9	10" Gate Valve	3	Ea.	\$ 224	92	
	10	12" Gate Valve	10	Ea.	\$ 1,033	92	
335	11	Fire Hydrant Assembly	25	Ea.	\$ 3,390	92	
354	12	Excavation And Aggregate Backfill	19,515	L.F.	\$ 10,949	92	
	13	Surface Restoration	19,515	L.F.	\$ 15,329	92	
Total					\$ 53,173		\$ 4,254 <sup>[11]</sup>

**Distribution System Assets <sup>(14)</sup>**

Installation Years 1941 - 1950 <sup>(2)</sup>							
NARUC Code	Item No.	Description	Est. Qty.	Unit	Estimated Original Cost <sup>(1)</sup>	Age	Overhead Costs
331	1	4" Ductile Iron Pipe	1,299	L.F.	\$ 1,730	72	
	2	4" Gate Valve	3	Ea.	\$ 115	72	
335	3	Fire Hydrant Assembly	1	Ea.	\$ 241	72	
354	4	Excavation And Aggregate Backfill	1,299	L.F.	\$ 1,298	72	
	5	Surface Restoration	1,299	L.F.	\$ 1,817	72	
Total					\$ 5,202		\$ 416 <sup>(11)</sup>

Installation Years 1951 - 1960 <sup>(2)</sup>							
NARUC Code	Item No.	Description	Est. Qty.	Unit	Estimated Original Cost <sup>(1)</sup>	Age	Overhead Costs
331	1	10" Ductile Iron Pipe	618	L.F.	\$ 3,460	62	
354	2	Excavation And Aggregate Backfill	618	L.F.	\$ 1,153	62	
	3	Surface Restoration	618	L.F.	\$ 1,615	62	
Total					\$ 6,228		\$ 498 <sup>(11)</sup>

Installation Years 1961 - 1970 <sup>(2)</sup>							
NARUC Code	Item No.	Description	Est. Qty.	Unit	Estimated Original Cost <sup>(1)</sup>	Age	Overhead Costs
331	1	4" Ductile Iron Pipe	267	L.F.	\$ 1,019	52	
	2	6" Ductile Iron Pipe	258	L.F.	\$ 1,108	52	
	3	4" Gate Valve	2	Ea.	\$ 219	52	
	4	6" Gate Valve	2	Ea.	\$ 301	52	
354	5	Excavation And Aggregate Backfill	525	L.F.	\$ 1,503	52	
	6	Surface Restoration	525	L.F.	\$ 2,104	52	
Total					\$ 6,255		\$ 500 <sup>(11)</sup>

Installation Years 1971 - 1980 <sup>(2)</sup>							
NARUC Code	Item No.	Description	Est. Qty.	Unit	Estimated Original Cost <sup>(1)</sup>	Age	Overhead Costs
331	1	4" Ductile Iron Pipe	2,269	L.F.	\$ 19,486	42	
	2	6" Ductile Iron Pipe	12,362	L.F.	\$ 119,436	42	
	3	8" Ductile Iron Pipe	11,528	L.F.	\$ 160,880	42	
	4	10" Ductile Iron Pipe	6,492	L.F.	\$ 125,446	42	
	5	12" Ductile Iron Pipe	3,412	L.F.	\$ 69,593	42	
	6	16" Ductile Iron Pipe	462	L.F.	\$ 11,407	42	
	7	4" Gate Valve	12	Ea.	\$ 2,963	42	
	8	6" Gate Valve	41	Ea.	\$ 13,864	42	
	9	8" Gate Valve	36	Ea.	\$ 19,130	42	
	10	10" Gate Valve	10	Ea.	\$ 8,588	42	
	11	12" Gate Valve	3	Ea.	\$ 3,559	42	
	12	16" Gate Valve	1	Ea.	\$ 3,650	42	
335	13	Fire Hydrant Assembly	38	Ea.	\$ 59,150	42	
354	14	Excavation And Aggregate Backfill	36,525	L.F.	\$ 235,259	42	
	15	Surface Restoration	36,525	L.F.	\$ 329,363	42	
Total					\$ 1,181,775		\$ 165,449 <sup>(12)</sup>

**Distribution System Assets <sup>(14)</sup>**

Installation Years 1981 - 1990 <sup>(14)</sup>							
NARUC Code	Item No.	Description	Est. Qty.	Unit	Estimated Original Cost <sup>(1)</sup>	Age	Overhead Costs
331	1	4" Ductile Iron Pipe	351	L.F.	\$ 5,441	32	
	2	6" Ductile Iron Pipe	5,398	L.F.	\$ 94,135	32	
	3	8" Ductile Iron Pipe	762	L.F.	\$ 19,194	32	
	4	12" Ductile Iron Pipe	1,662	L.F.	\$ 61,187	32	
	5	16" Ductile Iron Pipe	1,466	L.F.	\$ 65,334	32	
	6	4" Gate Valve	4	Ea.	\$ 1,783	32	
	7	6" Gate Valve	17	Ea.	\$ 10,376	32	
	8	8" Gate Valve	5	Ea.	\$ 4,796	32	
	9	12" Gate Valve	8	Ea.	\$ 12,401	32	
	10	16" Gate Valve	8	Ea.	\$ 52,704	32	
335	11	Fire Hydrant Assembly	13	Ea.	\$ 36,525	32	
354	12	Excavation And Aggregate Backfill	9,639	L.F.	\$ 112,063	32	
	13	Surface Restoration	9,639	L.F.	\$ 156,888	32	
Total					\$ 632,827		\$ 88,596 <sup>(12)</sup>

Installation Years 1991 - 2000 <sup>(15)</sup>							
NARUC Code	Item No.	Description	Est. Qty.	Unit	Estimated Original Cost <sup>(1)</sup>	Age	Overhead Costs
331	1	6" Ductile Iron Pipe	7,301	L.F.	\$ 167,085	22	
	2	8" Ductile Iron Pipe	3,867	L.F.	\$ 127,829	22	
	3	6" Gate Valve	32	Ea.	\$ 25,631	22	
	4	8" Gate Valve	18	Ea.	\$ 22,656	22	
335	5	Fire Hydrant Assembly	23	Ea.	\$ 84,802	22	
354	6	Excavation And Aggregate Backfill	11,168	L.F.	\$ 170,388	22	
	7	Surface Restoration	11,168	L.F.	\$ 238,543	22	
Total					\$ 836,934		\$ 117,171 <sup>(12)</sup>

Installation Years 2001 - 2010 <sup>(16)</sup>							
NARUC Code	Item No.	Description	Est. Qty.	Unit	Estimated Original Cost <sup>(1)</sup>	Age	Overhead Costs
331	1	6" Ductile Iron Pipe	555	L.F.	\$ 17,269	12	
	2	8" Ductile Iron Pipe	23,914	L.F.	\$ 1,074,768	12	
	3	10" Ductile Iron Pipe	964	L.F.	\$ 59,989	12	
	4	12" Ductile Iron Pipe	8,534	L.F.	\$ 560,564	12	
	5	16" Ductile Iron Pipe	1,517	L.F.	\$ 120,624	12	
	6	6" Gate Valve	2	Ea.	\$ 2,178	12	
	7	8" Gate Valve	96	Ea.	\$ 164,284	12	
	8	10" Gate Valve	2	Ea.	\$ 5,531	12	
	9	12" Gate Valve	19	Ea.	\$ 52,549	12	
	10	16" Gate Valve	4	Ea.	\$ 47,017	12	
335	11	Fire Hydrant Assembly	55	Ea.	\$ 275,708	12	
354	13	Excavation And Aggregate Backfill	35,454	L.F.	\$ 735,421	12	
	14	Surface Restoration	35,454	L.F.	\$ 1,029,589	12	
Total					\$ 4,145,491		

**Distribution System Assets <sup>[14]</sup>**

Installation Years 2011 - 2018 <sup>[7]</sup>							
NARUC Code	Item No.	Description	Est. Qty.	Unit	Actual Costs	Age	Overhead Costs
331	1	2016 Pine/Harrisburg Streets Replacement Project <sup>[8]</sup>	-	-	\$ 1,386,505	2	228,174 <sup>[13]</sup>
	2	2017 Mulberry/Bessemer Replacement Project <sup>[9]</sup>	-	-	\$ 172,952	1	75,850 <sup>[13]</sup>
	3	2017 Ugies Water Main Installation Project <sup>[10]</sup>	-	-	\$ -	1	40,900 <sup>[13]</sup>
Total					\$ 1,559,457		344,924
<b>Total</b>					<b>\$ 8,465,914</b>		<b>\$ 1,305,262</b>

Footnotes:

- [1] Estimated using HRG's projects with known costs or using RSMeans Data. Original cost calculated by determining construction cost in 2018 dollars and using the ENR's historical cost index to adjust the cost to the installation year. Information provided spanned a decade as shown and; therefore, average ENR index for that given decade was used.
- [2] New water main construction. Lengths do not include water main pipe that has been replaced.
- [3] 33,147 feet of water main was new construction. 3,378 feet of water main was replaced.
- [4] 8,833 feet of water main was new construction. 806 feet of water main was replaced.
- [5] 1,156 feet of water main was new construction. 10,091 feet of water main was replaced.
- [6] 2,898 feet of water main was new construction. 32,586 feet of water main was replaced.
- [7] 1,783 feet of water main was new construction. 5,773 feet of water main was replaced.
- [8] The 2016 Pine/Harrisburg streets water project included replacing approximately 5,205 feet of 8-Inch diameter water main. Majority of the project was performed in PennDOT's right-of-way. Also, approximately \$312,630 of water service line replacement was part of this project. The \$312,630 is not included in the dollar amount shown in the table because the water service lines are owned by the property owners. This project also included sanitary sewer work but the cost shown in the table is only for the water system work. The costs shown in the table does not include pavement restoration because the paving was performed by PennDOT as part of their paving project.
- [9] The 2017 Mulberry/Bessemer water project included replacing approximately 840 feet of 6-inch diameter water main. This project also included sanitary sewer work, but the cost shown in the table is only for the water system work. The cost includes pavement restoration.
- [10] The 2017 UGIES project included installing approximately 1,511 feet of 20-inch water main. The actual cost is not known, but it is estimated at \$481,665. This project was built and paid for by the developer and dedicated to the Authority.
- [11] Estimated at 8% of original cost for engineering design.
- [12] Estimated at 14% of original cost that consists of 8% for engineering design, 4% for permitting and 2% for bidding.
- [13] Actual engineering expense.
- [14] The estimated linear foot of water pipe shown was obtained from a WaterCAD model that consists of a GIS map performed in 2003 and information collected between 2003 through 2016 from Steelton Borough Authority staff. HRG can not confirm the accuracy of the information. To the best of HRG knowledge, the approximate lengths are the most accurate data available at the time of preparing this report. The total length does not include abandoned pipe, private pipe, or fire hydrant laterals, etc.

**Steelton Borough Authority  
Financials 2013-2017**









*Water Treatment*

Account No	Description	Type	Class Id	Debit	Credit
06-100-001	Water Citizens Checking Account	A		0.00	
06-100-004	Water Checking Account Mid Penn	A		2,382,975.29	
06-100-005	Water Improvement Plan 2010	A		93,222.03	
06-100-006	Water - Clearwell Improvements Project	A		3,459.62	
06-106-002	Cash - Construction Account 2003 Series	A		0.00	
06-106-003	Cash - Construction 2006 GOB-Metro Bk	A		0.00	
06-106-011	Cash - Sinking Fund - 2011 Scoop	A		0.00	
06-120-004	PA Invest Account	A		0.00	
06-126-001	Bad Debt	A		0.00	
06-130-001	Due from General Fund	A		2,939.70	
06-130-008	Due from Sewer Fund	A		2,172,681.80	
06-130-012	Due from GOB 2015	A			123,865.86
06-145-000	Accounts Receivable	A			65,078.77
06-145-001	Water Lien Costs Receivable	A			68.75
06-145-002	Accounts Receivable - Posting Fees	A		0.00	
06-147-000	Accounts Receivable unbilled	A		0.00	
06-150-000	Water Inventories	A		0.00	
06-155-000	Prepaid Insurance	A		0.00	
06-156-001	Engineering Development Expense	A		0.00	
06-156-002	Legal Expenses-GOB Note 2009 Financing	A		0.00	
06-156-003	Pilot Testing Lab Tests	A		0.00	
06-156-004	Professional Services--Financing 2009 GOB	A		0.00	
06-156-005	Auditing - GOB 2009 For Pennvest Project	A		0.00	
06-157-317	Data Processing - Tele. Communications	A		375.96	
06-157-321	Telephone - Tele. Communications	A		1,116.79	
06-157-374	Equipment - Tele. Communications	A		16,907.00	

Account No	Description	Type	Class Id	Debit	Credit
06-157-700	Capital Purchase - Tele. Communications	A		9,052.10	
06-162-000	System	A		14,611,806.52	
06-162-001	Building Improvements	A		1,382,696.83	
06-162-030	Accum. Depreciation - system	A			4,511,201.81
06-162-051	Accum. Depreciation - Buildings	A			1,343,639.28
06-163-000	Maintenance Garage	A		102,986.28	
06-163-050	Accum. Depreciation - Maint. Garage	A			149,195.52
06-164-000	Operating Equipment	A		1,701,562.13	
06-164-010	Accum.Deprec.-Operating Equipment	A			1,226,573.43
06-165-000	Construction in Progress	A			0.01
06-165-001	Construction - Engineering	A		0.00	
06-165-050	Accum. Depreciation - Const. in Progress	A		0.00	
06-165-060	Construction in Progress 2006 Bond	A			0.08
06-165-061	Engineering 2006 Bond Account	A		0.00	
06-165-062	Bank Fees	A		0.00	
06-165-100	Pilot Testing Rental	A		0.00	
06-165-105	Pilot Testing Contract Services	A		0.00	
06-165-201	Engineering - WIP 2010	A		0.00	
06-165-202	Construction - WIP 2010	A		0.00	
06-165-203	Audit - WIP 2010	A		0.00	
06-165-310	Professional Services - WIP 2010	A		0.00	
06-165-314	Legal - WIP 2010	A		0.00	
06-165-316	Bank Fees	A		0.00	
06-165-342	Printing - WIP 2010	A		0.00	
06-166-000	Vehicles	A		748,059.86	
06-166-001	Accum. Depreciation Vehicles	A			100,312.28
06-166-313	Engineering - C.I.P. Pennvest 2016	A		250,643.76	

Account No	Description	Type	Class Id	Debit	Credit
06-166-314	Legal - C.I.P. Pennvest 2016	A		0.00	
06-166-315	Construction - C.I.P. Pennvest 2016	A		0.00	
06-182-000	Bond Issuance Costs	A		0.00	
06-182-001	Bond Issuance Costs - 2008 Series	A		0.00	
06-182-002	Bond Issuance Costs GOB 2009 Issuance	A		0.00	
06-182-003	Bond Issuance Costs GOB 2011 SCOOP	A			3,679.17
06-182-011	Bond Issuance Costs GOB 2011 SCOOP	A		51,508.49	
06-182-012	Bond Issuance Costs - St Scape/TC Acct	A		0.00	
06-182-015	Bond Discount	A		71,214.98	
06-185-000	Budgeted Revenues	A		21,755,119.60	
06-200-000	Accounts Payable	L		1,933,006.70	
06-200-750	Capital Lease	L			0.00
06-200-900	Reconcile Holding Account	L			0.00
06-205-000	Accrued Payroll	L			0.00
06-226-000	Suspense Account	L			0.00
06-226-009	Miscellaneous - Water utility refund	L		7,646.20	
06-230-000	Contributions in Aid of Construction	L			0.00
06-230-001	Due to General Fund	L			11.65
06-230-008	Due to Sewer Fund	L		8.46	
06-230-012	Due to GOB 2015 Fund	L			0.00
06-231-000	Accrued Comp Absences	L			0.00
06-245-000	Accrued Interest	L			0.00
06-250-200	Security - deposits	L			347.03
06-255-200	General obligation Note Payable 2009	L			0.05
06-255-201	General obligation Note Payable TC ACCT	L			0.00
06-261-001	Bonds Payable 2003	L			0.00
06-261-002	Bonds Payable - Current Portion	L			0.00

Account No	Description	Type	Class Id	Debit	Credit
06-261-010	Proceeds from GOB Series 2006	L			0.00
06-261-011	Proceeds from GOB 2011 - Scoop	L			0.00
06-261-012	Proceeds from St.Scape/Tele Comm	L			0.00
06-261-013	Proceeds from GOB 2012	L			2,600,637.37
06-261-015	Bonds Payable 2015 Series	L			5,205,529.76
06-261-650	Proceeds from Pennvest-WIP	L			2,378,213.32
06-261-652	Proceeds from Pennvest-C.I.P	L			2,186,047.10
06-266-009	Miscellaneous	L			49,502.58
06-279-000	Fund balance	F			5,729,895.10
06-292-000	Budgeted Expenditures	F			21,755,119.60
06-300-000	WATER FUND REVENUES	R			3.00
06-341-000	Interest Earnings	R			12,381.09
06-354-000	STATE CAPITAL AND OPERATING GRANTS	R			0.00
06-354-095	Energy Conservation Works Grant	R			0.00
06-378-100	Water Sales	R			2,535,646.97
06-378-110	United Water Standby Service	R			20,100.00
06-378-905	Meter Test	R			150.00
06-378-910	Water Taps & Materials	R			471.00
06-378-920	Service Charges	R			5,472.22
06-378-922	Property Transfer Fee - Water	R			1,187.00
06-378-923	Property Posting Fees - Water	R			6,415.90
06-378-930	Interest Charges	R			28,844.86
06-378-950	Water NSF Charges	R			483.70
06-380-000	MISCELLANEOUS REVENUE	R			0.00
06-380-020	Lien Processing Fees	R			8.00
06-380-030	Pa One Call Refund	R			334.46
06-380-060	request for Information	R			0.00

Account No	Description	Type	Class Id	Debit	Credit
06-100-100	Miscellaneous Revenues	E			228,539.34
06-192-000	INTERFUND OPERATING TRANSFERS	E		0.00	
950	Transfer from Reserve	E		0.00	
-951	Transfer from Cleanwell Improv. Proj.	E		0.00	
06-395-000	Refund of Prior Year's Expenditures	E			0.00
06-400-000	WATER FUND EXPENSES	E		0.00	
06-409-000	MUNICIPAL BUILDING	E		0.00	
06-409-140	Building Wages	E		0.00	
06-409-142	Municipal Building OT Wages	E		0.00	
06-409-161	Social Security	E		0.00	
06-409-162	Unemployment Insurance	E		0.00	
06-409-213	Building Supplies/Furniture	E		24.47	
06-409-226	Cleaning Supplies	E		576.38	
06-409-229	Meals - Probation	E		0.00	
06-409-239	Miscellaneous Supplies	E		0.00	
06-409-250	Maintenance Supplies	E		0.00	
06-409-351	Property Insurance	E		2,901.18	
06-409-354	Workers Comp Insurance	E		0.00	
06-409-356	Flood Insurance - Building	E		1,060.50	
06-409-361	Electricity	E		1,135.86	
06-409-362	Gas - Heating	E		2,042.67	
06-409-366	Water Service	E		0.00	
06-409-371	Repair & Maintenance Land	E		1,371.30	
06-409-372	Improvements Other than Buildings	E		0.00	
06-409-373	Building Maint & Repairs	E		6,194.27	
06-409-374	Repairs/Maintenance - Elevator	E		1,073.25	
06-409-451	Cleaning Contracted Services	E		2,695.32	

Account No	Description	Type	Class Id	Debit	Credit
06-409-700	Capital Purchases	E		0.00	
06-445-000	WATER GARAGE	E		0.00	
06-445-210	Office Supplies	E		0.00	
06-445-321	Telephone	E		0.00	
06-445-351	Property Insurance	E		0.00	
06-445-356	Flood Insurance	E		13,980.00	
06-445-361	Electricity	E		2,242.17	
06-445-362	Gas - Building/Propane	E		4,403.57	
06-445-373	Repair & Maintenance - Bldg/Water Garage	E		853.70	
06-446-000	DISTRIBUTION	E		0.00	
06-446-210	Office Supplies	E		531.33	
06-446-229	Meals - Water Breaks	E		0.00	
06-446-231	Vehicle - Gasoline	E		4,362.97	
06-446-232	Vehicle Fuel - Diesel	E		320.23	
06-446-245	Supplies-Road Salt/Anti-Skid/Stones	E		11,005.31	
06-446-250	Repair & Maintenance Supplies	E		0.00	
06-446-252	Meters & Related Equipment	E		29,096.19	
06-446-260	Small Tools & Minor Equip	E		6,885.37	
06-446-261	Machinery & Equipment	E		0.00	
06-446-310	Leak Detection Services	E		0.00	
06-446-315	Resevior - Security	E		0.00	
06-446-317	Resevior - Repairs/Maintenance	E		5,665.87	
06-446-327	Radio Equipment Maintenance	E		0.00	
06-446-372	Repair & Maint. - System	E		8,323.34	
06-446-373	Repair & Maint. - Bldg	E		723.74	
06-446-374	Repair & Maint. Mach/Equip	E		1,312.40	
06-446-450	Contracted Services	E		12,965.80	

Account No	Description	Type	Class Id	Debit	Credit
06-446-451	Vehicle Maintenance	E		14,156.81	
06-446-453	Other	E		0.00	
06-446-700		E		215,470.28	
06-446-750	Capitol Lease	E		1,375.00	
06-446-751	Capital Improvements	E		273,432.24	
06-447-000	ADMINISTRATION - WATER	E		0.00	
06-447-001	Transfer to General Fund	E		0.00	
06-447-030	Transfer to Reserves	E		0.00	
06-447-113	Authority Services	E		450.00	
06-447-120	Salaries - Administration	E		65,924.18	
06-447-121	Secretary/Assistant Serv.	E		450.00	
06-447-140	Wages - Clerical	E		43,352.63	
06-447-142	Wages - Clerical OT	E		111.94	
06-447-157	Admin Benefit Bonus Payment	E		0.00	
06-447-161	Social Security	E		8,277.39	
06-447-210	Office Supplies	E		1,494.70	
06-447-229	Meals - Meetings	E		0.00	
06-447-237	Film - Posting	E		0.00	
06-447-305	Paying Agent Service	E		82.50	
06-447-308	Codification	E		0.00	
06-447-311	Auditing	E		17,084.60	
06-447-312	Consulting	E		48,252.25	
06-447-313	Engineering	E		179,567.21	
06-447-314	Legal	E		36,371.11	
06-447-315	Codification	E		0.00	
06-447-316	Bank Charges	E		33.30	
06-447-317	Data Processing	E		9,115.90	

Account No	Description	Type	Class Id	Debit	Credit
06-447-318	Debit/Credit Card Fees	E		2,881.34	
06-447-321	Telephone	E		10,414.39	
06-447-323	Internet/Web Services	E		119.70	
06-447-325	Postage	E		4,264.39	
06-447-329	Other	E		0.00	
06-447-331	Travel Expense	E		220.89	
06-447-334	Freight & Express	E		0.00	
06-447-341	Advertising	E		101.35	
06-447-342	Printing	E		8,700.40	
06-447-350	General Liability Insurance	E		17,793.60	
06-447-353	Bonding	E		1,747.93	
06-447-354	Workman's Comp	E		182.02	
06-447-355	Vehicle Insurance	E		8,912.29	
06-447-356	Insurance Pool Reimbursement	E		0.00	
06-447-366	Water Service	E		0.00	
06-447-374	Repair & Maint - Office Equip	E		158.84	
06-447-376	Equipment	E		0.00	
06-447-420	Dues/subscriptions/licenses	E		4,239.39	
06-447-430	Taxes	E		0.00	
06-447-450	Contracted Services	E		0.00	
06-447-460	Seminars/Educational Exp.	E		447.50	
06-447-461	Education - All Departments	E		0.00	
06-447-700	Capital Expenditures	E		0.00	
06-447-715	Capital Lease - Land	E		0.00	
06-447-750	Capital Lease	E		5,426.60	
06-447-800	Depreciation Expense	E		0.00	
06-447-810	Amortization Expense	E		0.00	

Account No	Description	Type	Class Id	Debit	Credit
06-448-000	OPERATING	E		0.00	
06-448-120	Water Operating Admin Salaries	E		0.00	
06-448-140	wages	E		133,643.92	
06-448-141	Summer wages	E		0.00	
06-448-142	wages - OT	E		19,346.43	
06-448-144	vehicle Maintenance wages	E		0.00	
06-448-152	Dental Insurance	E		3,598.49	
06-448-154	Disability Insurance	E		1,174.32	
06-448-155	Vision Insurance	E		407.25	
06-448-156	Hospitalization	E		73,199.90	
06-448-157	Operating benefit bonus Payment	E		0.00	
06-448-158	Life Insurance	E		2,968.49	
06-448-160	Pension	E		3,769.10	
06-448-161	Social Security	E		11,610.41	
06-448-162	Unemployment Insurance	E		5,492.28	
06-448-164	Prescription	E		24,920.42	
06-448-191	Uniform Clothing Allowance	E		1,946.25	
06-448-229	Meals Work Release/Probacion	E		0.00	
06-448-238	Uniforms (Boots)	E		769.94	
06-448-310	CDL Random Drug Testing	E		135.55	
06-448-327	Radio Equipment/Maintenance	E		0.00	
06-448-352	Public Officials Liab, Insur	E		2,519.65	
06-448-354	Workman's Comp	E		10,109.60	
06-448-365	Dumping/Hauling Fees	E		0.00	
06-448-371	Land Maintenance Services	E		0.00	
06-448-454	Contracted Grass Cutting Services	E		2,947.50	
06-448-545	Special Activities	E		0.00	

Account No	Description	Type	Class Id	Debit	Credit
06-448-700	Capital Purchases	E		0.00	
06-448-715	Capital Lease	E		0.00	
06-448-750	Capitol Lease - Vehicle	E		0.00	
06-449-000	MEATMENT PLANT	E		0.00	
06-449-120	Filterplant Admin Wages	E		57,302.40	
06-449-140	Filterplant Operator Wages	E		195,300.48	
06-449-142	Filterplant Operator Wages OT	E		54,037.00	
06-449-152	Dental Insurance	E		4,426.08	
06-449-154	Disability Insurance	E		1,080.00	
06-449-155	Vision Insurance	E		526.44	
06-449-156	Hospitalization	E		86,623.88	
06-449-158	Life Insurance	E		2,147.40	
06-449-161	Social Security	E		23,359.21	
06-449-164	prescription	E		29,328.48	
06-449-210	Office Supplies/Furniture	E		577.86	
06-449-213	Office Furniture	E		0.00	
06-449-221	Chemicals	E		121,407.33	
06-449-225	Lab Supplies	E		17,246.37	
06-449-226	Cleaning/Sanitation Supplies	E		4,011.12	
06-449-227	Sanitation	E		3,894.36	
06-449-229	Treatment Plant - Meals for OT Shift	E		0.00	
06-449-239	Equipment/Supplies	E		7,322.43	
06-449-321	Telephone	E		278.74	
06-449-329	Security System Fees	E		572.87	
06-449-351	Property Insurance	E		14,317.34	
06-449-354	workman's Comp	E		20,486.25	
06-449-356	Flood Insurance	E		35,473.00	

Account No	Description	Type	Class Id	Debit	Credit
06-449-357	Boiler & Machinery Insurance	E		0.00	
06-449-361	Electricity	E		98,223.62	
06-449-362	Gas	E		0.00	
06-449-367	Other	E		0.00	
06-449-373	Repairs & Maint. - Bldg	E		1,622.70	
06-449-374	Repairs & Maint. Mach/Equip	E		130,933.51	
06-449-420	DUES/LICENSES	E		575.00	
06-449-450	Contracted Lab Services	E		11,309.00	
06-449-451	Vehicle Maintenance	E		286.17	
06-449-460	Seminars/Educational Expenses	E		0.00	
06-449-700	Capital Purchases	E		86,119.00	
06-449-750	Capitol Lease - Vehicle	E		1,788.98	
06-464-000	NEIGHBORHOOD ECONOMIC DEVELOPMENT	E		0.00	
06-464-120	Salaries/Wages	E		0.00	
06-464-152	Dental Insurance	E		0.00	
06-464-154	Disability Insurance	E		0.00	
06-464-155	Vision Insurance	E		0.00	
06-464-156	Hospitalization	E		0.00	
06-464-158	Life Insurance	E		0.00	
06-464-161	Social Security	E		0.00	
06-464-162	Unemployment Insurance	E		0.00	
06-464-164	Prescription	E		0.00	
06-464-210	Office Supplies	E		0.00	
06-464-212	Meeting Supplies	E		0.00	
06-464-245	Black History Month	E		0.00	
06-464-246	Parade/Veterans	E		0.00	
06-464-247	Easter Events	E		0.00	

Account No	Description	Type	Class Id	Debit	Credit
06-464-248	Tree Lighting	E		7.17	
06-464-249	Other Events	E		0.00	
06-464-310	Professional Services	E		0.00	
06-464-313	Engineering	E		0.00	
06-464-317	Data Processing	E		0.00	
06-464-321	Telephone	E		0.00	
06-464-325	Postage	E		0.00	
06-464-342	Printing	E		0.00	
06-464-350	General Liability Insurance	E		87.11	
06-464-352	Public Officials Liability Insurance	E		0.00	
06-464-354	workman's Comp.	E		0.00	
06-464-366	Water Services	E		0.00	
06-464-374	Equipment	E		0.00	
06-464-750	Capital Lease	E		0.00	
06-470-000	DEBT SERVICE	E		0.00	
06-471-000	PRINCIPAL PAYMENTS	E		0.00	
06-471-100	GOB Note 2005 - Principal	E		0.00	
06-471-200	GOB Note Street Sweeper - Principal	E		0.00	
06-471-201	GOB Note Municipal 2 - Principal	E		0.00	
06-471-202	Pennvest Loan-Princi	E		130,616.46	
06-471-203	GOB NOTE - 2011	E		0.00	
06-471-204	GOB Note Series 2012 - Principal	E		0.00	
06-471-205	Conservation Energy - Principal	E		12,842.37	
06-471-206	GOB Note - 2015 Principal	E		76,120.00	
06-471-207	GOB Note 2017 - Principal	E		209,100.00	
06-471-402	Credit Line Principal - Communications	E		910.79	
06-471-403	Clearwell Improve. - Principal- PENNVEST	E		0.00	

Account No	Description	Type	Class ID	Debit	Credit
06-472-000	INTEREST PAYMENTS	E		0.00	
06-472-017	Interest Paid From Sinking Fund	E		0.00	
06-472-100	GOB Note 2006 - Interest	E		0.00	
06-472-200	GOB Note Street Sweeper - Interest	E		0.00	
06-472-201	GOB Note Municipal 2 - Interest	E		0.00	
06-472-202	PERWEST-2010 WCP-INTEREST	E		35,967.81	
06-472-203	GOB NOTE 2011 INTEREST - SCOOP	A		11,087.64	
06-472-204	GOB Note Series 2012 - Interest	E		36,032.00	
06-472-205	Conservation Energy - Interest	E		2,457.63	
06-472-206	GOB Note - 2015 Interest	E		145,482.46	
06-472-207	GOB Note 2017 - Interest	E		5,449.77	
06-472-402	Credit Line Interest - Communications	E		6.41	
06-472-403	Clearwell Improve. - Interest - PERWEST	E		13,916.96	
06-480-000	MISCELLANEOUS EXPENSES	E		0.00	
06-480-100	DEP Consent and Agreement	E		0.00	
06-489-461	Bond Issurance GOB 2012	E		0.00	
06-492-002	Transfer to Reserves	E		0.00	
06-499-367	Bac Debr Expense	E		0.00	
06-499-368	Muni 2 - GOB 2009 Principal	E		0.00	
06-499-369	Muni 2 - GOB 2009 Interst	E		0.00	
Fund 06	Balance Totals			50,090,073.06	50,090,073.06
	Balance Totals			50,090,073.06	50,090,073.06

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Income Approach  
Financials 2016**

**AUS Consultants  
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8555 West Forest Home Avenue  
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**STEELTON BOROUGH AUTHORITY  
(COMPONENT UNIT OF THE BOROUGH OF STEELTON)  
YEAR ENDED DECEMBER 31, 2016**

**CONTENTS**

**STEELTON BOROUGH AUTHORITY  
(COMPONENT UNIT OF  
THE BOROUGH OF STEELTON)  
FINANCIAL STATEMENTS  
- MODIFIED CASH BASIS  
YEAR ENDED DECEMBER 31, 2016**

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To the Board of Directors  
Steelton Borough Authority  
Steelton, Pennsylvania

We have audited the accompanying modified cash basis financial statements of the business-type activities of the Steelton Borough Authority (the "Authority"), a component unit of the Borough of Steelton, as of and for the year ended December 31, 2016, and the related notes to the financial statements, which collectively comprise the Authority's basic financial statements as listed in the table of contents.

**Management's Responsibility for the Financial Statements**

Management is responsible for the preparation and fair presentation of those financial statements in accordance with the modified cash basis of accounting as described in Note 1; this includes determining that the modified cash basis of accounting is an acceptable basis for the preparation of the financial statements in the circumstances. Management is also responsible for 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 an opinion 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 opinion.

**Opinion**

In our opinion, the modified cash basis financial statements referred to above present fairly, in all material respects, the respective financial position of the business-type activities of the Steelton Borough Authority, as of December 31, 2016, and the respective changes in the modified cash basis financial position and, where applicable, cash flows thereof for the year then ended in accordance with the modified cash basis of accounting as described in Note 1.

**Basis of Accounting**

We draw attention to Note 1 of the financial statements, which describes the basis of accounting. The financial statements are prepared on the modified cash basis of accounting, which is a comprehensive basis of accounting other than accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to this matter.

To the Board of Directors  
Steelton Borough Authority  
Steelton, Pennsylvania

**Adoption of Governmental Accounting Standards Board Pronouncements**

As discussed in Note 1 to the financial statements in 2016 the Authority adopted the provisions of Statement No. 72, "Fair Value Measurement and Application", the provisions of No. 73, "Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68 and Amendments to Certain Provisions of GASB Statements 67 and 68", the provisions of Statement No. 76, "The Hierarchy of Generally Accepted Accounting Principles for State and Local Governments", the provisions of Statement No. 77, "Tax Abatement Disclosures", the provisions of Statement No. 78, "Pensions Provided through Certain Multiple-Employer Defined Benefit Pension Plans", and the provisions of Statement No. 79, "Certain External Investment Pools and Pool Participants". Our opinion is not modified with respect to these matters.

**Other Matters**

Management has omitted the management's discussion and analysis that accounting principles generally accepted in the United States of America require to be presented to supplement the basic financial statements. Such missing 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 users of the basic financial statements in an appropriate operational, economic, or historical context. Our opinion on the modified cash basis basic financial statements is not affected by this missing information.

*Zelenkofske Axelrod LLC*  
ZELENKOFSCHE AXELROD LLC

Harrisburg, Pennsylvania  
June 27, 2017

Harrisburg	Philadelphia	Pittsburgh	Greensburg
839 Six Thicket Court, Suite 100 Harrisburg, PA 17109 717-561-9700 Fax 717-561-9202	2270 York Road, Suite A-5 Jenkintown, PA 19103 215-914-2277 Fax 215-914-2300	1800 Mt. Pleasant Dr., Suite 200 Pittsburgh, PA 15229 412-623-7800 Fax 412-387-7105	210 Tolson Hill Road Greensburg, PA 15601 724-834-2151 Fax 724-414-5909

Steelton Borough Authority  
Statement of Net Position - Modified Cash Basis  
December 31, 2016

Page 3

	Business Type Activities - Enterprise Funds
<b>Assets</b>	
<b>Current Assets:</b>	
Cash & Cash Equivalents	\$ 2,765,388
Due From Primary Government	2,051,764
Restricted Cash	347
<b>Total Current Assets</b>	<b>4,817,510</b>
<b>Noncurrent Assets:</b>	
Capital Assets, Being Depreciated, Net of Accumulated Depreciation	10,913,581
<b>Total Noncurrent Assets</b>	<b>10,913,581</b>
<b>Total Assets</b>	<b>15,731,091</b>
<b>Liabilities</b>	
<b>Current Liabilities:</b>	
Security Deposit	347
Due to Primary Government	113,554
Bonds Payable, net	362,944
Loans Payable	30,816
<b>Total Current Liabilities</b>	<b>607,461</b>
<b>Noncurrent Liabilities:</b>	
Bonds Payable, net	7,256,711
Loans Payable	2,115,056
<b>Total Noncurrent Liabilities</b>	<b>9,371,776</b>
<b>Total Liabilities</b>	<b>9,979,237</b>
<b>Net Position</b>	<b>3,100,009</b>
Net Investment in Capital Assets	2,851,845
Unrestricted	248,164
<b>Total Net Position</b>	<b>\$ 5,751,054</b>

The accompanying notes are an integral part of the financial statements.

Steelton Borough Authority  
Statement of Revenues, Expenses, and Changes in Fund Net  
Position - Modified Cash Basis  
For the Year ended December 31, 2016

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	Business Type Activities - Enterprise Funds
<b>Operating Revenues</b>	
Charges for Service	\$ 2,952,458
<b>Total Operating Revenues</b>	<b>2,952,458</b>
<b>Operating Expenses</b>	
System - Water	1,200,035
Water Treatment	779,894
Administrative	115,671
Depreciation	489,049
Amortization	8,130
<b>Total Operating Expenses</b>	<b>2,587,087</b>
<b>Operating Income</b>	<b>264,475</b>
<b>Nonoperating Revenues/(Expenses)</b>	
Interest Revenue	14,147
Interest Expense	(273,730)
Miscellaneous Revenue	203
<b>Total Non-operating Expenses</b>	<b>(259,379)</b>
<b>Income Before Capital Grant Funding and Operating Transfers</b>	<b>5,100</b>
<b>Capital Grant Funding</b>	<b>34,046</b>
Transfers to Primary Government	(39,573)
Transfers from Primary Government	7,645
<b>Total Capital Grant Funding and Operating Transfers</b>	<b>1,938</b>
<b>Change in Net Position</b>	<b>6,838</b>
<b>Total Net Position - Beginning of Year</b>	<b>5,745,216</b>
<b>Total Net Position - End of Year</b>	<b>\$ 5,751,054</b>

The accompanying notes are an integral part of the financial statements.



	Business Type Activities - Expendable Funds
Cash Flows From Operating Activities:	
Receipts from Charges for Service	\$ 2,852,458
Payment to Employees	(806,009)
Payment to Suppliers	(1,264,845)
Net Cash Provided by Operating Activities	\$ 781,604
Cash Flows From Investing Activities:	
Investment Income	14,147
Net Cash Provided by Investing Activities	14,147
Cash Flows From Non-Capital Financing Activities:	
Operating Transfers Out	(38,573)
Miscellaneous Revenues	7,083
Operating Transfers In	
Net Cash Used in Non-Capital Financing Activities	(31,490)
Cash Flows From Capital and Related Financing Activities:	
Purchase of Capital Assets	(449,247)
Principal Payments	(849,279)
Capital Grant Funding	24,046
Interest Payments	(273,750)
Net Cash Used in Capital and Related Financing Activities	(1,558,230)
Net Decrease in Cash and Cash Equivalents	(264,859)
Cash and Cash Equivalents - Beginning of Year	3,016,004
Cash and Cash Equivalents - End of Year	\$ 2,751,145
Reconciled in the Financial Statements to:	
Cash and Cash Equivalents	\$ 2,745,380
Restricted Cash	5,765
Total Cash and Cash Equivalents	\$ 2,751,145
Reconciliation of Operating Income to net cash provided by operating activities:	
Operating Income	\$ 364,475
Adjustments to Reconcile Operating Income to Net Cash Provided by Operating Activities:	
Depreciation Expense	483,043
Amortization Expense	6,135
Changes in Assets and Liabilities:	
Due from Primary Government	124,301
Due to Primary Government	(113,546)
Net Cash Provided by Operating Activities	\$ 944,408
Supplementary Disclosure of Noncash Transactions:	
Accrual of Bond Discount	\$ 8,135
Grant Funding	34,046
Total Noncash Transactions	\$ 42,181

The accompanying notes are an integral part of the financial statements.

NOTE 1:

NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The Steelton Borough Authority (the "Authority") was created pursuant to an ordinance of the Steelton Borough Council (Borough), incorporated under the Municipality Authorities Act of 1945, being the Act of May 2, 1945, P.L. 382, as amended by the Commonwealth of Pennsylvania.

The purpose of the Authority includes those activities of acquiring, holding, constructing, operating, owning and leasing water, water systems or parts thereof. The Authority is overseen by the Board which consists of five members who are appointed by the Borough Council. The Authority employed the Borough to manage and operate the water system through a management agreement in which the Authority owns and is responsible for the management of and charges for water services. The Authority is considered a Component Unit of the Borough.

A summary of the Authority's significant accounting policies are as follows.

A. Reporting Entity

Consistent with the guidance contained in GASB Statement No. 61, The Financial Reporting Entity, the Authority has determined that the Authority is the reporting entity. The Authority is a component unit of the Borough. The Authority is included in the Borough's financial statements as a component unit because the Authority is fiscally dependent on the Borough. The Authority's financial statements are prepared on the modified cash basis of accounting.

The Authority has not identified any entities which should be subject to inclusion in the Authority's reporting entity. The Borough includes the Authority in its financial statements as a discretely presented component unit because the Borough appoints the Authority's governing board, guarantees the Authority's debt, and the Authority meets the criteria satisfying inclusion in the Borough's financial statements.

B. Measurement Focus, Basis of Accounting and Financial Statement Presentation

The Authority's financial statements are presented on the modified cash basis of accounting. The modified cash basis differs from the accounting principle generally accepted in the United States of America. Under this basis, revenues, expenses and related assets and liabilities are recorded when they result from cash transactions, except for the recording of amortization of bond discounts and depreciation expense on capital assets. As a result of the use of the modified cash basis of accounting, certain assets and their related revenues (such as accounts receivable and revenue for billed or provided services not collected) and certain liabilities and their related expenses (such as accounts payable and expenses for goods or services received but not yet paid and accrued expense and liabilities) are not recorded in these financial statements.

STEELTON BOROUGH AUTHORITY  
(COMPONENT UNIT OF THE BOROUGH OF STEELTON)  
NOTES TO THE FINANCIAL STATEMENTS - MODIFIED CASH BASIS (CONTINUED)  
DECEMBER 31, 2016

NOTE 1:

NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES  
(CONTINUED)

9. Measurement Focus, Basis of Accounting and Financial Statement Presentation (Continued)

All activities of the Authority are accounted for within one proprietary (enterprise) fund. Proprietary funds are used to account for operations that are (a) financed and operated in a manner similar to private business enterprises where the intent of the governing body is that the costs (expenses, private business enterprises where the intent of the governing body is that the costs (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be included in the cost of the goods or services, or (b) where the governing body has decided to finance or recover primarily through user charges, or (c) where the governing body has decided that periodic determination of revenues earned, expenses incurred, and/or net income is appropriate for capital maintenance, public policy, management control, accountability, or other purposes.

The accounting and financial reporting treatment applied to the Authority is determined by its measurement focus. The transactions of the Authority are accounted for on a flow of economic resources measurement focus, within the indications of the cash basis. The accounting objectives of the economic resources measurement are the determination of operating income, changes in net position (or cost recovery), financial position and cash flow. All assets and liabilities (whether current or noncurrent, financial, or non-financial) associated with these activities are reported.

Operating revenues, such as charges for services, result from exchange transactions associated with the principal activity of the Authority. Exchange transactions are those in which each party receives and gives up essentially equal values. Non-operating revenues, such as subsidies and investment earnings, result from nonexchange transactions or ancillary activities. When both restricted and unrestricted resources are available for use, it is the Authority's policy to use restricted resources, and then unrestricted resources as they are needed for their intended purposes.

C. Cash and Cash Equivalents

Cash and cash equivalents, for the purposes of the statement of cash flows, include restricted cash on hand or on deposit with a maturity of three months or less when purchased.

D. Restricted Cash

Restricted cash represents cash held in escrow for security deposits. At December 31, 2016, the restricted cash balance was \$347.

E. Capital Assets

Capital assets, which include property, plant, and equipment, and infrastructure, are reported in the financial statements at historical cost or estimated historical cost if purchased or constructed. Restricted capital assets are recorded at estimated fair market value at the date of donation. Capital assets are defined by the Authority as assets with an initial, individual cost of more than \$2,500 and an estimated useful life in excess of one year. Depreciation is recorded using the straight-line method over the estimated useful life of the various assets.

The costs of normal maintenance and repairs that do not add to the value of the assets or materially extend assets lives are not capitalized.

STEELTON BOROUGH AUTHORITY  
(COMPONENT UNIT OF THE BOROUGH OF STEELTON)  
NOTES TO THE FINANCIAL STATEMENTS - MODIFIED CASH BASIS (CONTINUED)  
DECEMBER 31, 2016

NOTE 1:

NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES  
(CONTINUED)

E. Capital Assets (Continued)

Capital assets of the Authority are depreciated using the straight-line method over the following estimated useful lives:

Buildings and improvements	10-40 Years
Furniture and fixtures	10-20 Years
Machinery and equipment	5-20 Years
Infrastructure	5-50 Years
Vehicles	5-10 Years

F. Debt Related Costs

Debt related costs include bond discounts and are amortized to interest expense using the straight-line method over the term of the associated debt. Amortization expense for the year ended December 31, 2016 was \$6,135.

G. Net Position

Net position is categorized as net investment in capital assets, restricted and unrestricted.

- **Net Investment in Capital Assets** - This category groups all capital assets, including infrastructure, into one component of net position. Accumulated depreciation and the outstanding balances of debt that are attributable to the acquisition, construction, or improvement of these assets reduce the balance in this category.
- **Restricted Net Position** - This category represents external restrictions imposed by creditors, grantors, contributors, or laws or regulations of other governments and constitutions, grants, contracts, or laws or regulations of other governments and restrictions imposed by law through constitutional provisions or enabling legislation.
- **Unrestricted Net Position** - This category represents the net position of the Authority, not restricted for any project or other purpose.

H. Use of Estimates

The preparation of financial statements requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

I. Adoption of Governmental Accounting Standards Board Statements

The Authority adopted the provisions of GASB Statement No. 72, "Fair Value Measurement and Application," the provisions of Statement No. 73, "Accounting and Financial Reporting for Pensions and Related Assets that are Not within the Scope of GASB Statement 58 and Amendments to Certain Provisions of GASB Statements 67 and 88," the provisions of Statement No. 76, "The Hierarchy of Generally Accepted Accounting Principles for State and Local Governments," the provisions of Statement No. 78, "Tax Abatement Disclosures," the provisions of Statement No. 79, "Pensions Provided through Certain Multiple-Employer Defined Benefit Pension Plans," and the provisions of Statement No. 79, "Certain External Investment Pools and Pool Participants." The adoption of these statements had no effect on previously reported amounts.

STEELETON BOROUGH AUTHORITY  
(COMPONENT UNIT OF THE BOROUGH OF STEELTON)  
NOTES TO THE FINANCIAL STATEMENTS - MODIFIED CASH BASIS (CONTINUED)  
DECEMBER 31, 2016

NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

G. Pending Changes in Accounting Principles

In June 2015, the GASB issued Statement No. 74, "Financial Reporting for Postemployment Benefit Plans Other Than Pensions." The Authority is required to adopt statement No. 74 for its calendar year 2017 financial statements.

In June 2015, the GASB issued Statement No. 75, "Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions." The Authority is required to adopt statement No. 75 for its calendar year 2016 financial statements.

In January 2016, the GASB issued Statement No. 80, "Bonding Requirements for Certain Component Units - an amendment of GASB Statement No. 14." The Authority is required to adopt statement No. 80 for its calendar year 2017 financial statements.

In March 2016, the GASB issued Statement No. 81, "Inevitable Spin-Interest Agreements." The Authority is required to adopt statement No. 81 for its calendar year 2017 financial statements.

In March 2016, the GASB issued Statement No. 82, "Pension Issues - an amendment of GASB Statements No. 67, No. 68, and No. 73." The Authority is required to adopt statement No. 82 for its calendar year 2017 financial statements.

In November 2016, the GASB issued Statement No. 83, "Certain Asset Retirement Obligations." The Authority is required to adopt statement No. 83 for its calendar year 2016 financial statements.

In January 2017, the GASB issued Statement No. 84, "Fiduciary Activities." The Authority is required to adopt statement No. 84 for its calendar year 2016 financial statements.

In March 2017, the GASB issued Statement No. 85, "Utilities 2017." The Authority is required to adopt statement No. 85 for its calendar year 2016 financial statements.

In May 2017, the GASB issued Statement No. 86, "Certain Debt Extinguishment Issues." The Authority is required to adopt statement No. 86 for its calendar year 2016 financial statements.

The Authority has not yet completed the various analysis required to estimate the financial statement impact of these new pronouncements.

STEELETON BOROUGH AUTHORITY  
(COMPONENT UNIT OF THE BOROUGH OF STEELTON)  
NOTES TO THE FINANCIAL STATEMENTS - MODIFIED CASH BASIS (CONTINUED)  
DECEMBER 31, 2016

NOTE 2: DEPOSITS AND INVESTMENT RISK

**Custodial Credit Risk** - For deposits, custodial credit risk is the risk that in the event of the failure of the counterparty, the Authority will not be able to recover the value of its deposits or collateral securities that are in the possession of an outside party. At December 31, 2016, the Authority's cash balance including restricted cash was \$2,765,746 and its bank balances were \$2,756,821. Of these bank balances, \$2,506,821 was exposed to custodial credit risk, as it is collateralized with securities held by the pledging financial institutions, not in the Authority's name, and unsecured. The Authority does not have a written policy to limit its exposure to custodial credit risk.

NOTE 3: CAPITAL ASSETS

Capital Assets activity consisted of the following:

	Balance January 1, 2016	Additions	Deletions	Balance December 31, 2016
<b>WATER FUND:</b>				
Capital assets being depreciated				
Buildings and improvements	\$ 1,400,417	\$ -	\$ -	\$ 1,400,417
Furniture and fixtures	102,966	-	-	102,966
Machinery and equipment	1,974,804	137,841	-	2,112,745
Infrastructure	14,548,171	245,911	-	14,794,082
Vehicles	212,723	35,435	-	248,158
Total capital assets being depreciated	18,239,081	449,247	-	18,688,328
Accumulated depreciation	(7,291,915)	(483,240)	-	(7,775,155)
Total capital assets being depreciated, net	10,947,166	(33,993)	-	10,913,173
Water fund capital assets, net	\$ 10,947,166	\$ (33,993)	\$ -	\$ 10,913,173

Depreciation expense was \$483,048 for the Authority for the year ended December 31, 2016.

STEELETON BOROUGH AUTHORITY  
(COMPONENT UNIT OF THE BOROUGH OF STEELTON)  
NOTES TO THE FINANCIAL STATEMENTS - MODIFIED CASH BASIS (CONTINUED)  
DECEMBER 31, 2016

NOTE 4: LONG TERM LIABILITIES

A summary of changes in long-term liabilities follows:

	Beginning Balance	Additions	Reductions	Ending Balance	Amounts Due Within One Year
Bonds Payable	\$ 8,121,665	\$ -	\$ (882,969)	\$ 7,238,700	\$ 369,039
Bond Discount	(125,180)	-	6,135	(119,045)	(6,135)
Loans Payable	2,978,213	-	(132,232)	2,845,981	130,616
Total General Obligation Debt	10,874,698	-	(609,066)	9,865,336	493,560
Capital Lease Obligation	33,782	-	(33,782)	-	-
Total Long-term Liabilities	\$ 10,908,480	\$ -	\$ (642,848)	\$ 9,865,336	\$ 493,560

An analysis of debt service requirements to maturity on the Business-Type Activities obligations is as follows:

Years Ended December 31:	Principal Requirements	Interest Requirements	Total Debt Service Requirements
2017	\$ 499,695	\$ 260,620	\$ 760,315
2018	509,618	255,890	765,508
2019	534,552	246,549	781,101
2020	543,597	235,524	779,121
2021	551,847	222,466	774,313
2022-2026	2,980,460	891,692	3,872,152
2027-2031	2,639,002	481,974	3,220,976
2032-2036	532,300	237,698	770,239
2037-2041	686,612	142,982	829,594
2042-2045	406,978	30,965	437,943
	\$ 9,984,381	\$ 3,006,572	\$ 12,990,953

2010 \$2,959,726 PennWest Loan with principal due through 2032. Interest rates for the first five years are 1.278% and after are 1.772%. The loan is for a Water System Improvement Project and has a guaranty by Steelton Borough. \$2,245,681

2012 \$4,015,622 General Obligation Bonds Series of 2012 with principal due annually through December 1, 2025 with interest due semi-annually with rates ranging from 1.00% to 3.70%. The proceeds of the bond were used to refund outstanding issuances. \$2,733,170

STEELETON BOROUGH AUTHORITY  
(COMPONENT UNIT OF THE BOROUGH OF STEELTON)  
NOTES TO THE FINANCIAL STATEMENTS - MODIFIED CASH BASIS (CONTINUED)  
DECEMBER 31, 2016

NOTE 4: LONG TERM LIABILITIES (CONTINUED)

2015	\$5,109,344	General Obligation Bonds Series of 2015 with principal due annually through December 1, 2044 with interest due semi-annually with rates ranging from 0.95% to 3.75%. The proceeds of the bonds were used for capital projects and to refund outstanding issuances.	\$5,005,639
Total Long-Term Debt			\$9,984,381

In 2016, the Authority entered into a loan with revenues for sewer improvements. The loan bears a term of 240 months with interest rates ranging from 1.444% to 2.120%. The first drawdown on the loan occurred in March 2017. As of December 31, 2016 the outstanding balance on the loan was \$0.

NOTE 6: RISK MANAGEMENT

The Authority is exposed to various risks of loss related to torts; theft of, damage to and destruction of assets; errors and omissions; repair to employees, and natural disasters. Significant losses are covered by commercial insurance. There was no significant reduction in insurance coverages during 2016. Settlement amounts have not exceeded insurance coverage for the current year or the three prior years.

NOTE 7: ECONOMIC DEPENDENCY

One major customer of the Authority accounted for 61% of water sales.

NOTE 8: MANAGEMENT AGREEMENT

The Authority entered into a management agreement with the Borough to manage the day-to-day operations of the water system to include repair, maintenance, and administration. The Authority owns and is responsible for the management of and charges for water services. The power of the Authority is exercised by the Board composed of five members, appointed by the Borough Council.

NOTE 9: COMMITMENTS AND CONTINGENCIES

The Pennsylvania Local Debt Act (the "Act") permits local governments to extend nonexchange financial guarantees on certain debt issued by entities located within the government's physical jurisdiction. The Borough issued General Obligation Bonds Series of 2012 in the amount of 6,145,000. A portion of \$3,180,000 and General Obligation Bonds Series of 2015 in the amount of 6,145,000. The Borough also the debt is recorded as an obligation of the Borough. The full faith, credit and taxing power of the guarantee the Authority's 2016 Note with PennWest. The full faith, credit and taxing power of the Borough is pledged to redeem these notes and bonds if the revenues from water fees are insufficient to meet the obligations. The Borough has not been called on to make any payments on the debt. See Note 4 for specific information and balances outstanding related to these debt issues.

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

Appraisal Work Papers  
As of July 2018

**STEELTON BOROUGH AUTHORITY  
(COMPONENT UNIT OF  
THE BOROUGH OF STEELTON)  
FINANCIAL STATEMENTS  
- MODIFIED CASH BASIS  
YEAR ENDED DECEMBER 31, 2015**

Income Approach  
Financials 2015

**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)**

Steelton Financials 2013 2017

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Steelton Financials 2013 2017

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STEELTON BOROUGH AUTHORITY  
(COMPONENT UNIT OF THE BOROUGH OF STEELTON)  
YEAR ENDED DECEMBER 31, 2015

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**Zelenkofske Axelrod LLC**

INDEPENDENT AUDITORS' REPORT

To the Board of Directors  
Steelton Borough Authority  
Steelton, Pennsylvania

We have audited the accompanying modified cash basis financial statements of the business-type activities of the Steelton Borough Authority (the "Authority"), a component unit of the Borough of Steelton, as of and for the year ended December 31, 2015, and the related notes to the financial statements, which collectively comprise the Authority's basic financial statements as listed in the table of contents.

**Management's Responsibility for the Financial Statements**

Management is responsible for the preparation and fair presentation of these financial statements in accordance with the modified cash basis of accounting as described in Note 1; this includes determining that the modified cash basis of accounting is an acceptable basis for the preparation of the financial statements in the circumstances. Management is also responsible for 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 an opinion 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 auditor's 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 opinion.

**Opinion**

In our opinion, the modified cash basis financial statements referred to above present fairly, in all material respects, the respective financial position of the business-type activities of the Steelton Borough Authority, as of December 31, 2015, and the respective changes in the modified cash basis financial position and, where applicable, cash flows thereof for the year then ended in accordance with the modified cash basis of accounting as described in Note 1.

**Basis of Accounting**

We draw attention to Note 1 of the financial statements, which describes the basis of accounting. The financial statements are prepared on the modified cash basis of accounting, which is a basis of accounting other than accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to this matter.

# Zelenkofske Axelrod LLC

### Adoption of Governmental Accounting Standards Board Pronouncements

As discussed in Note 1 in the financial statements in 2015, the Steele Borough Authority adopted the provisions of Governmental Accounting Standards Board's Statement ("GASB") No. 68, "Accounting and Financial Reporting for Pensions - an amendment of GASB Statement No. 27" and GASB Statement No. 71, "Pension Transition for Contributions Made Subsequent to the Measurement Date - an amendment of GASB Statement No. 68". Our opinion is not modified with respect to these matters.

### Other Matters

Management has omitted the management's discussion and analysis that accounting principles generally accepted in the United States of America require to be presented to supplement the basic financial statements. Such missing 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. Our opinion on the modified cash basis basic financial statements is not affected by this missing information.

*Zelenkofske Axelrod LLC*

ZELENKOFSKE AXELROD LLC

Harrisburg, Pennsylvania  
June 27, 2016

	Business Type Activities - Enterprise Funds	
<b>Assets</b>		
<b>Current Assets:</b>		
Cash & Cash Equivalents	\$	3,030,257
Due From Primary Government		2,170,050
Restricted Cash		347
<b>Total Current Assets</b>		<b>5,205,662</b>
<b>Noncurrent Assets:</b>		
Capital Assets, Being Depreciated, Net of Accumulated Depreciation		10,947,382
<b>Total Noncurrent Assets</b>		<b>10,947,382</b>
<b>Total Assets</b>	<b>\$</b>	<b>16,154,044</b>
<b>Liabilities</b>		
<b>Current Liabilities:</b>		
Security Deposit	\$	347
Bonds Payable, net		376,760
Loans Payable		132,533
Capital Lease Obligation		33,782
<b>Total Current Liabilities</b>		<b>543,422</b>
<b>Noncurrent Liabilities:</b>		
Bonds Payable, net		7,619,726
Loans Payable		2,245,680
<b>Total Noncurrent Liabilities</b>		<b>9,865,406</b>
<b>Total Liabilities</b>		<b>10,408,828</b>
<b>Net Position</b>		
Net Investment in Capital Assets		2,711,583
Unrestricted		3,033,633
<b>Total Net Position</b>	<b>\$</b>	<b>5,745,216</b>

The accompanying notes are an integral part of the financial statements

### Steele Borough Authority Statement of Revenues, Expenses, and Changes in Fund Net Position - Modified Cash Basis For the Year ended December 31, 2015

Page 4

	Business Type Activities - Enterprise Funds	
<b>Operating Revenues</b>		
Charges for Service	\$	3,339,146
<b>Total Operating Revenues</b>		<b>3,339,146</b>
<b>Operating Expenses</b>		
System - Water		994,581
Water Treatment		781,825
Administrative		112,511
Depreciation		471,488
Amortization		5,797
<b>Total Operating Expenses</b>		<b>2,376,202</b>
<b>Operating Income</b>		<b>962,944</b>
<b>Nonoperating Revenues/(Expenses)</b>		
Interest Revenue		12,749
Interest Expense		(256,027)
Bond Issuance Costs		(150,657)
<b>Total Non-operating Expenses</b>		<b>(393,935)</b>
<b>Income Before Capital Grant Funding and Operating Transfers</b>		<b>569,009</b>
Capital Grant Funding		511,056
Transfers to Primary Government		(61,128)
<b>Transfers from Primary Government</b>		<b>70,289</b>
<b>Total Capital Grant Funding and Operating Transfers</b>		<b>520,227</b>
<b>Change in Net Position</b>		<b>1,089,236</b>
<b>Total Net Position - Beginning of Year</b>		<b>4,655,980</b>
<b>Total Net Position - End of Year</b>	<b>\$</b>	<b>5,745,216</b>

The accompanying notes are an integral part of the financial statements.

### Steele Borough Authority Statement of Cash Flows - Modified Cash Basis For the year ended December 31, 2015

Page 5

	Business Type Activities - Enterprise Funds	
<b>Cash Flows From Operating Activities:</b>		
Receipts from Charges for Service	\$	3,339,146
Payment to Employees		(618,320)
Payment to Suppliers		(1,262,712)
<b>Net Cash Provided by Operating Activities</b>		<b>1,440,114</b>
<b>Cash Flows From Investing Activities:</b>		
Investment Income		12,749
<b>Net Cash Provided by Investing Activities</b>		<b>12,749</b>
<b>Cash Flows From Non-Capital Financing Activities:</b>		
Operating Transfers Out		(61,128)
Operating Transfers In		70,289
<b>Net Cash Provided by Non-Capital Financing Activities</b>		<b>9,171</b>
<b>Cash Flows From Capital and Related Financing Activities:</b>		
Purchase of Capital Assets		(461,578)
Principal Payments		(2,837,960)
Interest Payments		(256,027)
Bond Issuance Costs		(150,657)
Bond Proceeds		2,860,873
Loan Proceeds		144,261
<b>Net Cash Used in Capital and Related Financing Activities</b>		<b>(721,086)</b>
<b>Net Increase in Cash and Cash Equivalents</b>		<b>740,948</b>
Cash and Cash Equivalents - Beginning of Year		2,289,659
<b>Cash and Cash Equivalents - End of Year</b>	<b>\$</b>	<b>3,030,604</b>
<b>Presented in the Financial Statements as:</b>		
Cash and Cash Equivalents	\$	3,030,257
Restricted Cash		347
<b>Total Cash and Cash Equivalents</b>	<b>\$</b>	<b>3,030,604</b>
<b>Reconciliation of Operating income to net cash provided by operating activities:</b>		
Operating Income	\$	962,944
Adjustments to Reconcile Operating Income to Net Cash Provided by Operating Activities:		
Depreciation Expense		471,488
Amortization Expense		5,797
Changes in Assets and Liabilities:		
Due from Primary Government		(6)
Security Deposit		9
Due to Primary Government		(118)
<b>Net Cash Provided by Operating Activities</b>	<b>\$</b>	<b>1,440,114</b>
<b>Supplementary Disclosure of Noncash Transactions:</b>		
Amortization of Bond Discount	\$	5,797
Capital Assets Received From Grantor		511,056
<b>Total Noncash Transactions</b>	<b>\$</b>	<b>516,853</b>

The accompanying notes are an integral part of the financial statements.

NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The Steelton Borough Authority (the "Authority") was created pursuant to an ordinance of the Steelton Borough Council (Borough), incorporated under the Municipality Authorities Act of 1945, being the Act of May 2, 1945, P.L. 382, as amended by the Commonwealth of Pennsylvania.

The purpose of the Authority includes those activities of acquiring, holding, constructing, improving, owning and leasing water, water systems or parts thereof. The Authority is overseen by the Board which consists of five members who are appointed by the Borough Council. The Authority employed the Borough to manage and operate the water system through a management agreement in which the Authority owns and is responsible for the management of and charges for water services. The Authority is considered a Component Unit of the Borough.

A summary of the Authority's significant accounting policies are as follows.

A. Reporting Entity

Consistent with the guidance contained in GASB Statement No. 51, *The Financial Reporting Entity: Omnibus an amendment of GASB Statements No. 14 and No. 34*, GASB Statement No. 39, *Determining Whether Certain Organizations Are Component Units*, an amendment to GASB-14, *The Reporting Entity*, the criteria used by the Authority to evaluate the possible inclusion of related entities within its reporting entity are financial accountability and the nature and significance of the relationship.

The Authority has not identified any entities which should be subject to evaluation for inclusion in the Authority's reporting entity. The Borough includes the Authority in its financial statements as a discretely presented component unit because the Borough appoints the Authority's governing board, guarantees the Authority's debt, and the Authority meets the criteria satisfying inclusion in the Borough's financial statements.

B. Measurement Focus, Basis of Accounting and Financial Statement Presentation

The Authority's financial statements are presented on the modified cash basis of accounting. The modified cash basis differs from the accounting principles generally accepted in the United States of America. Under this basis, revenues, expenses and related assets and liabilities are recorded when they result from cash transactions except for the recording of amortization of bond discounts and depreciation expense on capital assets. As a result of the use of the modified cash basis of accounting, certain assets and their related revenues (such as accounts receivable and revenue for billed or provided services not collected) and certain liabilities and their related expenses (such as accounts payable and expenses for goods or services received but not yet paid and accrued expense and liabilities) are not recorded in these financial statements.

NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

B. Measurement Focus, Basis of Accounting and Financial Statement Presentation (Continued)

All activities of the Authority are accounted for within one proprietary (enterprise) fund. Proprietary funds are used to account for operations that are (a) financed and operated in a manner similar to private business enterprises where the intent of the governing body is that the cost (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges; or (b) where the governing body has decided that periodic determination of revenues earned, expenses incurred, and/or net income is appropriate for capital maintenance, public policy, management control accountability, or other purposes.

The accounting and financial reporting treatment applied to the Authority is determined by its measurement focus. The transactions of the Authority are accounted for on a flow of economic resources measurement focus, within the modifications of the cash basis. The accounting objectives of the economic resources measurement are the determination of operating income, changes in net position (or cost recovery), financial position and cash flows. All assets and liabilities (whether current or noncurrent, financial, or non-financial) associated with these activities are reported.

Operating revenues, such as charges for services, result from exchange transactions associated with the principal activity of the Authority. Exchange transactions are those in which each party receives and gives up essentially equal values. Non-operating revenues, such as subsidies and investment earnings, result from nonexchange transactions or ancillary activities. When both restricted and unrestricted resources are available for use, it is the Authority's policy to use restricted resources, and then unrestricted resources as they are needed for their intended purposes.

C. Cash and Cash Equivalents

Cash and cash equivalents, for the purposes of the statement of cash flows, include restricted cash on hand or on deposit with a maturity of three months or less when purchased.

D. Restricted Cash

Restricted cash represents cash held in escrow for security deposits. At December 31, 2015, the restricted cash balance was \$347.

E. Capital Assets

Capital assets, which include property, plant, and equipment, and infrastructure, are reported in the financial statements at historical cost or estimated historical cost if purchased or constructed. Donated capital assets are recorded at estimated fair market value at the date of donation. Capital assets are defined by the Authority as assets with an initial, individual cost of more than \$2,500 and an estimated useful life in excess of one year. Depreciation is recorded using the straight-line method over the estimated useful life of the various assets.

The costs of normal maintenance and repairs that do not add to the value of the assets or materially extend assets lives are not capitalized.

NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

E. Capital Assets (Continued)

Capital assets of the Authority are depreciated using the straight-line method over the following estimated useful lives:

Buildings and improvements	10-40 Years
Furniture and fixtures	10-20 Years
Machinery and equipment	5-20 Years
Infrastructure	5-99 Years
Vehicles	5-10 Years

F. Debt Related Costs

Debt related costs include bond discounts and are amortized to interest expense using the straight-line method over the term of the associated debt. Amortization expense for the year ended December 31, 2015 was \$5,797.

G. Net Position

Net position is categorized as net investment in capital assets, restricted and unrestricted.

- *Net Investment in Capital Assets* – This category groups all capital assets, including infrastructure, into one component of net position. Accumulated depreciation and the outstanding balances of debt that are attributable to the acquisition, construction, or improvement of these assets reduce the balance in this category.
- *Restricted Net Position* – This category presents external restrictions imposed by creditors, grantors, contributors, or laws or regulations of other governments and restrictions imposed by law through constitutional provisions or enabling legislation.
- *Unrestricted Net Position* – This category represents the net position of the Authority, not restricted for any project or other purpose.

H. Use of Estimates

The preparation of financial statements requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

I. Adoption of Governmental Accounting Standards Board Statements

The Authority adopted the provisions of GASB Statement No. 68, *Accounting and Financial Reporting for Pension Plans – an amendment of GASB Statement No. 27*. The adoption of this statement did not have an effect on the financial statements or notes.

The Authority adopted the provisions of GASB Statement No. 71, *Pension Transition for Contributions Made Subsequent to the Measurement Date – an amendment of GASB Statement No. 68*. The adoption of this statement did not have an effect on the financial statements or notes.

NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

G. Pending Changes in Accounting Principles

In February 2015, the GASB issued Statement No. 72, *Fair Value Measurement and Application*. The Authority is required to adopt Statement No. 72 for its calendar year 2016 financial statements.

In June 2015, the GASB issued Statement No. 73, *Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68 and Amendments to Certain Provisions of GASB Statements 67 and 68*. The Authority is required to adopt statement No. 73 for its calendar year 2016 financial statements.

In June 2015, the GASB issued Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*. The Authority is required to adopt statement No. 74 for its calendar year 2017 financial statements.

In June 2015, the GASB issued Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. The Authority is required to adopt statement No. 75 for its calendar year 2018 financial statements.

In June 2015, the GASB issued Statement No. 76, *The Hierarchy of Generally Accepted Accounting Principles for State and Local Governments*. The Authority is required to adopt statement No. 76 for its calendar year 2016 financial statements.

In August 2015, the GASB issued Statement No. 77, *Tax Abatement Disclosures*. The Authority is required to adopt statement No. 77 for its calendar year 2016 financial statements.

In December 2015, the GASB issued Statement No. 78, *Pensions Provided through Certain Multiple-Employer Defined Benefit Pension Plans*. The Authority is required to adopt statement No. 78 for its calendar year 2016 financial statements.

In December 2015, the GASB issued Statement No. 79, *Certain External Investment Pools and Pool Participants*. The Authority is required to adopt statement No. 79 for its calendar year 2016 financial statements.

In January 2016, the GASB issued Statement No. 80, *Blending Requirements for Certain Component Units – an amendment of GASB Statement No. 14*. The Authority is required to adopt statement No. 80 for its calendar year 2017 financial statements.

In March 2016, the GASB issued Statement No. 81, *Irrevocable Split-Interest Agreements*. The Authority is required to adopt statement No. 81 for its calendar year 2017 financial statements.

In March 2016, the GASB issued Statement No. 82, *Pension Issues – an amendment of GASB Statements No. 67, No. 68, and No. 73*. The Authority is required to adopt statement No. 82 for its calendar year 2017 financial statements.

The Authority has not yet completed the various analysis required to estimate the financial statement impact of these new pronouncements.

NOTE 2: DEPOSITS AND INVESTMENT RISK

*Custodial Credit Risk* – For deposits, custodial credit risk is the risk that in the event of the failure of the counterparty, the Authority will not be able to recover the value of its deposits or collateral securities that are in the possession of an outside party. At December 31, 2015, the Authority's cash balance including restricted cash was \$3,030,004 and its bank balance was \$3,020,000. Of this bank balance, \$2,770,668 was exposed to custodial credit risk as it is collateralized with securities held by the pledging financial institutions, not in the Authority's name, and unsecured. The Authority does not have a written policy to limit its exposure to custodial credit risk.

NOTE 3: CAPITAL ASSETS

Capital Assets activity consisted of the following:

	Balance January 1, 2015	Additions	Deletions	Balance December 31, 2015
<b>WATER FUND:</b>				
Capital assets being depreciated				
Buildings and improvements	\$ 1,400,417	\$ -	\$ -	\$ 1,400,417
Furniture and fixtures	102,986	-	-	102,986
Machinery and equipment	1,306,268	668,638	-	1,974,904
Infrastructure	14,274,177	223,984	-	14,548,171
Leasehold Assets	143,371	-	-	143,371
Vehicles	89,352	-	-	89,352
Total capital assets being depreciated	17,246,569	992,632	-	18,239,201
Accumulated depreciation	(6,820,331)	(471,468)	-	(7,291,819)
Total capital assets being depreciated, net	10,426,238	521,164	-	10,947,382
Water fund capital assets, net	\$ 10,426,238	\$ 521,164	\$ -	\$ 10,947,382

Depreciation expense was \$471,468 for the Authority for the year ended December 31, 2015.

NOTE 4: LONG TERM LIABILITIES

A summary of changes in long-term liabilities follows:

	Beginning Balance	Additions	Reductions	Ending Balance	Amount Within Year
Bonds Payable	\$ 5,673,667	\$ 5,109,344	\$ (2,661,346)	\$ 6,121,665	\$ 382,965
Bond Discount	(55,187)	(75,789)	5,797	(125,179)	(6,205)
Loans Payable	2,367,216	144,261	(133,264)	2,378,213	132,533
Total General Obligation Debt	7,985,696	5,177,816	(2,788,813)	10,374,699	509,293
Capital Lease Obligation	77,132	-	(43,350)	33,782	33,782
Total Long-term Liabilities	\$ 8,062,828	\$ 5,177,816	\$ (2,832,163)	\$ 10,408,481	\$ 543,075

An analysis of debt service requirements to maturity on the Business-Type Activities obligations is as follows:

Years Ended December 31:	Principal Requirements	Interest Requirements	Total Debt Service Requirements
2016	\$ 616,407	\$ 260,267	\$ 774,764
2017	498,685	260,620	760,315
2018	309,618	235,890	765,508
2019	534,552	246,540	781,092
2020	613,207	226,624	778,021
2021-2025	2,927,728	967,580	3,895,308
2026-2030	3,189,955	568,886	3,758,841
2031-2035	681,258	256,980	938,238
2036-2040	565,855	163,626	729,481
2041-2044	532,323	50,927	583,250
	\$10,499,678	\$3,265,840	\$13,765,718

2010	\$2,959,728	PennVest Loan with principal due through 2032. Interest rates for the first five years are 1.278% and after are 1.772%. The loan is for a Water System Improvement Project and has a guaranty by Steeleton Borough.	\$2,378,213
2012	\$4,015,622	General Obligation Bonds Series of 2012 with principal due annually through December 1, 2025 with interest due semi-annually with rates ranging from 1.00% to 3.70%. The proceeds of the bond were used to refund outstanding issuances.	\$3,044,164

NOTE 4: LONG TERM LIABILITIES (CONTINUED)

2015	\$5,109,344	General Obligation Bonds Series of 2015 with principal due annually through December 1, 2044 with interest due semi-annually with rates ranging from 0.35% to 3.75%. The proceeds of the bonds were used for capital projects and to refund outstanding issuances.	\$5,077,501
Total Long-Term Debt			\$10,499,678

In February 2015, the Borough of Steeleton issued General Obligation Bonds, Series of 2015, in the amount of \$6,415,000. Interest rates on the Series of 2015 General Obligation Bonds range from 0.35% to 3.75%. The proceeds of the bonds were allocated to the Borough's General Fund, Sewer Fund, and the Steeleton Borough Authority. The proceeds of the bonds issued were used to current refund the outstanding General Obligation Bonds, Series of 2006 of the Borough and the Authority, to finance various capital projects of the Borough's General Fund, Sewer Fund, and the Authority, and to pay the costs of issuance of the Bonds. The bonds were issued with a net original discount of \$96,128, which is allocated between the Borough's General Fund, Sewer Fund, and the Authority. The current refunding resulted in decreased debt service payments for the Borough and the Authority of \$304,385 and an economic gain of \$238,539.

NOTE 5: CAPITAL LEASE OBLIGATIONS

In 2013, the Authority entered into an agreement to lease various vehicles. The lease agreement qualifies as a capital lease for accounting purposes and therefore has been recorded at the present value of minimum lease payments as of the inception date. The amount of the capital lease at inception was \$123,855. The lease has a three year term, with payments made annually starting April 2013.

In 2014, the Authority entered into a capital lease agreement to finance the purchase of equipment. The capital lease has been recorded at the present value of minimum lease payments as of the inception date. The amount of the capital lease at inception was \$18,718. The lease has a one year term, with payments made monthly starting August 2014.

The following is a schedule of future minimum lease payments under the capital lease agreement, together with the present value of the net minimum lease payments as of December 31, 2015:

Years Ending December 31	Business Type Activities
2016	\$ 35,792
Total Minimum Lease Payments	35,792
Less: Amount Representing Interest	2,010
Total Present Value of Net Minimum Lease Payments	33,782
Less: Amounts Due within One Year	33,782
Amounts Due In More Than One Year	\$ -

The assets associated with the capital leases are shown as leasehold assets within the Capital Asset Note (See Note 3).

NOTE 6: RISK MANAGEMENT

The Authority 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. Significant losses are covered by commercial insurance. There were no significant reductions in insurance coverages during 2015. Settlement amounts have not exceeded insurance coverage for the current year or the three prior years.

NOTE 7: ECONOMIC DEPENDENCY

One major customer of the Authority accounted for 88% of water sales.

NOTE 8: MANAGEMENT AGREEMENT

The Authority entered into a management agreement with the Borough to manage the day-to-day operations of the water system to include repair, maintenance, and administration. The Authority owns and is responsible for the management of and charges for water services. The power of the Authority is exercised by the Board composed of five members, appointed by the Borough Council.

NOTE 9: COMMITMENTS AND CONTINGENCIES

The Pennsylvania Local Debt Act (the "Act") permits local governments to extend nonexchange financial guarantees on certain debt issued by entities located within the government's physical boundaries. The Borough issued General Obligation Bonds Series of 2012 in the amount of \$9,180,000 and General Obligation Bonds Series of 2015 in the amount of \$6,145,000. A portion of the debt is recorded as an obligation of the Steeleton Borough Authority. The Borough also guarantees the Authority's 2010 Note with PennVest. The full faith, credit and taxing power of the Borough is pledged to redeem these notes and bonds if the revenues from water fees are insufficient to meet the obligations. The Borough has not been called on to make any payments on the debt. See Note 4 for specific information and balances outstanding related to these debt issues.

NOTE 10: SUBSEQUENT EVENTS

The Authority has evaluated all subsequent events through the report issuance date of June 27, 2016. No events have taken place that affect the financial statements or require disclosure.

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

Appraisal Work Papers  
As of July 2018

**STEELTON BOROUGH AUTHORITY  
(COMPONENT UNIT OF  
THE BOROUGH OF STEELTON)  
FINANCIAL STATEMENTS  
- MODIFIED CASH BASIS  
YEAR ENDED DECEMBER 31, 2014**

Income Approach  
Financials 2014

**AUS Consultants  
Suite 201  
8555 West Forest Home Avenue  
Greenfield, Wisconsin 53228  
Office Telephone: 414-629-6765  
J. Weinert's Cell: 414-698-8371  
J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

STEELTON BOROUGH AUTHORITY  
(COMPONENT UNIT OF THE BOROUGH OF STEELTON)  
YEAR ENDED DECEMBER 31, 2014

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**Zelenkofske Axelrod LLC**

Independent Auditors' Report

To the Board of Directors  
Steelton Borough Authority  
Steelton, Pennsylvania

**Report on the Financial Statements**

We have audited the accompanying modified cash basis financial statements of the business-type activities of the STEELTON BOROUGH AUTHORITY as of and for the year ended December 31, 2014, and the related notes to the financial statements which collectively comprise the STEELTON BOROUGH AUTHORITY's basic financial statements as listed in the table of contents.

**Management's Responsibility for the Financial Statements**

Management is responsible for the preparation and fair presentation of these financial statements in accordance with the modified cash basis of accounting described in Note 1; this includes determining that the modified cash basis of accounting is an acceptable basis for the preparation of the financial statements in the circumstances. Management is also responsible for 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.

**Auditor's Responsibility**

Our responsibility is to express an opinion 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 auditor's 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 opinion.

**Opinion**

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective modified cash basis financial position of the business-type activities of the STEELTON BOROUGH AUTHORITY as of December 31, 2014, and the respective changes in modified cash basis financial position and, where applicable, cash flows thereof, for the year then ended in accordance with the modified cash basis of accounting described in Note 1.

**Basis of Accounting**

We draw attention to Note 1 of the financial statements, which describes the basis of accounting. The financial statements are prepared on the modified cash basis of accounting, which is a basis of accounting other than accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to that matter.

<b>Harrisburg</b> 430 Two Rivers Court, Suite 100 Harrisburg, PA 17109 717-548-2800 Fax: 717-241-9022	<b>Philadelphia</b> 2375 York Road, Suite A-5 Joneston, PA 19029 215-918-2277 Fax: 215-918-1302	<b>Pittsburgh</b> 3400 34th Street, Suite 3400 Pittsburgh, PA 15217 412-357-7200 Fax: 412-357-7100
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# Zelenkofske Axelrod LLC

To the Board of Directors  
Steelton Borough Authority  
Steelton, Pennsylvania

## Adoption of Governmental Accounting Standards Board Principles

As discussed in Note 1 to the financial statements in 2014, the STEELTON BOROUGH AUTHORITY adopted the provisions of GASB Statement No. 67, "Financial Reporting for Pension Plans - an amendment of GASB Statement No. 25", GASB Statement No. 69 "Government Combinations and Disposals of Government Operations", and GASB Statement No. 70 "Accounting and Financial Reporting for Nonexchange Financial Guarantees". Our opinion is not modified with respect to these matters.

### Other Matters

Management has omitted the management's discussion and analysis that accounting principles generally accepted in the United States of America require to be presented to supplement the basic financial statements. Such missing 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. Our opinion on the modified cash basis basic financial statements is not affected by this missing information.

*Zelenkofske Axelrod LLC*

ZELENKOFKSKE AXELROD LLC

Harrisburg, Pennsylvania  
June 30, 2015

	Business Type Activities - Enterprise Funds	
<b>Assets</b>		
<b>Current Assets:</b>		
Cash & Cash Equivalents	\$	2,277,825
Due From Primary Government		3,368
Restricted Cash		11,831
<b>Total Current Assets</b>		<b>2,293,024</b>
<b>Noncurrent Assets:</b>		
Capital Assets, Being Depreciated, Net of Accumulated Depreciation		10,426,238
<b>Total Noncurrent Assets</b>		<b>10,426,238</b>
<b>Total Assets</b>	<b>\$</b>	<b>12,719,262</b>
<b>Liabilities</b>		
<b>Current Liabilities:</b>		
Security Deposit	\$	338
Due to Primary Government		116
Bonds Payable		368,824
Loans Payable		138,337
Capital Lease Obligation		43,350
<b>Total Current Liabilities</b>		<b>487,965</b>
<b>Noncurrent Liabilities:</b>		
Bonds Payable, net		5,312,656
Loans Payable		2,228,879
Capital Lease Obligation		33,782
<b>Total Noncurrent Liabilities</b>		<b>7,575,317</b>
<b>Total Liabilities</b>		<b>8,063,282</b>
<b>Net Position</b>		
Net Investment in Capital Assets		2,363,410
Restricted		11,831
Unrestricted		2,280,739
<b>Total Net Position</b>	<b>\$</b>	<b>4,655,980</b>

The accompanying notes are an integral part of the financial statements.

Steelton Borough Authority  
Statement of Revenues, Expenses, and Changes in Fund Net  
Position - Modified Cash Basis  
For the Year ended December 31, 2014

Page 4

	Business Type Activities - Enterprise Funds	
<b>Operating Revenues</b>		
Charges for Service	\$	3,284,050
<b>Total Operating Revenues</b>		<b>3,284,050</b>
<b>Operating Expenses</b>		
System - Water		854,453
Water Treatment		787,750
Administrative		122,510
Depreciation		480,518
Amortization		3,879
<b>Total Operating Expenses</b>		<b>2,248,910</b>
<b>Operating Income</b>		<b>1,045,140</b>
<b>Nonoperating Revenues/(Expenses)</b>		
Interest Revenue		9,451
Interest Expense		(216,359)
<b>Total Non-operating Expenses</b>		<b>(206,908)</b>
<b>Income Before Special Items and Operating Transfers In/Out</b>		<b>838,192</b>
Special Item - Payment to Pennsylvania Department of Environmental Protection Transfers to Primary Government		(65,200)
		(179,810)
<b>Change in Net Position</b>		<b>603,182</b>
<b>Total Net Position - Beginning of Year</b>		<b>4,052,798</b>
<b>Total Net Position - End of Year</b>	<b>\$</b>	<b>4,655,980</b>

The accompanying notes are an integral part of the financial statements.

Steelton Borough Authority  
Statement of Cash Flows - Modified Cash Basis  
For the Year ended December 31, 2014

Page 5

	Business Type Activities - Enterprise Funds	
<b>Cash Flows From Operating Activities</b>		
Receipts from Charges for Service	\$	3,284,050
Payment to Employees		(599,480)
Payment to Suppliers		(1,181,870)
<b>Net Cash Provided by Operating Activities</b>		<b>1,512,700</b>
<b>Cash Flows From Noncapital Financing Activities</b>		
Payments to primary government		(183,236)
Payments from enterprise fund		3,426
Payment to Pennsylvania Department of Environmental Protection		(58,200)
Receipts from Interest		9,451
<b>Net Cash Used in Noncapital Financing Activities</b>		<b>(225,559)</b>
<b>Cash Flows From Capital and Related Financing Activities</b>		
Purchase of Capital Assets		(77,503)
Principal Payments		(478,243)
Interest Payments		(216,309)
<b>Net Cash Used in Capital and Related Financing Activities</b>		<b>(772,145)</b>
<b>Net Increase in Cash and Cash Equivalents</b>		<b>514,996</b>
<b>Cash and Cash Equivalents - Beginning of Year</b>		<b>1,774,660</b>
<b>Cash and Cash Equivalents - End of Year</b>	<b>\$</b>	<b>2,289,656</b>
<b>Presented in the Financial Statements as:</b>		
Cash and Cash Equivalents	\$	2,277,825
Restricted Cash		11,831
<b>Total Cash and Cash Equivalents</b>	<b>\$</b>	<b>2,289,656</b>
<b>Reconciliation of Operating Income to net cash provided by operating activities</b>		
Operating Income	\$	1,045,140
Adjustments to Reconcile Operating Income to Net Cash Provided by Operating Activities		
Depreciation Expense		480,518
Amortization Expense		3,879
Changes in Assets and Liabilities		
Security Deposit		347
Due to Primary Government		(16,084)
<b>Net Cash Provided by Operating Activities</b>	<b>\$</b>	<b>1,512,700</b>
<b>Noncash financing activities</b>		
Amortization of bond discount	\$	3,879

The accompanying notes are an integral part of the financial statements.



NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The Steelton Borough Authority (the "Authority") was created pursuant to an ordinance of the Steelton Borough Council (Borough), incorporated under the Municipality Authorities Act of 1945, being the Act of May 2, 1945, P.L. 382, as amended by the Commonwealth of Pennsylvania.

The purpose of the Authority includes those activities of acquiring, holding, constructing, improving, owning and leasing water, water systems or parts thereof. The Authority is overseen by the Board which consists of five members who are appointed by the Borough Council. The Authority employed the Borough to manage and operate the water system through a management agreement in which the Authority owns and is responsible for the management of and charges for water services. The Authority is considered a Component Unit of the Borough.

A summary of the Authority's significant accounting policies are as follows.

**A. Reporting Entity**

Consistent with the guidance contained in GASB Statement No. 61, *The Financial Reporting Entity: Omnibus an amendment of GASB Statements No. 14 and No. 34*, GASB Statement No. 39, *Determining Whether Certain Organizations Are Component Units*, an amendment to GASB-14, *The Reporting Entity*, the criteria used by the Authority to evaluate the possible inclusion of related entities within its reporting entity are financial accountability and the nature and significance of the relationship.

The Authority has not identified any entities which should be subject to evaluation for inclusion in the Authority's reporting entity. The Borough includes the Authority in its financial statements as a discretely presented component unit because the Borough appoints the Authority's governing board, guarantees the Authority's debt, and the Authority meets the criteria satisfying inclusion in the Borough's financial statements.

**B. Measurement Focus, Basis of Accounting and Financial Statement Presentation**

The Authority's financial statements are presented on the modified cash basis of accounting. The modified cash basis differs from the accounting principles generally accepted in the United States of America. Under this basis, revenues, expenses and related assets and liabilities are recorded when they result from cash transactions except for the recording of amortization of bond discounts and depreciation expense on capital assets. As a result of the use of the modified cash basis of accounting, certain assets and their related revenues (such as accounts receivable and revenue for billed or provided services not collected) and certain liabilities and their related expenses (such as accounts payable and expenses for goods or services received but not yet paid and accrued expense and liabilities) are not recorded in these financial statements.

NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

**B. Measurement Focus, Basis of Accounting and Financial Statement Presentation** (Continued)

All activities of the Authority are accounted for within one proprietary (enterprise) fund. Proprietary funds are used to account for operations that are (a) financed and operated in a manner similar to private business enterprises where the intent of the governing body is that the cost (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges; or (b) where the governing body has decided that periodic determination of revenues earned, expenses incurred, and/or net income is appropriate for capital maintenance, public policy, management control, accountability, or other purposes.

The accounting and financial reporting treatment applied to the Authority is determined by its measurement focus. The transactions of the Authority are accounted for on a flow of economic resources measurement focus, within the modifications of the cash basis. The accounting objectives of the economic resources measurement are the determination of operating income, changes in net position (or cost recovery), financial position and cash flows. All assets and liabilities (whether current or non-current, financial, or non-financial) associated with these activities are reported.

Operating revenues, such as charges for services, result from exchange transactions associated with the principal activity of the Authority. Exchange transactions are those in which each party receives and gives up essentially equal values. Non-operating revenues, such as subsidies and investment earnings, result from nonexchange transactions or ancillary activities. When both restricted and unrestricted resources are available for use, it is the Authority's policy to use restricted resources, and then unrestricted resources as they are needed for their intended purposes.

**C. Cash and Cash Equivalents**

Cash and cash equivalents, for the purposes of the statement of cash flows, include restricted cash on hand or on deposit with a maturity of three months or less when purchased.

**D. Restricted Cash**

In accordance with the financial provisions of the subsidy agreements securing General Obligation Bonds, certain cash assets are accounted for in a restricted account established by the agreement. The account is maintained by an independent trustee. At December 31, 2014, the restricted cash balance was \$11,831.

**E. Capital Assets**

Capital assets, which include property, plant, and equipment, and infrastructure, are reported in the financial statements at historical cost or estimated historical cost if purchased or constructed. Donated capital assets are recorded at estimated fair market value at the date of donation. Capital assets are defined by the Authority as assets with an initial, individual cost of more than \$2,500 and an estimated useful life in excess of one year. Depreciation is recorded using the straight-line method over the estimated useful life of the various assets.

The costs of normal maintenance and repairs that do not add to the value of the assets or materially extend assets lives are not capitalized.

NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

**E. Capital Assets** (Continued)

Capital assets of the Authority are depreciated using the straight-line method over the following estimated useful lives:

Buildings and Improvements	10-40 Years
Furniture and fixtures	10-20 Years
Machinery and equipment	5-20 Years
Infrastructure	5-99 Years
Vehicles	5-10 Years

**F. Debt Related Costs**

Debt related costs include bond discounts and are amortized to interest expense using the straight-line method over the term of the associated debt. Amortization expense for the year ended December 31, 2014 was \$3,679.

**G. Net Position**

Net position is categorized as net investment in capital assets, restricted and unrestricted.

- **Net Investment in Capital Assets** - This category groups all capital assets, including infrastructure, into one component of net position. Accumulated depreciation and the outstanding balances of debt that are attributable to the acquisition, construction, or improvement of these assets reduce the balance in this category.
- **Restricted Net Position** - This category presents external restrictions imposed by creditors, grantors, contributors, or laws or regulations of other governments and restrictions imposed by law through constitutional provisions or enabling legislation.
- **Unrestricted Net Position** - This category represents the net position of the Authority, not restricted for any project or other purpose.

**H. Use of Estimates**

The preparation of financial statements requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

**I. Adoption of Governmental Accounting Standards Board Statements**

The Authority adopted the provisions of GASB Statement No. 67, *Accounting and Financial Reporting for Pension Plans - an amendment of GASB Statement No. 29*. The adoption of this statement did not have an effect on the financial statements or notes.

The Authority adopted the provisions of GASB Statement No. 69, *Government Combinations and Dispositions of Government Operations*. The adoption of this statement did not have an effect on the financial statements or notes.

The Authority adopted the provisions GASB Statement No. 70, *Accounting and Financial Reporting for Nonexchange Financial Guarantees*. The adoption of this statement resulted in additional disclosures (See Note 9).

NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

**G. Pending Changes in Accounting Principles**

In June 2012, the GASB issued Statement No. 68, *Accounting and Financial Reporting for Pensions - an amendment of GASB Statement No. 27*. The Authority is required to adopt statement No. 68 for its calendar year 2015 financial statements.

In November 2013, the GASB issued Statement No. 71, *Pension Transition for Contributions Made Subsequent to the Measurement Date*. The Authority is required to adopt statement No. 71 for its calendar year 2015 financial statements.

In February 2015, the GASB issued Statement No. 72, *Fair Value Measurement and Application*. The Authority is required to adopt Statement No. 72 for its calendar year 2016 financial statements.

In June 2015, the GASB issued Statement No. 73, *Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68 and Amendments to Certain Provisions of GASB Statements 67 and 69*. The Authority is required to adopt statement No. 73 for its calendar year 2016 financial statements.

In June 2015, the GASB issued Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*. The Authority is required to adopt statement No. 74 for its calendar year 2017 financial statements.

In June 2015, the GASB issued Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefit Plans Other Than Pensions*. The Authority is required to adopt statement No. 75 for its calendar year 2018 financial statements.

The Authority has not yet completed the various analysis required to estimate the financial statement impact of these new pronouncements.

NOTE 2: DEPOSITS AND INVESTMENT RISK

**Custodial Credit Risk** - For deposits, custodial credit risk is the risk that in the event of the failure of the counterparty, the Authority will not be able to recover the value of its deposits or collateral securities that are in the possession of an outside party. At December 31, 2014, the Authority's cash balances including restricted cash were \$2,285,656 and its bank balances were \$2,380,437. Of these bank balances, \$2,018,607 were exposed to custodial credit risk, as they are collateralized with securities held by the pledging financial institutions, not in the Authority's name, and uninsured. The Authority does not have a written policy to limit its exposure to custodial credit risk.

NOTE 3: CAPITAL ASSETS

Capital Assets activity consisted of the following:

	Balance January 1, 2014	Additions	Deletions	Balance December 31, 2014
<b>WATER FUND:</b>				
Capital assets being depreciated				
Buildings and Improvements	\$ 1,382,684	\$ 17,723	\$ -	\$ 1,400,417
Furniture and fixtures	102,886	-	-	102,886
Machinery and equipment	1,285,023	21,237	-	1,306,260
Infrastructure	14,185,538	38,545	-	14,224,177
Leasehold Assets	123,655	19,716	-	143,371
Vehicles	69,352	-	-	69,352
Total capital assets being depreciated	17,149,348	97,221	-	17,246,569
Accumulated depreciation	(6,339,817)	(460,616)	-	(6,800,331)
Total capital assets being depreciated, net	10,809,531	(363,297)	-	10,426,238
Water fund capital assets, net	\$ 10,809,531	\$ (363,297)	\$ -	\$ 10,426,238

Depreciation expense was \$480,518 for the Authority for the year ended December 31, 2014.

NOTE 4: LONG TERM LIABILITIES

A summary of changes in long-term liabilities follows:

	Beginning Balance	Additions	Reductions	Ending Balance	Amounts - Within One Year
Bonds Payable	\$ 5,976,884	\$ -	\$ 303,317	\$ 5,673,567	\$ 309,503
Bond Discount	(58,866)	-	3,679	(55,187)	(3,679)
Loans Payable	2,503,798	-	136,582	2,367,216	138,337
Total General Obligation Debt	6,421,816	-	443,578	7,985,696	444,161
Capital Lease Obligation	95,760	19,716	38,344	77,132	43,350
Total Long-term Liabilities	\$ 6,517,576	\$ 19,716	\$ 481,922	\$ 6,062,828	\$ 497,511

An analysis of debt service requirements to maturity on the Business-Type Activities obligations is as follows:

Years Ended December 31:	Principal Requirements	Interest Requirements	Total Debt Service Requirements
2015	\$ 447,840	\$ 204,358	\$ 652,198
2016	451,110	198,709	649,819
2017	436,152	200,082	636,234
2018	442,233	195,723	637,956
2019	467,985	187,357	655,342
2020-2024	2,492,624	764,545	3,257,169
2025-2029	2,775,506	379,274	3,154,780
2030-2031	527,963	18,481	546,444
	<b>\$8,040,883</b>	<b>\$2,148,529</b>	<b>\$10,189,412</b>

2006	\$4,935,000	General Obligation Bond, Series 2006 - General Fund, with principle and interest due annually through December 1, 2030 in various amounts with interest ranging from 3.5% to 4.3% for the purchase and construction of water supply, treatment, storage, transmission, and distribution system facilities, including all necessary facilities required for rendering water and paying costs, fees and expenses related to the purpose and financing.	\$2,320,000
2010	\$2,959,726	PennVest Loan with principal due through 2030. Interest rates for the first five years are 1.278% and after are 1.772%. The loan is for a Water System Improvement Project and has a guaranty of Steepleton Borough.	\$2,367,216

NOTE 4: LONG TERM LIABILITIES (CONTINUED)

2012	\$4,015,622	General Obligation Bonds Series of 2012 with principal due annually through December 1, 2025 with interest due semi-annually with rates ranging from 1.00% to 3.70%. The proceeds of the bond were used to refund outstanding issuances.	\$3,359,867
<b>Total Long Term Debt:</b>			<b>\$8,040,883</b>

NOTE 5: CAPITAL LEASE OBLIGATIONS

In 2013, the Authority entered into an agreement to lease various vehicles. The lease agreement qualifies as a capital lease for accounting purposes and therefore has been recorded at the present value of minimum lease payments as of the inception date. The amount of the capital lease at inception was \$123,655. The lease has a three year term, with payments made annually starting April 2013.

In 2014, Authority entered into a capital lease agreement to finance the purchase of equipment. The capital lease has been recorded at the present value of minimum lease payments as of the inception date. The amount of the capital lease at inception was \$19,716. The lease has a one year term, with payments made monthly starting August 2014.

The following is a schedule of future minimum lease payments under the capital lease agreement, together with the present value of the net minimum lease payments as of December 31, 2014:

Years Ending December 31	Business Type Activities
2015	\$ 47,257
2016	35,792
Total Minimum Lease Payments	83,049
Less: Amount Representing Interest	5,817
<b>Total Present Value of Net Minimum Lease Payments</b>	<b>77,132</b>
Less: Amounts Due within One Year	43,350
Amounts Due in More Than One Year	\$ 33,782

The assets associated with the capital leases are shown as leasehold assets within the Capital Asset Note (See Note 3).

NOTE 6: RISK MANAGEMENT

The Authority 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. Significant losses are covered by commercial insurance. There were no significant reductions in insurance coverages during 2014. Settlement amounts have not exceeded insurance coverage for the current year or the three prior years.

NOTE 7: ECONOMIC DEPENDENCY

One major customer of the Authority accounted for 64% of water sales.

NOTE 8: MANAGEMENT AGREEMENT

The Authority entered into a management agreement with the Borough to manage the day-to-day operations of the water system to include repair, maintenance, and administration. The Authority owns and is responsible for the management of and charges for water services. The power of the Authority is exercised by the Board composed of five members, appointed by the Borough Council.

NOTE 9: COMMITMENTS AND CONTINGENCIES

On March 28, 2014 the Authority entered into a Consent Order and Agreement (the "Agreement") with the Pennsylvania Department of Environmental Protection ("DEP"). The Agreement arose due to various reporting and record-keeping deficiencies that were discovered during the triennial water plant inspection. The Authority has commenced a series of corrective actions with varying completion deadlines over the next year and will pay a \$55,200 civil penalty. An additional penalty of \$55,200 will be required if the Authority fails to meet certain deadlines in its pursuit of the corrective actions. During 2014, the Authority paid \$55,200 to DEP for the civil penalty, which is recorded as a special item in the Statement of Revenues, Expenses, and Changes in Fund Net Position - Modified Cash Basis.

The Pennsylvania Local Debt Act (the "Act") permits local governments to extend nonexchange financial guarantees on certain debt issued by entities located within the government's physical boundaries. The Borough issued General Obligation Bonds of 2006 in the amount of \$4,935,000 and General Obligation Bonds Series of 2012 in the amount of \$9,180,000. A portion of the debt is recorded as an obligation of the Steepleton Borough Authority. The Borough also guarantees the Authority's 2010 Note with Pennvest. The full faith, credit and taxing power of the Borough is pledged to redeem these notes and bonds if the revenues from water fees are insufficient to meet the obligations. The Borough has not been called on to make any payments on the debt. See Note 4 for specific information and balances outstanding related to these debt issues.

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

Appraisal Work Papers  
As of July 2018

**STEELTON BOROUGH AUTHORITY  
(COMPONENT UNIT OF  
THE BOROUGH OF STEELTON)  
FINANCIAL STATEMENTS  
- MODIFIED CASH BASIS  
YEAR ENDED DECEMBER 31, 2013**

Income Approach  
Financials 2013

**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)**

STEELTON BOROUGH AUTHORITY  
(COMPONENT UNIT OF THE BOROUGH OF STEELTON)  
YEAR ENDED DECEMBER 31, 2013

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**Zelenkofske Axelrod LLC**

Independent Auditors' Report

To the Board of Directors  
Steelton Borough Authority  
Steelton, Pennsylvania

We have audited the accompanying financial statements of the business-type activities of the STEELTON BOROUGH AUTHORITY as of and for the year ended December 31, 2013, and the related notes to the financial statements which collectively comprise STEELTON BOROUGH AUTHORITY's basic financial statements as listed in the table of contents.

**Management's Responsibility for the Financial Statements**

Management is responsible for the preparation and fair presentation of these financial statements in accordance with the modified cash basis of accounting as described in Note 1; this includes determining that the modified cash basis of accounting is an acceptable basis for the preparation of the financial statements in the circumstances. Management is also responsible for 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.

**Auditor's Responsibility**

Our responsibility is to express an opinion 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 auditor's 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 opinion.

**Opinion**

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position - modified cash basis, of the business-type activities of the STEELTON BOROUGH AUTHORITY as of December 31, 2013, and the respective changes in financial position - modified cash basis and, where applicable, cash flows thereof, for the year then ended in accordance with the modified cash basis of accounting as described in Note 1.

**Basis of Accounting**

We draw attention to Note 1 of the financial statements, which describes the basis of accounting. The financial statements are prepared on the modified cash basis of accounting, which is a basis of accounting other than accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to that matter.

# Zelenkofske Axelrod LLC

## Adoption of Governmental Accounting Standards Board Principles

As discussed in Note 1 to the financial statements in 2013, the STEELTON BOROUGH AUTHORITY adopted the provisions of GASB Statement No. 61, "The Financial Reporting Entity: Omnibus - an amendment of GASB Statements No. 14 and No. 34"; GASB Statement No. 65 "Items Previously Reported as Assets and Liabilities"; and GASB Statement No. 66 "Technical Corrections - 2012 - An Amendment of GASB Statement No. 10 and No. 62". Our opinion is not modified with respect to these matters.

### Other Matters

Management has omitted the management's discussion and analysis that accounting principles generally accepted in the United States of America require to be presented to supplement the basic financial statements. Such missing 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. Our opinion on the modified cash basis basic financial statements is not affected by this missing information.

*Zelenkofske Axelrod LLC*

ZELENKOFKSKE AXELROD LLC

Harrisburg, Pennsylvania  
October 20, 2014

	Business Type Activities - Enterprise Funds	
<b>Assets</b>		
<b>Current Assets:</b>		
Cash & Cash Equivalents	\$	1,782,835
Due From Primary Government		3,368
Restricted Cash		11,825
Total Current Assets		1,798,028
<b>Noncurrent Assets:</b>		
Capital Assets, Being Depreciated, Net of Accumulated Depreciation		10,809,535
Bond Discount, net		58,877
Total Noncurrent Assets		10,868,412
Total Assets	\$	12,666,440
<b>Liabilities</b>		
<b>Current Liabilities:</b>		
Due to Primary Government	\$	17,100
Bonds Payable		303,317
Loans Payable		138,582
Capital Lease Obligation		30,094
Total Current Liabilities		487,093
<b>Noncurrent Liabilities:</b>		
Bonds Payable		5,673,887
Loans Payable		2,367,216
Capital Lease Obligation		65,666
Total Noncurrent Liabilities		8,106,769
Total Liabilities		8,593,862
<b>Net Position</b>		
Net Investment in Capital Assets		2,291,870
Restricted		11,825
Unrestricted		1,749,103
Total Net Position	\$	4,052,798

The accompanying notes are an integral part of the financial statements.

Steelton Borough Authority  
Statement of Revenues, Expenses, and Changes in Fund Net  
Position - Modified Cash Basis  
For the Year ended December 31, 2013

	Business Type Activities - Enterprise Funds	
<b>Operating Revenues</b>		
Charges for Service	\$	2,814,698
Total Operating Revenues		2,814,698
<b>Operating Expenses</b>		
System - Water		733,828
Water Treatment		686,711
Administrative		108,781
Depreciation		483,898
Amortization		3,879
Total Operating Expenses		2,016,997
Operating Income		797,701
<b>Nonoperating Revenues/( Expenses )</b>		
Energy Operating Grant		371
Interest Revenue		7,080
Interest Expense		(231,373)
Total Non-operating Expenses		(223,922)
Income Before Operating Transfers Out		573,779
Transfers to Primary Government		(177,862)
Change In Net Position		395,917
Total Net Position - Beginning of Year, As Restated (See Note 10)		3,656,881
Total Net Position - End of Year	\$	4,052,798

The accompanying notes are an integral part of the financial statements.

STEELTON BOROUGH AUTHORITY  
(COMPONENT UNIT OF THE BOROUGH OF STEELTON)  
NOTES TO THE FINANCIAL STATEMENTS - MODIFIED CASH BASIS  
DECEMBER 31, 2013

NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The Steelton Borough Authority (the "Authority") was created pursuant to an ordinance of the Steelton Borough Council (Borough), incorporated under the Municipality Authorities Act of 1945, being the Act of May 2, 1945, P.L. 382, as amended by the Commonwealth of Pennsylvania.

The purpose of the Authority includes those activities of acquiring, holding, constructing, improving, owning and leasing water, water systems or parts thereof. The Authority is overseen by the Board which consists of five members who are appointed by the Borough Council. The Authority employed the Borough to manage and operate the water system through a management agreement in which the Authority owns and is responsible for the management of and charges for water services. The Authority is considered a Component Unit of the Borough due to the Borough's financial relationship with the Authority.

A summary of the Authority's significant accounting policies are as follows.

**A. Reporting Entity**

The Authority has adopted the provisions of Section 2100 of the Codification of Governmental Accounting and Financial Reporting Standards for the criteria used to evaluate organizations, activities and functions that should be included in the Authority's financial statements. The basic criteria are the exercise of oversight responsibility over such organizations, activities and functions.

The Authority has not identified any entities which should be subject to evaluation for inclusion in the Authority's reporting entity. The Borough includes the Authority in its financial statements as a discretely presented component because the Borough appoints the Authority's governing board, guarantees the Authority debt and the Authority meets the criteria satisfying inclusion in the Borough's financial statements.

**B. Measurement Focus, Basis of Accounting and Financial Statement Presentation**

The Authority's financial statements are presented on the modified cash basis of accounting. The modified cash basis differs from the accounting principles generally accepted in the United States of America. Under this basis, revenues, expenses and related assets and liabilities are recorded when they result from cash transactions except for the recording of amortization of bond discounts and depreciation expense on capital assets. As a result of the use of the modified cash basis of accounting, certain assets and their related revenues (such as accounts receivable and revenue for billed or provided services not collected) and certain liabilities and their related expenses (such as accounts payable and expenses for goods or services received but not yet paid and accrued expense and liabilities) are not recorded in these financial statements.

NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

B. Measurement Focus, Basis of Accounting and Financial Statement Presentation (Continued)

All activities of the Authority are accounted for within one proprietary (enterprise) fund. Proprietary funds are used to account for operations that are (a) financed and operated in a manner similar to private business enterprises where the intent of the governing body is that the cost (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges, or (b) where the governing body has decided that periodic determination of revenues earned, expenses incurred, and/or net income is appropriate for capital maintenance, public policy, management control, accountability, or other purposes.

The accounting and financial reporting treatment applied to the Authority is determined by its measurement focus. The transactions of the Authority are accounted for on a flow of economic resources measurement focus, within the modifications of the cash basis. The accounting objectives of the economic resources measurement are the determination of operating income, changes in net position (or cost recovery), financial position and cash flows. All assets and liabilities (whether current or non-current, financial, or non-financial) associated with these activities are reported.

Operating revenues, such as charges for services, result from exchange transactions associated with the principal activity of the Authority. Exchange transactions are those in which each party receives and gives up essentially equal values. Non-operating revenues, such as subsidies and investment earnings, result from nonexchange transactions or ancillary activities. When both restricted and unrestricted resources are available for use, it is the Authority's policy to use restricted resources, and then unrestricted resources as they are needed for their intended purposes.

C. Cash and Cash Equivalents

Cash and cash equivalents, for the purposes of the statement of cash flows, include restricted cash on hand or on deposit with a maturity of three months or less when purchased.

D. Restricted Cash

In accordance with the financial provisions of the subsidy agreements securing General Obligation Bonds, certain cash assets are accounted for in a restricted account established by the agreement. The account is maintained by an independent trustee. At December 31, 2013, the restricted cash balance was \$11,825.

E. Capital Assets

Capital assets, which include property, plant, and equipment, and infrastructure, are reported in the financial statements at historical cost or estimated historical cost if purchased or constructed. Donated capital assets are recorded at estimated fair market value at the date of donation. Capital assets are defined by the Authority as assets with an initial, individual cost of more than \$2,500 and an estimated useful life in excess of one year. Depreciation is recorded using the straight-line method over the estimated useful life of the various assets.

The costs of normal maintenance and repairs that do not add to the value of the assets or materially extend assets lives are not capitalized.

NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

E. Capital Assets (Continued)

Capital assets of the Authority are depreciated using the straight-line method over the following estimated useful lives:

Buildings and improvements	40 Years
Furniture and fixtures	20-40 Years
Machinery and equipment	20 Years
Infrastructure	25-75 Years
Vehicles	5-10 Years

F. Debt Related Costs

Debt related costs include bond discounts and are amortized to interest expense using the straight-line method over the term of the associated debt. Amortization expense for the year ended December 31, 2013 was \$3,679.

G. Net Position

Net position is categorized as net investment in capital assets, restricted and unrestricted.

- *Net Investment in Capital Assets* – This category groups all capital assets, including infrastructure, into one component of net position. Accumulated depreciation and the outstanding balances of debt that are attributable to the acquisition, construction, or improvement of these assets reduce the balance in this category.
- *Restricted Net Position* – This category presents external restrictions imposed by creditors, grantors, contributors, or laws or regulations of other governments and restrictions imposed by law through constitutional provisions or enabling legislation.
- *Unrestricted Net Position* – This category represents the net position of the Authority, not restricted for any project or other purpose.

H. Use of Estimates

The preparation of financial statements requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

I. Adoption of Governmental Accounting Standards Board Statements

The Authority adopted the remaining provisions of GASB Statement No. 61, "The Financial Reporting Entity: Omnibus – an amendment of GASB Statements No. 14 and No. 34". The adoption of this statement did not have an effect on the financial statements or notes.

The Authority adopted the provisions of GASB Statement No. 65, "Items Previously Reported as Assets and Liabilities". The adoption of this statement resulted in the restatement of net position in the amount of \$(222,738).

NOTE 1: NATURE OF ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

I. Adoption of Governmental Accounting Standards Board Statements (Continued)

The Authority adopted the provisions of GASB Statement No. 66, "Technical Corrections – 2012 – An Amendment of GASB Statements No. 10 and No. 62." The adoption of this statement did not have an effect on the financial statements or notes.

G. Pending Changes in Accounting Principles

In June 2012, the GASB issued Statement No. 67, "Accounting and Financial Reporting for Pension Plans – an amendment of GASB Statement No. 25". The Authority is required to adopt statement No. 67 for its calendar year 2014 financial statements.

In June 2012, the GASB issued Statement No. 68, "Accounting and Financial Reporting for Pensions – an amendment of GASB Statement No. 27". The Authority is required to adopt statement No. 68 for its calendar year 2015 financial statements.

In January 2013, the GASB issued Statement No. 69, "Government Combinations and Disposals of Government Operations". The Authority is required to adopt statement No. 69 for its calendar year 2014 financial statements.

In April 2013, the GASB issued Statement No. 70, "Accounting and Financial Reporting for Nonexchange Financial Guarantees". The Authority is required to adopt statement No. 70 for its calendar year 2014 financial statements.

In November 2013, the GASB issued Statement No. 71, "Pension Transition for Contributions Made Subsequent to the Measurement Date". The Authority is required to adopt statement No. 71 for its fiscal year 2015 financial statements.

The Authority has not yet completed the various analysis required to estimate the financial statement impact of these new pronouncements.

NOTE 2: DEPOSITS AND INVESTMENT RISK

**Custodial Credit Risk** – For deposits, custodial credit risk is the risk that in the event of the failure of the counterparty, the Authority will not be able to recover the value of its deposits or collateral securities that are in the possession of an outside party. At December 31, 2013, the Authority's cash balances were \$1,774,650 and its bank balances were \$1,770,056. Of these bank balances, \$1,508,049 were exposed to custodial credit risk, as they are collateralized with securities held by the pledging financial institutions and uninsured. The Authority does not have a written policy to limit its exposure to custodial credit risk.

NOTE 3: CAPITAL ASSETS

Capital Assets activity consisted of the following:

	Balance January 1, 2013	Additions	Deletions	Balance December 31, 2013
<b>WATER FUND:</b>				
Capital assets being depreciated				
Buildings and Improvements	\$ 1,365,594	\$ 17,100	\$ -	\$ 1,382,694
Furniture and fixtures	102,985	-	-	102,985
Machinery and equipment	1,253,071	21,958	-	1,275,029
Infrastructure	13,593,179	192,453	-	14,185,632
Leasehold Assets	-	123,655	-	123,655
Vehicles	69,352	-	-	69,352
Total capital assets being depreciated	16,794,182	355,166	-	17,149,348
Accumulated depreciation	(5,855,815)	(483,990)	-	(6,339,813)
Total capital assets being depreciated, net	10,938,367	(128,832)	-	10,809,535
Water fund capital assets, net	\$ 10,938,367	\$ (128,832)	\$ -	\$ 10,809,535

Depreciation expense was \$483,998 for the Authority for the year ended December 31, 2013.

NOTE 4: LONG TERM LIABILITIES

A summary of changes in long-term liabilities follows:

	Beginning Balance (as restated see Note 10)	Additions	Reductions	Ending Balance	Amounts Due Within One Year
Bonds Payable	\$ 6,281,351	\$ -	\$ 304,367	\$ 5,976,984	\$ 303,317
Notes Payable	4,540	-	4,540	-	-
Loans Payable	2,570,774	68,234	135,210	2,503,798	136,582
Total General Obligation Debt	8,856,665	68,234	444,117	8,480,782	439,899
Capital Lease Obligation	-	123,655	27,895	95,760	30,094
Total Long-term Liabilities	\$ 8,856,665	\$ 191,889	\$ 472,012	\$ 8,576,542	\$ 469,993

An analysis of debt service requirements to maturity on the Business-Type Activities obligations follows:

Years Ended December 31:	Principal Requirements	Interest Requirements	Total Debt Service Requirements
2014	\$ 439,899	\$ 209,503	\$ 649,402
2015	447,941	204,358	652,299
2016	451,110	190,709	641,819
2017	456,152	200,082	656,234
2018	442,293	195,723	638,016
2019-2023	2,436,210	924,716	3,260,926
2024-2028	2,708,609	467,672	3,176,281
2029-2030	1,118,658	56,969	1,175,627
	\$8,480,782	\$2,358,432	\$10,839,214

- 2006 \$4,935,000 General Obligation Bond, Series 2006 - General Fund, with principle and interest due annually through December 1, 2030 in various amounts with interest ranging from 3.5% to 4.3% for the purchase and construction of water supply, treatment, storage, transmission, and distribution system facilities, including all necessary facilities required for ordering water and paying costs, fees and expenses related to the purpose and financing. \$2,320,000
- 2010 \$2,959,726 PennVest Loan with principal due through 2030. Interest rates for the first five years are 1.278% and after are 1.772%. The loan is for a Water System Improvement Project and has a guaranty of Steeltown Borough. \$2,503,798

NOTE 4: LONG TERM LIABILITIES (CONTINUED)

2012 \$4,015,622	General Obligation Bonds Series of 2012 with principal due annually through December 1, 2025 with interest due semi-annually with rates ranging from 1.00% to 3.70%. The proceeds of the bond were used to refund outstanding issuances.	3,656,984
	Total Long Term Debt	\$8,480,782

NOTE 5: CAPITAL LEASE OBLIGATIONS

The Authority has entered into an agreement to lease various vehicles. The lease agreement qualifies as a capital lease for accounting purposes and therefore have been recorded at the present value of minimum lease payments as of the inception date.

The following is a schedule of future minimum lease payments under the capital lease agreement, together with the present value of the net minimum lease payments as of December 31, 2013:

Years Ending December 31	Business Type Activities
2014	\$ 35,792
2015	35,792
2016	35,791
Total Minimum Lease Payments	107,375
Less: Amount Representing Interest	11,615
Total Present Value of Net Minimum Lease Payments	95,760
Less: Amounts Due within One Year	30,094
Amounts Due in More Than One Year	\$ 65,666

The assets associated with the capital leases are shown as leasehold assets within the Capital Asset Note (See Note 3).

NOTE 6: RISK MANAGEMENT

The Authority 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. Significant losses are covered by commercial insurance. There were no significant reductions in insurance coverages during 2013. Settlement amounts have not exceeded insurance coverage for the current year or the three prior years.

NOTE 7: ECONOMIC DEPENDENCY

One major customer of the Authority accounted for a 66% of water sales.

NOTE 8: MANAGEMENT AGREEMENT

The Authority entered into a management agreement with the Borough to manage the day-to-day operations of the water system to include repair, maintenance, and administration. The Authority owns and is responsible for the management of and charges for water services. The power of the Authority is exercised by the Board composed of five members, appointed by the Borough Council.

NOTE 9: COMMITMENTS AND CONTINGENCIES

On March 28, 2014 the Authority entered into a Consent Order and Agreement (the "Agreement") with the Pennsylvania Department of Environmental Protection ("DEP"). The Agreement arose due to various reporting and record-keeping deficiencies that were discovered during the initial water plant inspection. The Authority has commenced a series of corrective actions with varying completion deadlines over the next year and will pay a \$55,200 civil penalty. An additional penalty of \$55,200 will be required if the Authority fails to meet certain deadlines in its pursuit of the corrective actions.

NOTE 10: RESTATEMENT OF NET POSITION

The following restatement was necessary to properly reflect the adoption of the provisions of GASB Statement No. 65 "Items Previously Reported as Assets and Liabilities" and to reflect the overstatement of long-term liabilities in the prior year.

Net Position, beginning of year, as previously stated	\$ 3,877,707
Overstatement of Deferred Charges, due to the adoption of GASB 65	(222,738)
Overstatement of long-term liabilities	1,912
Net Position, beginning of year, as restated	\$ 3,656,881

**PAWC-Steelton Asset  
Purchase Agreement**

ASSET PURCHASE AGREEMENT

By and Between  
 Steelton Borough Authority  
 As Seller  
 and  
 Pennsylvania-American Water Company  
 As Buyer  
 Dated as of November 14, 2018

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ASSET PURCHASE AGREEMENT

THIS ASSET PURCHASE AGREEMENT (this "Agreement"), dated as of November 14, 2018 (the "Effective Date"), is made and entered into by and between Steelton Borough Authority, Dauphin County, a body corporate and politic, duly organized under the Pennsylvania Municipality Authorities Act, 53 Pa.C.S. § 5601 *et seq.* (the "Seller"), and Pennsylvania-American Water Company, (the "Buyer"), a Pennsylvania corporation.

WITNESSETH:

WHEREAS, the Seller, acting by and through the Board (defined below), owns and operates a water treatment and distribution system (the "System") that provides public water service to various customers in the Borough of Steelton, Pennsylvania and a part of Swatara Township, Pennsylvania (the "Service Area"); and

WHEREAS, Buyer is a regulated public utility that furnishes water and wastewater service to the public in various counties throughout Pennsylvania; and

WHEREAS, Buyer, in reliance upon the representations, warranties and covenants of the Seller herein, desires to purchase and acquire from the Seller, and the 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 the Seller related to such acquired assets, all on the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the foregoing and of the mutual representations, warranties, covenants, and agreements herein contained, the receipt and sufficiency of which hereby are acknowledged, intending to be legally bound, the Parties hereto 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 therein), shall 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 shall include, 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, supervisor, sponsor or trustee pursuant to relevant contractual arrangements) such specified Person, and a Person shall be 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 shall be 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 shall be 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 recitals 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.

"Assigned Contracts" has the meaning specified in Section 2.01(c).

"Assignment and Assumption Agreement" has the meaning specified in Section 12.02(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, permits and authorizations issued under any Laws governing protection of the Environment, operating permits, and approvals that are held by the Seller that primarily relate directly or indirectly to the operation of the System, including those described in Schedule 4.14.

"Board" means the Board of the Steelton Borough Authority.

"Borough" means the Borough of Steelton

"Business Day" means any day that is neither a Saturday, a 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 7.01.

"Buyer Indemnified Persons" has the meaning specified in Section 7.02.

"CERCLA" means the Comprehensive Environmental Response Compensation and Liability Act of 1980, 42 U.S.C. § 9601 *et seq.*, as amended.

"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 hereby, all in accordance with the terms and conditions of this Agreement and as provided for in Article XII.

"Closing Date" has the meaning specified in Section 12.01.

"Closing Effective Time" has the meaning specified in Section 12.01.

"COBRA" means Title X of the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended, including, without limitation, Sections 2201 through 2208 of the Public Health Service Act and Part 6 of Subtitle B of the Employee Retirement Income Security Act of 1974, as amended.

"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; provided, however, that such term does not include information which the receiving Party can demonstrate is (a) generally available to or known by the public other than as a result of improper disclosure by the receiving Party, (b) obtained by the receiving Party from a source other than the disclosing Party, provided that such source was not bound by a duty of confidentiality to the disclosing Party with respect to such information, or (c) legally in the public domain.

"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.

"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 Regulated Materials or the presence of Regulated Materials on, in, under or within any property (including the presence in the Environment), other than the presence of Regulated 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, 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 Regulated 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;

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"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 Board.

"Indemnified Party" means any Buyer Indemnified Persons or Seller Indemnified Persons, as applicable, entitled to indemnification pursuant to [Article VI](#).

"Indemnifying Party" means a Party which is obligated to indemnify the Buyer Indemnified Persons or the Seller Indemnified Persons, as applicable, pursuant to [Article VII](#).

"Law" means any applicable law, statute, regulation, ordinance, rule, order, judicial, administrative and regulatory decree, judgment, adjudication, consent decree, consent agreement, 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 7.05(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 VII](#); 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 event, occurrence, change, circumstance, fact, or condition that has either individually or in the aggregate with all other events, changes, circumstances, effects or other matters, with or without notice, lapse of time or both, a material adverse impact on (a) the System, Acquired Assets, Assumed Liabilities, or properties or condition (financial or otherwise) of the System, or (b) the ability of the Seller to perform its obligations under this Agreement or to consummate the transactions contemplated by this Agreement.

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(j) exposure of any Person to any Regulated Materials; and (g) the presence or Release of any Regulated Materials.

"Environmental Requirements" mean all present Laws (including common law), rules, regulations, legally binding or otherwise enforceable requirements and any Authorizations and Permits relating to human health, pollution, or protection of the Environment, including (i) those relating to emissions, discharges, Releases, or threatened Releases of Regulated Materials, and (ii) those relating to the identification, generation, manufacture, processing, distribution, use, treatment, storage, disposal, release, recovery, transport or other handling of Regulated Materials, (iii) the regulations promulgated pursuant to the above-listed federal statutes, and (iv) counterpart Laws and regulations promulgated or issued by any state or local Governmental Authority.

"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 the Seller (including all leases of such property), which are primarily used in the operation of the System, (ii) any rights of the Seller to warranties applicable to the foregoing (to the extent assignable), and licenses received from manufacturers and sellers of any such item (to the extent assignable), and (iii) any related claims, credits, and rights of recovery with respect thereto. Notwithstanding the foregoing, "Equipment and Machinery" shall not include any Excluded Assets.

"ERISA" means the Employee Retirement Income Security Act of 1974, as amended.

"Excluded Assets" has the meaning specified in Section 2.02.

"Excluded Liability" or "Excluded Liabilities" means, notwithstanding any provision in this Agreement to the contrary, those obligations or liabilities related solely to any of the Excluded Assets.

"Files and Records" means all files and records of the Seller primarily relating to the System, whether in hard copy or magnetic or other format including 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, computer software, and records relating to Transferred Personnel, and 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 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.

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provided, however, that no effect arising out of or in connection with or resulting from any of the following shall be deemed, either alone or in combination, to constitute or contribute to a Material Adverse Effect: (i) conditions affecting the real estate, financial services, construction, water utility or sewer utility industries generally; (ii) any existing event, circumstance, condition or occurrence of which the Buyer has actual knowledge as of the Effective Date; (iii) 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 (iv) negligence, intentional misconduct or bad faith of the Buyer or its Representatives.

"Municipal Separate Storm Sewer System" or "MS4 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 the Seller and used for the purpose of capturing, conveying and discharging stormwater separate from the System.

"Outside Date" means December 31, 2019.

"Outstanding Indebtedness" means the following outstanding indebtedness of the Seller:

1. 2011 Pennvest Loan.
2. 2017 Pennvest Loan.

"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 the Seller and the term "Parties" means collectively Buyer and the Seller.

"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 Real Property; (c) other than with respect to Real Property owned by the Seller, Liens arising under original purchase price conditional sales contracts and equipment leases with third parties entered into in the ordinary course of business; (d) any right reserved to or vested in any Governmental Authority by any statutory provision or under common law, and (e) 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 liability company, limited partnership, joint stock company, unincorporated association or other entity or a Governmental Authority.

"Personnel" means the employees of the Borough of Steelton assigned to the water system of the Seller as provided in [Schedule 6.03\(a\)](#).

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"Purchase Price" has the meaning specified in Section 3.01.

"Real Property" means all real property that the Seller owns or uses in the operation of the System.

"Regulated Materials" means any material regulated under any Environmental Requirement, including solid, liquid, gas, odor, heat, sound, vibration, radiation or other substance or emission that is a contaminant, pollutant, dangerous substance, toxic substance, hazardous waste, residual waste, solid waste, hazardous material or hazardous substance which is defined and regulated by applicable Environmental Requirements or which is classified as hazardous or toxic under applicable Environmental Requirements (including gasoline, diesel fuel or other petroleum hydrocarbons, polychlorinated biphenyls, asbestos, and urea formaldehyde foam insulation).

"Regulated Asbestos Containing Material" means regulated asbestos containing material as defined by 40 C.F.R. § 61.141.

"Release" means any actual spilling, leaking, pumping, pouring, injecting, emptying, discharging, emitting, escaping, leaching, dumping, disposal, or release or migration of Regulated Materials into the Environment, including the abandonment or discarding of barrels, containers and other receptacles containing any Regulated Materials.

"Remedial Action" means any and all actions to (a) investigate, characterize, clean up, remediate, remove, treat, contain or in any other way address any Regulated Materials in the Environment, (b) prevent the Release or threat of Release or minimize the further Release of any Regulated Materials so it does not migrate or endanger public health or welfare or the indoor or outdoor Environment, (c) perform pre-remedial studies and investigations and post-remedial monitoring, maintenance and care, and (d) mitigate impacts to wetlands, surface water bodies, and/or environmentally sensitive areas. 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 8.03 and 9.04. Any disclosure set forth on any particular Schedule shall be 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.

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and rights of the 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 the Seller), but in all cases other than the Excluded Assets (the foregoing collectively referred to as the "Acquired Assets"), including:

(a) all real property and appurtenant interests. Easements, property rights and privileges owned, held, licensed or leased by the Seller and used in the operation of the System, including the Real Property, leases, licenses and other arrangements by or between the Seller and third Persons with respect to the Real Property or other Acquired Assets and fixtures;

(b) all water treatment, transportation, and distribution facilities, including but not limited to the Seller's (i) water treatment plant located at 244-262 Christian St. Steelton, PA 17113, (ii) raw water intake including all related structures, land, and pipes, (iii) storage facilities and (iv) all pipes, pumping stations, and any billing and collections related assets necessary to run the System;

(c) all contracts, licenses and leases identified on Schedule 4.15 (the "Assigned Contracts"); the Collective Bargaining Agreement between the Borough of Steelton and AFSCME Local No.90 dated as of February 6, 2017 is not an Acquired Asset;

(d) all Supplies;

(e) all personal property and fixed assets, including all Equipment and Machinery, auxiliary equipment and plant equipment;

(f) all prepaid expenses and security deposits;

(g) all Files and Records;

(h) all Authorizations and Permits of or held by the Seller (to the extent transferable to Buyer under applicable Law), including all Authorizations and Permits which are environmental permits, the water withdrawal, consumptive use, and water allocation approvals, other operating permits and those items listed or described on Schedule 4.14 hereto; and

(i) all goodwill of the System.

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, THE SELLER MAKES NO EXPRESS OR IMPLIED REPRESENTATION OR WARRANTY OF ANY KIND WHATSOEVER, INCLUDING ANY REPRESENTATION AS TO THE PHYSICAL CONDITION OR 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. ALL IMPLIED

"Seller Fundamental Representations" has the meaning specified in Section 7.01.

"Seller Indemnified Persons" has the meaning specified in Section 7.03.

"Seller's Benefit Obligations" has the meaning specified in Section 4.11.

"Seller's Plans" have the meaning specified in Section 4.11.

"Service Area" has the meaning set forth in the recitals to this Agreement.

"Stormwater System Assets" means all assets owned by the 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, and (iii) any related NPDES permits.

"Supplies" means all lubricants, fuel, chemicals, raw materials, and other supplies, 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, 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, withheld or assessed at any time, including any interest, penalty or addition thereto, whether disputed or not.

"Tax Return" means any return, report, statement, schedule, notice, form, declaration, claim for refund or other document or information filed with or submitted to any Governmental Authority in connection with the determination, assessment, collection or payment of Taxes.

"Threshold Amount" has the meaning specified in Section 7.05(a).

"Unscheduled Real Property" has the meaning specified in Section 6.11.

## 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 the Seller and the 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

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WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

**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 and the MS4 System Real Property, including any related National Pollutant Discharge Elimination System ("NPDES") permits;

(b) all contracts, licenses and leases that are not Assigned Contracts, including the Collective Bargaining Agreement between the Borough of Steelton and AFSCME Local No. 90, dated as of February 6, 2017;

(c) the seals, organizational documents, minute books, Tax Returns, books of account or other records having to do with the organization of Seller and all employee-related or employee benefit-related files or records;

(d) cash and cash equivalents, including accounts receivable and existing financial security guaranteeing installation of public improvements (including sewer facilities);

(e) all insurance policies of Seller and all rights to applicable claims and proceeds thereunder;

(f) subject to Section 4.11, all Seller's Plans or other assets attributable thereto;

(g) all rights to any action, suit or claim of any nature available to or being pursued by Seller, whether arising by way of counterclaim or otherwise;

(h) all assets, properties and rights used by Seller other than those which primarily relate to the operations of the System;

(i) the assets, properties and rights specifically set forth on Schedule 2.02(i); and

(j) the rights which accrue or will accrue to Seller under this Agreement and any related agreement, exhibit or schedule.

**Section 2.03 Sale Free of Liens.** After Buyer fulfills its obligations pursuant to Section 3.01(a) and Article X, the Acquired Assets to be sold, conveyed, transferred, assigned and delivered by the Seller to Buyer, as herein provided, shall be on the Closing Date, free and clear of all Liens other than Permitted Liens. Such Acquired Assets shall be conveyed by appropriate special warranty or other deed, 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.

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#### 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 agrees to pay, perform and discharge when due any and all liabilities and obligations of the Seller arising out of or relating to the System or the Acquired Assets on or after the Closing, including, without limitation, the following:

(i) all liabilities and obligations arising on or after the Closing under Seller's safe drinking water permits and water withdrawal and use Permits and Authorizations

(ii) all liabilities and obligations under the Assigned Contracts and Authorizations and Permits arising on or after the Closing;

(iii) except as set forth in Section 6.03, all liabilities and obligations relating to employee benefits, compensation or other arrangements with respect to any Transferred Personnel arising on or after the Closing, however the Collective Bargaining Agreement between the Borough of Steelton and AFSCME Local No. 90, dated as of February 6, 2017 is an Excluded Liability;

(iv) any litigation initiated against Seller related to the System or the Acquired Assets resulting from events that occur or conditions that exist on or after the Closing unless such conditions were caused by Seller;

(v) all liabilities and obligations for Taxes relating to the System, its operation, the Acquired Assets and the Assumed Liabilities for any tax liabilities incurred or arising after the Closing Date;

(vi) 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 the Seller is not released therefrom, Seller shall be indemnified against its obligations under the Assumed Liabilities in accordance with Section 7.02.

(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, the Seller shall, upon the request of Buyer, and Buyer shall, upon the request of the 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

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the Seller with respect to such Nonassignable Asset in connection with the arrangements under this Article II.

(c) If, following the date hereof and prior to the Closing, Buyer identifies any contract to which the Seller is a party which is not identified on Schedule 4.15 as an Assigned Contract as of the date hereof, and Buyer reasonably determines such contract is necessary to the operation of the System, Buyer shall give notice of such determination to the Seller and the Seller shall, promptly following receipt of such notice, deliver to Buyer an updated Schedule 4.15 identifying such contract, and such contract shall thereafter constitute and be deemed an Assigned Contract for all purposes hereunder.

(d) In the event that, during the twelve (12) month period following the Closing, Buyer identifies any contract to which the Seller was a party as of the Closing and which (i) was not set forth on or properly identified on Schedule 4.15 (as may be updated pursuant to (c)) and (ii) Buyer reasonably believes is necessary to the operation of the System, the 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 shall be deemed an Assigned Contract for all purposes hereunder.

#### ARTICLE III.

##### PURCHASE PRICE

#### Section 3.01 Purchase Price.

(a) Purchase Price for the Assets. Subject to the terms and conditions of this Agreement, the purchase price ("Purchase Price") for the Acquired Assets shall be Twenty Two Million Five Hundred Thousand Dollars (\$22,500,000). The Purchase Price shall be payable directly to seller on the Closing Date by wire transfer.

(b) Use of Fair Market Valuation Process. Following the execution of this Agreement, Buyer and Seller shall each take such actions as are necessary to invoke, commence and complete the fair market valuation process set forth in Section 1329 of the Public Utility Code, 66 Pa.C.S. § 1329. Without limiting the generality of the foregoing, Buyer and Seller shall each engage a utility valuation expert other than HRC from the list of such experts maintained by the PaPUC and shall jointly utilize HRC, a licensed engineer for the purposes set forth in Section 1329(a)(4) of the Public Utility Code, 66 Pa.C.S. § 1329(a)(4). All costs and expenses associated with the licensed engineer jointly utilized by the parties shall be shared equally between the Buyer and Seller. Seller agrees that Buyer shall prosecute an application for approval of the transaction contemplated by this Agreement and Buyer agrees that: (1) Seller has the right to intervene and participate in any regulatory or legal proceeding relating to the application, including negotiation or execution of a settlement agreement related to the application, (2) Buyer shall not oppose

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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 applicable Law, or would require the consent, authorization, approval or waiver of any Person (other than the Parties hereto), including any Governmental Authority, and such consent, authorization, approval or waiver shall not have been obtained prior to 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, the Seller and Buyer shall use 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. Once such consent, authorization, approval, waiver, release, substitution or amendment is obtained, the 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 one-half by Buyer and one-half by the Seller.

(b) Until such time as a Nonassignable Asset is transferred to Buyer pursuant to this Article II, Buyer and the 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 applicable 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 the Seller transfers and turns over all economic and beneficial rights with respect to each such Nonassignable Asset, Buyer shall, to the extent permitted under applicable Law and the terms of any applicable contract that constitutes a Nonassignable Asset, as agent or subcontractor for the Seller, pay, perform and discharge the Liabilities and obligations of the Seller thereunder from and after the Closing Date, but only to the extent that such liabilities and obligations would constitute Assumed Liabilities if the applicable consent or approval had been obtained on or prior to the Closing Date and such Nonassignable Asset had been assigned to Buyer at Closing. To the extent permitted under applicable Law, the Seller shall, at Buyer's expense, hold in trust for and pay to Buyer promptly upon receipt thereof, such Nonassignable Asset and all income, proceeds and other monies received by

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or impede Seller's intervention or participation in any regulatory or legal proceeding relating to the application, including negotiation or execution of a settlement agreement related to the application; and (3) Seller has the right to review and approve prior to service of any filings, submissions or data request responses related to Seller's testimony, exhibits, or fair market valuation, which review and approval shall be timely and not unreasonably withheld.

**Section 3.02 Fair Consideration.** The Parties acknowledge and agree that the Purchase Price 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 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 split equally by Buyer and Seller. The terms hereof shall survive Closing.

#### ARTICLE IV.

##### REPRESENTATIONS AND WARRANTIES OF THE SELLER

The Seller makes only the representations and warranties that 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, the 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.** The Seller is a body corporate and politic, duly organized and existing under the Pennsylvania Municipality Authorities Act, 53 Pa.C.S. §§ 5601 *et*.

**Section 4.02 Power and Authority.** The Seller has (i) duly adopted the 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 the Seller of its obligations contained in this Agreement. The 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 the Seller and constitutes a valid and legally binding obligation of the Seller, enforceable against the Seller in accordance with the terms hereof, subject only to applicable

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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 the Seller, the consummation of the transactions contemplated hereby and the performance by the 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 the Seller under (i) any applicable Law or (ii) any agreement, instrument or document to which the Seller is a party or by which it is bound.

**Section 4.05 Consents and Approvals.** Except as set forth in Schedule 4.05, there are no consents, waivers, authorizations or approvals 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 the Seller or the performance by the Seller of its obligations hereunder.

**Section 4.06 Undisclosed Liabilities.** Except as set forth in Schedule 4.06, there are no material liabilities or obligations of Seller, either accrued, absolute, contingent or otherwise, relating to the Acquired Assets that would be required to be set forth on a balance sheet prepared under accounting principles applicable to municipalities and the Authority, other than liabilities incurred in the ordinary course. All of the Outstanding Indebtedness can be repaid or defeased by Seller and any security interests granted by Seller to secure its obligations pursuant thereto can be extinguished or terminated at or prior to the Closing pursuant to the contractual terms applicable to such Outstanding Indebtedness.

**Section 4.07 Absence of Certain Changes or Events.** Except as set forth on Schedule 4.07, since December 31, 2017, 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 the date of this Agreement 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) the Seller has filed all Tax Returns that were required to be filed on or before the Closing Date and timely paid all Taxes that may have been or may be due and payable by the 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 Governmental Authority has asserted any claim against the Seller for the assessment of any additional liability for Taxes 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 applicable 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 Governmental Authority. This section does not apply to any Tax matter related to an employee benefit plan or compensation arrangement that is addressed separately in Section 4.11.

**Section 4.09 Real Property and Easements.** Seller represents that, to its knowledge, all of the Real Property and Easements held by the Seller and used in the operation of the System are set forth on Schedule 4.09. There are no pending condemnation proceedings relating to any of the Real Property and Easements, and, to the knowledge of Seller, Seller has not received any written

threats of any condemnation proceedings. To Seller's knowledge, Seller has not received any written notices of any violations of any Law from any Governmental Authority with respect to the Real Property and Easements that have not been cured in all material respects. Buyer acknowledges and agrees that, notwithstanding anything to the contrary in this Agreement, this Section 4.09 contains all of the representations and warranties of Seller to Buyer with respect to the Real Property and Easements, and no other representation or warranty set forth in this Agreement with respect to the Acquired Assets is intended to apply to the Real Property and Easements.

**Section 4.10 Equipment and Machinery.** All material 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, the Seller has good title, free and clear of all Liens (other than the Permitted Liens and Liens which are released on or prior to Closing) to the Equipment and Machinery owned by Seller.

#### **Section 4.11 Employee Benefit Plans.**

(a) As used in this Section 4.11, the following terms have the meanings set forth below:

"Borough'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 Borough's Plans), that are owed, adopted or followed by the Borough. Borough'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.

"Borough'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 Borough is a plan sponsor or to which the Borough otherwise contributes or has contributed within the last six (6) years, or in which the Borough otherwise participates or has participated within the last six (6) years.

(b) Schedule 4.11(b) contains a true and complete list of all Borough's Plans and Borough'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 Borough's Plans and Borough'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 applicable Laws, and with any applicable collective bargaining agreement. To Seller's knowledge, no event has occurred which has resulted or is likely to result in the imposition of any liability on the Borough under the

Code or other applicable Law with respect to any Borough's Plans or Borough's Benefit Obligations;

(c) Except as set forth in Schedule 4.11(c), with respect to the System, the Borough 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;

(d) Except as set forth on Schedule 4.11(d), Borough 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 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;

(e) The Borough 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

(f) Except as set forth in Schedule 4.11(f), the Borough 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 the Borough for which Buyer shall have any liability.

#### **Section 4.12 Personnel; Labor Matters.**

(a) Schedule 4.12(a) sets forth all collective bargaining agreements and commitments, contracts, agreements, arrangements or understandings (whether written, oral, formal or informal) with Personnel relating to the System to which the Borough, is a party, including the identification of the parties thereto and the expiration dates.

(b) Except as set forth on Schedule 4.12(b), it shall be solely the Borough's obligation to pay, or cause to be paid, the Personnel for accrued but unused and unpaid vacation, sick leave and other accrued benefits either awarded or earned during the Personnel's period of Borough employment at a time either appropriately negotiated or on terms set forth in any contract or agreement and/or as required under by applicable Law.

**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, Seller represents:

(a) The System as currently operated by the Seller and all operations and activities conducted by the Seller with respect to the System are in compliance in all material respects with all applicable Environmental Requirements.

(b) The Seller has generated, used, handled, treated, stored and disposed of all Regulated 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) The 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) Regulated Materials are not present at, in, or on the System or Acquired Assets, there has been no Release of Regulated 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 Regulated Material on or off the Acquired Assets or a violation of any Environmental Requirement.

(f) There are no operational 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, removed, filled, and/or abandoned in compliance with applicable Environmental Requirements in effect at the time of such closure.

(g) The Seller has delivered to Buyer (1) all material environmental site assessments or reasonable and accurate summaries thereof pertaining to the System, (2) the written reports of 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 the Seller.

**Section 4.14 Authorizations and Permits.** Seller represents that (i) Schedule 4.14 lists or describes the Authorizations and Permits of Seller that are currently in full force and effect; (ii) the 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, the Seller is in compliance in all material respects with all terms, conditions and requirements of all Authorizations and Permits, and no proceeding is pending or, to the knowledge of the Seller threatened relating to the revocation or limitation of any of the Authorizations or Permits.

#### **Section 4.15 System Contracts.**

(a) Schedule 4.15 contains a complete and accurate list of all the contracts related to the System.

(b) The Seller has made available to Buyer true and complete copies, to the extent they are in the possession of Seller, of all the foregoing Assigned Contracts

(c) Seller further represents that, to its knowledge, all of the Assigned Contracts specified in Schedule 4.15 are in full force and effect. Seller has not, nor to the knowledge of the Seller has any other party thereto, materially breached any material provision of or materially defaulted under the material terms of, nor does any condition exist which, with notice or lapse of time, or both, would cause the Seller, or to the knowledge of Seller, any other party, to be in material default under the terms of any Assigned Contract.

**Section 4.16 Compliance with Law; Litigation.**

(a) Except as disclosed to the Buyer in writing, to the knowledge of the Seller, the Seller has operated and is operating the System in compliance, in all material respects, with all applicable Laws, Authorizations and Permits and is not in breach of any applicable Law, Authorization or Permit. 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 disclosed to the Buyer prior to the Effective Date, there are no facts, circumstances, conditions or occurrences regarding the System that could reasonably be expected to give rise to any Environmental Claims or enforcement actions by any Governmental Authority, and there are no past, pending or threatened Environmental Claims or enforcement actions by any Governmental Authority against the Seller.

(c) There is no action, suit or proceeding, at law or in equity, or before or by any Governmental Authority, pending nor, to the knowledge of the Seller, threatened against the Seller prior to or at the Closing Effective Time. As of the date of this Agreement, there is no action, suit or proceeding, at Law or in equity, or before or by any Governmental Authority, pending nor, to the knowledge of the Seller, threatened against the Seller which could reasonably be expected to materially and adversely affect the validity or enforceability of this Agreement.

**Section 4.17 Broker's and Finder's Fees.** Seller represents that 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 agrees to pay when due the fees and expenses of their financial, legal, and technical advisors.

**Section 4.18 Title to the Acquired Assets; Sufficiency.**

(a) Except as set forth in Section 2.02, the Seller has good and marketable title to, valid leasehold interest in or valid licenses to use, 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 prior to Closing.

(b) Except for the Excluded Assets (as disclosed in Section 2.02), the Permitted Liens and any Liens that will be fully and unconditionally released at or prior to Closing, the Acquired Assets are sufficient for, and constitute all the assets, properties, business,

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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 (as disclosed in Section 2.02), the Permitted Liens and any Liens that will be fully and unconditionally released at or prior to Closing, 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.

**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 the Seller to enter into this Agreement and to consummate the transactions contemplated hereby, Buyer hereby represents and warrants to the 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.** The 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.** The 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 the Buyer and constitutes a valid and legally binding obligation of the 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 the Buyer, the consummation of the transactions contemplated hereby and the performance by the Buyer 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 the Buyer under (i) any applicable Law, (ii) any material agreement, instrument or document to which the Buyer is a party or by which it is bound or (iii) the articles, bylaws or governing documents of the Buyer.

**Section 5.04 Consents and Approvals.** Except as set forth on Schedule 5.04, there are no consents, waivers, authorizations or approvals 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 the Buyer or the performance by the Buyer of its obligations hereunder.

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**Section 5.05 Broker's and Finder's Fees.** Buyer represents that no broker, finder or other Person 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.** Buyer represents that upon Closing, and after giving effect to the consummation of the transactions contemplated hereby and the incurrence of any indebtedness in connection therewith, Buyer will have the financial ability and will have sufficient working capital for its needs and reasonably anticipated needs to operate the System as a certificated public utility system regulated by the PAPUC authorized, among things, to provide water utility services to residential, commercial and industrial customers of the System.

**Section 5.07 Sufficient Funds.** Buyer represents that Buyer will 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 water 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 applicable 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, costs of operation, or uses or fitness for a particular purpose of any Acquired Assets or the System.

**Section 5.09 Scheduled Matters.** Buyer acknowledges that: (a) the inclusion of any matter on any Schedule shall not necessarily 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 the Seller expressly contained in Article IV of this Agreement.

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**Section 5.11 Litigation.** The Buyer is not in breach of any applicable Law that could have a material adverse effect on the operations of the System, the Buyer or Buyer's ability, after the Closing, to provide water utility services to residential, commercial and industrial customers of the System. Neither the Buyer nor any Affiliate of the 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 the Seller may not do business under applicable 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, there is no action, suit or proceeding, at law or in equity, or before or by any Governmental Authority, pending nor, to the knowledge of the Buyer, threatened against the Buyer prior to or at the Closing Effective Time, 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.**

**OTHER AGREEMENTS**

**Section 6.01 Taxes.** Except as provided herein (including Section 3.03), the Seller shall pay any and all Taxes, if any, arising out of the transfer and ownership of the Acquired Assets and out of the operation of the System before the Closing. Notwithstanding the prior sentence, any special assessments on the Real Property incurred on or after the Closing Date, whether or not currently due and payable, shall be paid by the Buyer in accordance with their terms.

**Section 6.02 Cooperation on Tax Matters.** The 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 6.03 Personnel Matters.**

(a) Subject to applicable Law, Buyer shall offer employment effective on the Closing Date, to the Personnel set forth in Schedule 6.03(a), subject to Buyer's existing standard hiring policies and procedures applicable to new employees, including but not limited to, a criminal background check and drug screening. Buyer will provide appropriate notification explaining the wages and benefits offered by Buyer to all Personnel. Schedule 6.03(a) shall not be amended after the date this Agreement is executed without the prior written consent of the Buyer, provided, however, that Seller has absolute discretion without the consent of Buyer to fill existing positions to meet operational requirements, as noted in Schedule 6.03(a)(i). Seller shall update Schedule 6.03(a)(i) as positions are opened and filled. Prior to employment the Buyer shall issue the appropriate notification to all potential employees explaining the wages and benefits offered and Buyer shall follow all applicable federal labor laws regarding the recognition of a union following an asset purchase and negotiate in good faith with any union whom it is required by law to recognize.

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(b) In the event that Buyer and the Union do not reach an agreement on the terms of the New CBA prior to the Closing Date, Buyer will set the initial terms and conditions of employment of Union Personnel.

(c) The Personnel who accept such employment and commence employment on the Closing Date, shall be referred to in this Agreement as the "Transferred Personnel." Transferred Personnel who are Non-Union Personnel, if any, shall be employees at-will of Buyer.

(d) This Section 6.03 shall be binding upon and inure solely to the benefit of each of the Parties to this Agreement, and nothing in this Section 6.03, express or implied, shall confer upon any other person any rights or remedies of any nature whatsoever under or by reason of this Section. The Parties acknowledge and agree that the terms set forth in this Section 6.03 shall not create any right in any Transferred Personnel or any other person to any continued employment with Buyer or the Borough or compensation or benefits of any nature or kind whatsoever, and shall not be deemed to restrict Buyer or the Borough in the exercise of its independent business judgment in establishing or modifying any terms or conditions of the employment of the Transferred Personnel. Nothing contained in this Section 6.03 shall constitute an amendment of, or an undertaking to amend, the Borough's collective bargaining agreement or any employee benefit plan, program or arrangement maintained by the Borough or is intended to prevent Buyer or Borough from amending or terminating any such employee benefit plan, program or arrangement in accordance with its terms.

#### **Section 6.04 Rates.**

(a) Buyer shall implement Seller's water rates then in effect at Closing, as reflected on Schedule 6.04 (the "Base Rate") as Buyer's effective water rates, provided such rates shall not be lower than those in effect on the date this Agreement is executed. Buyer shall additionally implement monthly billing for all customers at and after Closing. Buyer shall apply, at and after Closing, its then-existing miscellaneous fees and charges, rules and regulations for water service as set forth in its Tariff.

(b) Buyer shall have no obligation to fulfill or maintain any agreements or other understandings for the provision of free or otherwise subsidized or discounted services to any party.

(c) The parties recognize and expressly agree that the Buyer, upon approval by the PaPUC, will have the right to adopt public fire hydrant rates, and unmetered private fire service rates and metered private fire service rates, which annual rates shall be consistent with the Buyers Zone 1 rates as shown on Schedule 6.04.

(d) The rate provisions of Section 6.04 shall be part of the requested Pa PUC Governmental Approval.

**Section 6.05 Buyer Taxpayer.** From and after the Closing Date, Buyer acknowledges that, upon conveyance of the Acquired Assets to Buyer, the Buyer will be subject to Taxes arising out of ownership of the Acquired Assets, which shall be paid by Buyer.

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to bill customers after Closing. Buyer agrees to pay to Seller at Closing an amount that equals 80% of the average daily revenue based on Seller's 2018 audited financial statement (calculated by taking to total metered revenue for 2018, divided by 365 and multiplied by the number of days between the final meter reading and Closing) for the period from the Seller's final meter read through the Closing Date.

Buyer and Seller agree that payments received for bills rendered by the other will be remitted to the party which billed for the period of time for which the payment was received within 30 days after receiving notice from the customer or the billing party.

### **ARTICLE VII.**

#### **INDEMNIFICATION**

**Section 7.01 Survival.** All representations and warranties of Seller contained in this Agreement or any certificate or other Agreement delivered by Seller hereunder or relating to the subject matter of this Agreement shall survive until twelve (12) months following the Closing Date. All representations and warranties of Buyer contained in this Agreement or any certificate or other agreement delivered by Seller hereunder or relating to the subject matter of this Agreement shall survive until twelve (12) months following the Closing Date, except 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 applicable Law. The covenants, agreements and other obligations of Seller contained in this Agreement or any certificate or other agreement delivered by Seller hereunder or relating to the subject matter of this Agreement shall survive the Closing until twelve (12) months following the Closing Date or for the shorter period explicitly specified therein. (a) except for such other agreements by Seller that explicitly state that they survive for a longer period and (b) except that Buyer may seek specific performance, as its sole and exclusive remedy, for any Acquired Assets not properly conveyed on the Closing Date for a period of five (5) years following the Closing Date. The covenants, agreements and other obligations of Buyer contained in this Agreement or any certificate or other agreement delivered by Seller hereunder or relating to the subject matter of this Agreement shall survive the Closing indefinitely or for the shorter period explicitly specified therein, except that for such covenants and agreements that survive for such shorter period, breaches thereof within such shorter period shall survive indefinitely or until the latest date permitted by applicable Law. Additionally, notwithstanding anything to the contrary (i) once the survival period or periods described above have ended, the applicable representation, warranty, covenant or agreement shall terminate and be of no further force or effect and (ii) any claim, demand, or cause of action with respect to any breach of such representation, warranty, covenant or agreement must be made or brought, if at all, within the period or periods described above. No Party shall permit its respective Affiliates or Representatives, and shall additionally cause its respective Affiliates and Representatives not to, make or bring any such claim, demand, or cause of action with respect to any such breach of a representation, warranty, covenant or agreement that may not otherwise be made directly by such Party hereunder.

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**Section 6.06 PaPUC Approval.** Promptly after the Effective Date, Buyer covenants and agrees to 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 water 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 the Buyer in proceedings before the PaPUC. Buyer and Seller hereby agree that the procedures for determining fair market value of the System and Acquired Assets outlined in Sections 1329(a) of Title 66 of the Pennsylvania Consolidated Statutes shall be utilized and filed with the PaPUC as contemplated by Section 1329(c) of Title 66 of the Pennsylvania Consolidated Statutes.

**Section 6.07 Remedies for Breach of Article VI Agreements.** In the event of a breach by Buyer of any of the covenants and agreements set forth in this Article VI, in addition to all other rights and remedies available at law or in equity, including specific performance and/or injunctive relief, Seller shall also be entitled to commence proceedings before the PaPUC seeking enforcement of such covenants and agreements.

**Section 6.08 Operation and Maintenance of the MS4 System.** Subject to applicable Law, the Seller, shall at all times maintain ownership of its MS4 System and Stormwater System Assets. The Seller will maintain any NPDES permits related to the Stormwater System Assets.

**Section 6.09 Capital Improvements.** Buyer plans to implement the Capital Improvement Plan set forth on Schedule 6.09. During the ten-year period following Closing, Buyer will spend \$35.7 million in total capital improvements in the System. To the extent lead service lines are actually encountered, Buyer and Seller agree that any capital improvements for lead service line replacement are conditioned on and subject to applicable law and the adoption by the PaPUC of a procedure to implement the replacement of lead service lines. Additionally, as part of the Capital Improvement Plan, Buyer agrees to spend an average of \$400,000 per year during the ten-year period following Closing on pipeline replacements in the System.

**Section 6.10 Low Income Assistance.** Following Closing, Buyer shall assist low income customers who qualify through its H20 Help to Others™, as more fully detailed in Schedule 6.10.

**Section 6.11 Unscheduled Real Property or Easements.** The Parties acknowledge that the Seller may own interests in or have the legal right to use or occupy the Real Property or Easements that are necessary or essential to the operation of the System and that are not specifically identified in Schedule 4.09 or Section 2.02 (the "Unscheduled Real Property or Easements"). If the Parties discover prior to or after the Closing Date, one or more parcels of Unscheduled Real Property or Easements, the discovering Party shall give written notice of such discovery to the non-discovering Party. 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 or Easements in such a manner as to provide Buyer with reasonable assurances that Buyer shall have the right to use or occupy the Unscheduled Real Property or Easements as it was used by Seller as of the Effective Date.

**Section 6.12 Accounts Receivable.** Seller agrees, on a best efforts basis, to read all water customer meters and issue bills to all customers during the 4 day period prior to Closing. Seller will provide Buyer with a copy of all of the reads, which Buyer will use to establish a start point

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**Section 7.02 Indemnification by the Seller.** To the maximum extent permitted by applicable Law and subject to the terms and conditions of this Article VII, the Seller agrees to 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 Losses arising from or relating to: (a) any material misrepresentation as to, or any material inaccuracy in, any of the representations and warranties of the Seller contained in this Agreement or in any exhibit, schedule, certificate or other instrument or document furnished or to be furnished by the Seller prior to the Closing pursuant to this Agreement; (b) any material breach or material nonfulfillment of any of the covenants or agreements of the Seller contained in this Agreement or in any exhibit, schedule, certificate or other instrument or document furnished or to be furnished by the Seller prior to the Closing pursuant to this Agreement; or (c) any Excluded Liability or Excluded Asset.

**Section 7.03 Indemnification by Buyer.** To the maximum extent permitted by applicable Law and subject to the terms and conditions of this Article VII, Buyer agrees to defend, indemnify and hold harmless the 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 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 the Buyer pursuant to this Agreement; (c) any Assumed Liability, including without limitation any liability related to any claims by any Governmental Authority; (d) Buyer's actions involving Environmental Laws, Regulated Materials or environmental claims on and after the Closing Date; or (e) the ownership, operation or control of the Acquired Assets or the System on and after the Closing Date.

#### **Section 7.04 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 give the Indemnifying Party prompt written notice thereof. The failure to give such prompt written 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 shall have the right to participate in, or by giving written 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,

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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 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 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. In the event that the Indemnifying Party assumes the defense of any Third-Party Claim, subject to Section 7.04(b), it shall have the right to 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 shall have the right, 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 7.04(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. The 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 7.04(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 give prompt written notice to that effect to the Indemnified Party. If the Indemnified Party fails to consent to such firm

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Persons under this Agreement exceeds the Threshold Amount, in which case Buyer shall then be liable for Losses in excess of the Threshold Amount, provided, however, that the foregoing limitations contained in this Section 7.05(a) shall not apply to any claims for indemnification based on fraud, intentional misrepresentation or willful misconduct or to any claims relating to any Excluded Liability or Excluded Asset.

(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 7.02 up to the aggregate amount of 7.5% of the 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 7.02.

(d) Payments by an Indemnifying Party pursuant to Section 7.02 or Section 7.03 in respect of any Loss shall be limited to the amount of any liability or damage that remains after deducting therefrom any insurance proceeds actually received from a third party insurer and any indemnity, contribution or other similar payment received from a third party insurer 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 prior to seeking indemnification under this Agreement.

(e) Payments by an Indemnifying Party pursuant to Section 7.02 or Section 7.03 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 in accordance with applicable law;

(g) Subject to the provisions of Sections 3.01 and 14.11 and any other provisions for specific performance, the Parties acknowledge and agree that their 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, unless such claims are based on fraud, intentional misrepresentation or willful misconduct, shall be pursuant to the indemnification provisions set forth in this Article VII. In furtherance of the foregoing, 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 hereto 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 VII or unless such claims or causes of action allege fraud, intentional misrepresentation or willful misconduct. Nothing in this Section 7.05(g) shall limit any Person's right to seek and obtain specific performance to which such Person shall be entitled pursuant to this Agreement.

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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 7.04(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 written notice thereof. The failure to give such prompt written 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 written 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 shall be resolved by litigation in an appropriate court of jurisdiction determined pursuant to this Agreement.

#### Section 7.05 **Limitations on Indemnification Obligations.**

(a) Subject to the other limitations contained in this Section 7.05, neither Buyer nor Buyer Indemnified Persons shall be entitled to indemnification pursuant to Section 7.02 unless the aggregate amount of Losses incurred by Buyer and Buyer Indemnified Persons under this Agreement exceeds 1% of the Purchase Price in the aggregate (the "Threshold Amount"), in which case Seller shall then be liable for Losses in excess of 50% of the Threshold Amount; provided, however, that the foregoing limitations contained in this Section 7.05(a) shall not apply to any claims for indemnification based on fraud, intentional misrepresentation or willful misconduct. Nor shall the limitations contained in this Section 7.05 apply to any claims relating to Excluded Liability or Excluded Assets.

(b) Subject to the other limitations contained in this Section 7.05 neither Seller nor the Seller Indemnified Persons shall be entitled to indemnification pursuant to Section 7.03(a) unless the aggregate amount of Losses incurred by Seller and Seller Indemnified

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Section 7.06 **Knowledge of Breach.** Seller shall not be liable to Buyer, including under this Article VII, for any Losses based upon or arising out of any facts, circumstances or events if such fact, circumstance or event was known to Buyer independently or provided in a document posted to the dataroom hosted by Susquehanna Group Advisors on or before the Effective Date and listed on Schedule 7.06.

## ARTICLE VIII.

### PRE-CLOSING COVENANTS OF THE SELLER

Section 8.01 **Operation of the System.** Except as otherwise expressly permitted by this Agreement, as required by applicable 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, the Seller shall (i) operate and manage the System only in the ordinary course of business in accordance with past practices and procedures, (ii) comply in all material respects with all applicable Laws and Authorizations and Permits, and (iii) use commercially reasonable efforts to maintain and preserve intact the business and assets of the System and preserve the rights, franchises, goodwill and relationships of the Seller and the System and their customers, lenders, suppliers, regulators and others having business relationships with the Seller and the System.

Section 8.02 **Negative Covenants of Seller.** Except as otherwise contemplated by this Agreement, beginning on the date of this Agreement and prior to the Closing, Seller shall not without the prior written approval of Buyer, do or agree to do any of the following in connection with Seller's operation of the Acquired Assets:

- Dispositions.** Sell, assign, lease or otherwise transfer or dispose of any Acquired Assets outside of the ordinary course of business;
- Employees.** Make offers of employment to any individuals for employment related exclusively to the System who are not listed on Schedule 6.03(a);
- Contracts.** Enter into any material Contracts relating to the Acquired Assets or the System or incur any material obligation or liability (contingent or absolute) relating exclusively to the System outside of the ordinary course of business;
- Actions Affecting Licenses, Other Authorizations.** Take any action outside of the ordinary course of business that invalidates or reasonably could invalidate, or makes unenforceable or reasonably could make unenforceable any material Authorizations and Permits; and
- Encumbrances.** Allow any Lien (other than a Permitted Lien) to be placed on any of the Acquired Assets.

Section 8.03 **Cooperation.** Seller shall reasonably cooperate with Buyer and its employees, attorneys, accountants and other agents and, generally, act in reasonably good faith to

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timely effectuate the purposes of this Agreement and the consummation of the transactions contemplated by this Agreement.

**Section 8.04 Supplements and Updates.** The 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. At least three (3) Business Days prior to the Closing Date, the Seller shall advise Buyer of any facts which would constitute a breach of a representation or warranty as of the date made or a default in a covenant contained herein. In such 3-Business Day period, the Buyer and Seller shall attempt to negotiate in good faith a resolution to Seller's breach of representation or warranty. If the parties in good faith cannot come to an agreement, then Buyer may terminate the Agreement pursuant to the terms of Section 13.01 and the other terms and provisions of this Agreement, but if not so terminated and the Closing occurs, Seller shall have no liability whatsoever to Buyer based on such supplemental or updated information or the breach or default that had been caused until such supplemental or updated information was provided.

**Section 8.05 Governmental Approvals.** Promptly after the execution of this Agreement, or as required by Law, except as provided in Section 6.06 or otherwise expressly provided herein, the Seller shall file all applications and reports that are required to be filed by Seller with any Governmental Authority as provided 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. All authorizations of any Governmental Authority necessary to consummate the transactions contemplated by this Agreement shall have been obtained in form and content reasonably satisfactory to Seller prior to Closing. In the event a party to the PaPUC proceeding appeals PaPUC authorization of the transaction, the Buyer and Seller will work in good faith to determine whether to consummate the transaction before the appeal process has concluded and a final PUC order is issued.

#### ARTICLE IX.

##### PRE-CLOSING COVENANTS OF BUYER

Buyer covenants and agrees to comply with the following provisions:

**Section 9.01 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 best efforts 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 of third parties required to be obtained by Buyer to effect the transactions contemplated by this Agreement.

**Section 9.02 Governmental 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 which are required to be filed by Buyer with any Governmental Authority

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reasonably acceptable to Buyer, including without limitation all required EPA and PaDEP approvals and all such Authorizations and Permits and Governmental Approvals shall be final (and not subject to any appeal and any applicable appeal period having expired).

**Section 10.02 Representations and Warranties of Buyer.** The representations and warranties made by Buyer in Article V that are (a) not qualified by materiality or Material Adverse Effect shall 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 shall be true and correct in all material respects as of such specified date) and (b) qualified by materiality or Material Adverse Effect shall 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 shall be true and correct in all respects as of such specified date), and the Seller shall have received a certificate to the effect of the foregoing from a duly authorized officer of Buyer dated as of the Closing Date.

**Section 10.03 PaPUC Approval.** PaPUC shall have issued a Final Order approving the acquisition of the System under terms and conditions that are reasonably acceptable to the Seller and Buyer. In the event a party to the PaPUC proceeding appeals PaPUC authorization of the transaction, the Buyer and Seller will work in good faith to determine whether to consummate the transaction before the appeal process has concluded and a final PUC order is issued. If the parties cannot agree in good faith, the transaction will not consummate until a final PUC order is issued.

**Section 10.04 No Injunctions.** Neither the Seller nor Buyer shall be 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 10.05 Performance of the Obligations of Buyer.** Buyer shall have performed in all material respects all obligations required under this Agreement to be performed by Buyer on or before the Closing Date, and the Seller shall have received a certificate to that effect from Buyer dated the Closing Date.

**Section 10.06 Deliveries by Buyer.** Buyer shall have made delivery to the Seller of the documents and items specified in Section 12.03 herein.

**Section 10.07 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 XI.

##### 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 11.01 Consents and Approvals.

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as provided 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. Buyer shall use all commercially reasonable efforts to obtain all required consents and approvals of any kind from any person in connection with the transactions contemplated hereby.

**Section 9.03 Cooperation.** Buyer shall reasonably cooperate with the 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 9.04 Supplements and Updates.** Buyer shall promptly deliver to the 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 prior to the Closing Date, Buyer shall advise the Seller of any facts which would constitute a breach of a representation or warranty as of the date made or a default in a covenant contained herein.

**Section 9.05 Bond Defeasance.** No later than thirty (30) days prior to the Closing Date, the Board shall have approved, subject to and conditioned upon a successful Closing: (i)(A) the defeasance and redemption of any outstanding bonds issued by the Seller on the System included in Outstanding Indebtedness and (B) the discharge of any other outstanding debt issued to the Seller and payable to any current lender and (ii) the transfer to Buyer or for its benefit of related 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).

#### ARTICLE X.

##### CONDITIONS PRECEDENT TO OBLIGATIONS OF THE SELLER

The obligation of the 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 the Seller in its sole discretion:

###### Section 10.01 Consents and Approvals.

(a) Receipt of all required material, non-governmental third-party consents and any other approvals necessary to consummate the transactions contemplated by this Agreement set forth in Schedule 10.01(a);

and

(b) Receipt of any required environmental and other Governmental Approvals required for transfer and operation of the System by Buyer, with terms and conditions

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(a) Receipt of all required material, non-governmental third-party consents and any other approvals necessary or advisable to consummate the transactions contemplated by this Agreement set forth in Schedule 11.01(a); and

(b) Approval, subject to and conditioned upon a successful Closing, by the Board 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 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); and

(c) Receipt of any required environmental and other Governmental Approvals required for transfer and operation of the System by Buyer, with terms and conditions reasonably acceptable to Buyer, including without limitation all required EPA and PaDEP approvals and all such Authorizations and Permits and Governmental Approvals shall be final (and not subject to any appeal and any applicable appeal period having expired).

**Section 11.02 Representations and Warranties of Seller.** The representations and warranties made by Seller in Article IV that are ("a) not qualified by materiality" or "Material Adverse Effect" shall 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 shall be true and correct in all material respects as of such specified date) and (b) qualified by materiality or Material Adverse Effect shall 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 shall be true and correct in all respects as of such specified date), and the Buyer shall have received a certificate to the effect of the foregoing from a duly authorized officer of Seller dated as of the Closing Date.

**Section 11.03 PaPUC Approval.** PaPUC shall have issued a Final Order approving the acquisition of the System under terms and conditions that are reasonably acceptable to the Seller and Buyer.

**Section 11.04 No Injunctions.** Neither the Seller nor Buyer shall be 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 No Material Adverse Effect.** From the date this Agreement is executed, there shall not have occurred any event or condition which gives rise or is reasonably expected to give rise to a Material Adverse Effect with respect to the Acquired Assets or the System.

**Section 11.06 Deliveries by Seller.** Seller shall have made delivery to Buyer of the documents and items specified in Section 12.02 herein.

**Section 11.07 Performance of the Obligations of Seller.** Seller shall have performed in all material respects all obligations required under this Agreement to be performed by Seller on or

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before the Closing Date, and Buyer shall have received a certificate to that effect from Seller dated the Closing Date.

**Section 11.08 No Liens.** Seller shall have good and marketable title to the Acquired Assets, free and clear of all Liens, except Permitted Liens.

#### ARTICLE XII CLOSING

**Section 12.01 Closing Date.** The Closing shall take place at the offices of McNeess Wallace & Nurick LLC, 100 Pine Street, Harrisburg, PA, at 10:00 a.m. eastern standard time on the earliest agreed upon date or within five (5) Business Days after the date upon which all the conditions precedent to Closing described in this Agreement have been fulfilled or waived 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 shall be effective at 12:01 a.m., Eastern Standard Time, on the Closing Date (the "Closing Effective Time").

**Section 12.02 Deliveries by Seller.** At the Closing, the Seller shall have delivered 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;
- (b) Possession of the Acquired Assets, including without limitation, the Real Property and the Easements;
- (c) A duly executed counterpart to an Assignment and Assumption Agreement with respect to the Assumed Liabilities (the "Assignment and Assumption Agreement");
- (d) The consents to transfer all of the Assigned Contracts and Authorizations and Permits (including Authorizations and Permits issued under any Environmental Requirement), 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) Certificate of the Seller pursuant to Section 11.02 of this Agreement;
- (g) Certificate of the Seller pursuant to Section 11.07 of this Agreement;
- (h) A Deed of Easement and Right of Way;
- (i) 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

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performed or complied with by the Buyer pursuant to the terms of this Agreement or (B) of any representation or warranty of the Buyer contained in this Agreement, which breach (i) has continued without cure for a period of sixty (60) days following written notice thereof by the Seller to the Buyer or if such breach cannot be cured and (ii) would result in a condition to Closing set forth in ~~Article X~~ of this Agreement not being satisfied (which condition has not been waived by the Seller in writing); or

(d) By the Buyer (if Buyer is not then in material breach of any provision of this Agreement) in the event of a material breach (A) of any covenant or agreement to be performed or complied with by the Seller pursuant to the terms of this Agreement, (B) of any representation or warranty of the Seller contained in this Agreement, which breach (i) has continued without cure for a period of sixty (60) days following written notice thereof by the Buyer to the Seller 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 the Buyer in writing), or (C) pursuant to Section 8.04.

This Agreement may not be terminated after completion of the Closing.

**Section 13.02 Effect of Termination.** If this Agreement is terminated by the Seller or the Buyer pursuant to Section 13.01, written notice thereof will forthwith be given to the other and all further obligations of the parties hereto under this Agreement will terminate without further action by either Party and without liability or other obligation of either Party to the other Party hereunder; provided, however, 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.

#### ARTICLE XIV MISCELLANEOUS

**Section 14.01 Confidentiality.** Except as and to the extent required by applicable Law (including but not limited to the Pennsylvania Right-To-Know Act at 65 Pa § 67.101 and the Pennsylvania Sunshine Act, 65 Pa.C.S. §§ 701-716) 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 hereto shall, directly or indirectly, disclose or use (and no Party shall permit its Representatives to disclose or use) any Confidential Information of the other Party furnished, or to be furnished, by such other Party or its 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 14.02 Public Announcements.** Subject to applicable Law or listing rules of an exchange on which Buyer's direct or indirect 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 by one Party shall be subject to review and approval by the other Party prior to issuance, such approval not to be unreasonably withheld, conditioned or delayed.

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Agreement, duly executed and acknowledged by Seller, if necessary, and in a recordable form.

**Section 12.03 Deliveries by Buyer.** At the Closing, Buyer shall have delivered or caused to be delivered to the 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 10.02 of this Agreement;
- (d) Certificate of Buyer pursuant to Section 10.05 of this Agreement;
- (e) Evidence of PaPUC approval as provided in Section 10.03; 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 XIII TERMINATION

**Section 13.01 Events of Termination.** This Agreement may, by notice given in the manner hereinafter provided, be terminated and abandoned at any time prior to completion of the Closing:

- (a) By the mutual consent of the Seller and the Buyer;
- (b) By either the Seller or the Buyer if:
  - (i) the Closing shall not have occurred on or prior to the Outside Date; provided, however, either Seller or Buyer shall have the one-time right to extend the Outside Date for up to ninety (90) days if such amount of time up to ninety (90) days is necessary to obtain a required Governmental Approval; or
  - (ii) any Governmental Authority shall have issued 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 will have become final and non-appealable; provided, however, that the Party seeking termination pursuant to this clause (b) of this Section 13.01 is not in breach in any material respect of any of its representations, warranties, covenants or agreements contained in this Agreement;
- (c) By the Seller (if Seller is not then in material breach of any provision of this Agreement) in the event of a material breach (A) of any covenant or agreement to be

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**Section 14.03 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 the Seller:

Steelton Borough Authority  
123 North Front Street  
Steelton, PA 17113  
Attention: Secretary, Steelton Borough Authority

with a copy to:

Steelton Borough Authority  
123 North Front Street  
Steelton, PA 17113  
Attention: Solicitor

McNeess Wallace & Nurick LLC  
100 Pine Street  
PO Box 1166  
Harrisburg, PA 17108-1166  
Attn: Kathy Pape & Adeolu Bakare

in the case of the Buyer:

Attention:  
Pennsylvania-American Water Company  
800 W. Herschypark Drive  
Hershey, PA 17033  
Attn: General Counsel

Attention:  
Pennsylvania-American Water Company  
852 Wesley Drive  
Mechanicsburg, PA 17055  
Attn: Senior Director, Business Development

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 shall be 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 of place of receipt), the notice, other communication or approval shall be 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.

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**Section 14.04 Bulk Sales Laws.** The Parties hereby waive compliance with the provisions of any bulk sales, bulk transfer or similar Laws of any jurisdiction that may otherwise be applicable with respect to the sale of any or all of the Purchased Assets to Buyer.

**Section 14.05 Costs.** Except as otherwise specifically provided in this Agreement, each Party shall be responsible for its own costs and expenses incurred in connection with its entrance into and performing and observing its obligations and covenants under this Agreement.

**Section 14.06 Headings.** The article, section and paragraph headings in this Agreement are for reference purposes only and shall not affect the meaning or interpretation of this Agreement.

**Section 14.07 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 14.08 Entire Agreement.** This Agreement and the other agreements required to be delivered pursuant to this Agreement constitutes 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, in that induced any Party to enter into this Agreement so 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 14.09 Construction.** As used in this Agreement, (a) the gender of any word includes the masculine, feminine and neuter, (b) the number of any word includes the singular and plural, (c) the word "including" is exemplary, and not exclusive or limiting, and means "including, without limitation", (d) the word "or" is not exclusive, (e) the words "herein," "hereof," "hereby," "hereto" and "hereunder" refer to this Agreement, and (f) all references to Articles and Sections refer to articles and sections of this Agreement, and all references to Schedules are to schedules attached hereto, each of which is made a part hereof for all purposes.

**Section 14.10 Amendments; Waivers.** This Agreement may be amended, changed or supplemented only by a written agreement signed by the Parties. Any waiver of, or consent to depart from, the requirements of any provision of this Agreement shall 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 shall operate as a waiver of such right. No single or partial exercise of any such right shall preclude any other or further exercise of such right or the exercise of any other right.

**Section 14.16 Specific Performance.** The Parties agree that irreparable damage would occur if any provision of this Agreement were not performed in accordance with the terms hereof and that the Parties shall be entitled to specific performance of the terms hereof, in addition to any other remedy, subject to the limitations in Section 7.05, to which they are entitled at law or in equity.

**Section 14.17 Counterparts; Facsimile Execution.** This Agreement may be executed in any number of counterparts which, taken together, shall constitute one and the same agreement. A signature to this Agreement delivered by facsimile or email of a PDF document shall be deemed an original signature hereto and such delivery shall be deemed to have the same legal effect as delivery of an original signed copy of this Agreement.

[THIS SPACE INTENTIONALLY LEFT BLANK;  
SIGNATURES NEXT PAGE]

**Section 14.11 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 14.12 Successors and Assigns.** Neither Party hereto shall assign or delegate this Agreement or any rights or obligations hereunder without the prior written consent of the other Parties hereto, and any attempted assignment or delegation without prior written consent shall be void and of no force or effect.

**Section 14.13 Non-Liability of Public Officials.** The Buyer may not charge any official, officer, employee, advisor or consultant of the Seller personally with any liability or expenses of defense or hold any official, officer, employee, advisor or consultant of the Seller personally liable to them under any term or provision of this Agreement or because of the execution, attempted execution or any breach of this Agreement by the Seller.

**Section 14.14 No Partnership.** Nothing contained in this Agreement shall constitute or be deemed to create a partnership, joint venture, principal and agent relationship or employer and employee relationship between the Parties or their Representatives.

**Section 14.15 Governing Law; Jurisdiction.** This Agreement and any disputes arising in connection herewith shall be governed by and construed and enforced in accordance with, and governed by, the laws of the Commonwealth of Pennsylvania, without giving effect to any conflict or choice of law rule or principle that would result in the imposition of the laws of a jurisdiction other than the Commonwealth of Pennsylvania. The Parties hereto irrevocably agree and consent to the jurisdiction of the United States District Court for the Middle District of Pennsylvania and the Court of Common Pleas of Dauphin 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 Middle District of Pennsylvania and the Court of Common Pleas of Dauphin 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.

IN WITNESS WHEREOF, the Parties hereto have executed, or caused to be executed by their duly authorized Representatives, this Agreement as of the Effective Date.

STEELTON BOROUGH AUTHORITY

PENNSYLVANIA-AMERICAN WATER COMPANY

By:   
Allan Ausman  
Chair

By:   
Jeffrey McIntyre  
President

Schedule 2.02(i)

**Additional Excluded Assets**

- Highway garage and land thereunder located at 318-340 Christian Street, being Dauphin County Tax Parcel Numbers 61-013-029, 61-013-030, 61-013-031, 61-013-032, 61-013-033, 61-013-034, 61-013-035, 61-013-036, 61-013-037, 61-013-038, 61-013-039, 60-013-040 and 61-013-050 (collectively, the "Christian Street Garage"), owned in fee by the Seller pursuant to (i) Deed recorded in Book B, Vol 62, Page 551 and (ii) Deed recorded in Book B, Vol 62, Page 560.
- All Equipment and Materials stored in or associated with the Christian Street Garage assets except as specifically set forth in Schedule 4.10.
- Vehicles:

PLATE NUMBER	VIN #	VEHICLE #	REGISTERED OWNER ON TITLE
MG 7220G	1FDRF3B63DE58721	#1TK 2011 FORD F350 - BRIAN	Steelton Borough & Authority
MG 7219G	1FDRF3B63DE58720	#6TK 2013 FORD F350	Steelton Borough & Authority
MG 0701J	1FDDU5H1XFEC8417	2015 FORD F550 W/PL (SMALL DUMP TRUCK) TRK811	Steelton Borough & Authority
MG 5543G	1FMCU9G9DUB42995	2013 FORD ESCAPE - BRIAN	Steelton Borough & Authority
MG 0765J	1FDXF7DC6GDA03560	#5TK 2016 FORD F750	Steelton Borough Authority
MG 5542G	1FADP3F26DL207011	2013 FORD FOCUS - MARK HANDLEY - WATER FILTR	Steelton Borough & Authority
91484-MG	T0310DG803993	JOHN DEERE LOADER	Steelton Borough Authority
80607-MG	30607MG	16 FT TRAILER - LAWN MOWER	Steelton Borough and Authority
71211	71211	SMALL TRAILER	Steelton Borough and Authority
PA4069SS	79-791	1979 ALUMACRAFT BOAT/TRAILER	Steelton Borough Authority
	1M9FE102851286101	2004 BECK MIGHTY MOLE-GAP VAC V250	Steelton Borough and Authority

PLATE NUMBER	VIN #	VEHICLE #	REGISTERED OWNER ON TITLE
		2017 VOLVO L70H WHEEL LOADER	Steelton Borough and Authority
	RLD02-1938	SPIDER SLOPE MOWER	Steelton Water Authority
MG65239	MODEL 1016	BOAT TRAILER 10	Steelton Borough and Authority

- To the extent not otherwise identified, all street sweepers, snow plows, pavers, and similar vehicles.
- GIS Software

Schedule 4.05

**Required Governmental Consents**

Pennsylvania Public Utility Commission  
 Pennsylvania Department of Environmental Protection  
 Susquehanna River Basin Commission

Schedule 4.06

**Undisclosed Liabilities**

None

Schedule 4.07

Absence of Certain Changes or Events

None

Schedule 4.08

Unpaid Taxes and Tax Claims

None

Schedule 4.09

Real Property and Easements

Background:

- Water System was first constructed by the Steelton Home Water Company ("SHWC") in the 1890s.
- Steelton Borough acquired entire then-existing Water System (and all corporate assets) from SHWC pursuant to a Deed dated December 1, 1899 (Book I, Vol. 10, Page 479).
- The Seller acquired entire then-existing Water System from Steelton Borough pursuant to a Deed dated January 11, 1971 (Book N, Vol. 56, Page 618).

Real property owned in fee by the Seller:

Property	Site / Address	Tax Parcel	Deed / Instrument / Date of Inst.
Water System (transfer of entire system from Borough)	All prior-existing water lines, valves, meters, facilities and the easements in which they are located, together with list of properties then-owned in fee	N/A	Deed (Book N, Vol. 56, Page 618) <ul style="list-style-type: none"> <li>1/11/1971</li> </ul>
Christian Street Garage  [NOTE: site is Excluded Asset on Schedule 2.02(i)]	318-340 Christian Street	61-013-029 61-013-030 61-013-031 61-013-033 61-013-034 61-013-035  61-013-032 61-013-036 61-013-037 61-013-038 61-013-039 60-013-040 61-013-050	Deed (Book B, Vol. 62, Page 551) <ul style="list-style-type: none"> <li>9/4/1975</li> </ul> Deed (Book B, Vol. 62, Page 560) <ul style="list-style-type: none"> <li>9/4/1975</li> </ul>

Property	Site / Address	Tax Parcel	Deed / Instrument / Date of Inst.
Filtration Plant	244-262 Christian Street	61-014-025 61-014-026 61-014-027 61-014-028 61-014-029 61-014-030	Deed (Book A, Vol. 39, Page 661) <ul style="list-style-type: none"> <li>11/1/1972</li> </ul> Deed (Book X, Vol. 57, Page 506) <ul style="list-style-type: none"> <li>2/1/1972</li> </ul> Deed (Book V, Vol. 57, Page 646) <ul style="list-style-type: none"> <li>1/13/1972</li> </ul> Deed (Book M, Vol. 58, Page 388) <ul style="list-style-type: none"> <li>3/2/1972</li> </ul> Deed (Book W, Vol. 57, Page 335) <ul style="list-style-type: none"> <li>1/20/1972</li> </ul> Deed (Book Y, Vol. 57, Page 423) <ul style="list-style-type: none"> <li>2/14/1972</li> </ul>
Water Storage Tanks	Reservoir Road	63-045-115	Deed (Book S, Vol. 56, Page 140) <ul style="list-style-type: none"> <li>2/25/1971</li> </ul>
Tract adjacent to Water Storage Tanks	Kelker Road	63-045-126	Deed (Book 675, Page 421) <ul style="list-style-type: none"> <li>9/19/1985</li> </ul>

Easements, rights of way, property rights and privileges owned, licensed or leased by the Seller:

Asset Type	Site / Address	Tax Parcel	Deed / Instrument
Water Line Easement	Southm side of South Front Street between R Street and T Street	57-029-005	ROW (Book 4002, Page 338) <ul style="list-style-type: none"> <li>4/7/2001</li> </ul>
Water Line Easement	420 Gibson Street	63-043-051	ROW (Inst. No. 20110015567) <ul style="list-style-type: none"> <li>5/15/2010</li> </ul>
Water Line Easement and Dedication of Facilities	Christian and Franklin Streets	N/A (area within street ROW)	Deed of Dedication (Inst. No. 20180004454) <ul style="list-style-type: none"> <li>1/3/2018</li> </ul>
Water Line Easements Appurtenant to Reservoir Tracts	Steelton-Highspire School District Property (High School)	63-045-091 (west of water tanks) 63-043-012 (south of water tanks)	Subdivision Plan (Plan Book U, Vol. 3, Page 80) <ul style="list-style-type: none"> <li>4/12/1984</li> </ul> Deed to SHWC (Book S, Vol. 8, Page 205) <ul style="list-style-type: none"> <li>10/20/1892</li> </ul>



**Schedule 4.11(b)**

**Plans and Benefit Obligations**

Contract Between Borough of Steelton and American Federation of State County and Municipal Employees (AFSCME) 2017-2019, United Concordia Dental Plan (Group Policy)

Life, Short Term Disability, and Accidental Death & Dismemberment Insurance Plan offered by Standard Insurance Company.

Vision Insurance Plan from National Vision

Fidelity Life Insurance Company

Capital Blue Cross Health Insurance Plan (PPO)

**Schedule 4.11(c)**

**Multiemployer Plans**

None

**Schedule 4.11(d)**

**Benefit Obligations for Present or Future Terminated or Retired Personnel and Families**

Contract Between Borough of Steelton and American Federation of State County and Municipal Employees (AFSCME) 2017-2019.

**Schedule 4.11(f)**

**Severance Agreements**

None

Schedule 4.12(a)

Collective Bargaining Agreements

Contract Between Borough of Steelton and American Federation of State County and Municipal Employees (AFSCME) 2017-2019.

Schedule 4.12(b)

Exceptions to Personnel Payments

None

Schedule 4.13

Noncompliance with Environmental Laws

None

Schedule 4.14

Authorizations and Permits

Permit No.	Facility
201286	Steelton Water Filtration Plant (Christian & Conestoga St., Steelton, PA 17113)
E22-612	Steelton Water Filtration Plant (282 Christian St., Steelton, PA 17113-2998)
E22-624	Steelton WTP Clearwell and Booster Station (123 N. Front St., Steelton, PA 17113)
E22-124	Steelton WTP Clearwell and Booster Station (123 N. Front St., Steelton, PA 17113)
2216503	Steelton WTP Clearwell and Booster Station (Contact Tank) (123 N. Front St., Steelton, PA 17113)
WA 22-549B	Steelton WTP Clearwell and Booster Station (Existing Intake) (123 N. Front St., Steelton, PA 17113)
2216503	Steelton WTP Clearwell and Booster Station (Contact Tank) (123 N. Front St., Steelton, PA 17113)
Tracer Study Plan	Steelton WTP 260,000-gallon clearwell
WA 22-1037A	SUEZ/Authority Interconnection, Reservoir Rd., Swatara Twp.
WA 22-303 <sup>2</sup>	SUEZ/Authority Interconnection, Reservoir Rd., Swatara Twp.
SRBC Docket No. 20171211	SUEZ/Authority Interconnection, Reservoir Rd., Swatara Twp.
SRBC Docket No. 20171212	Steelton WTP Clearwell and Booster Station (Existing Intake) (123 N. Front St., Steelton, PA 17113)

<sup>2</sup> Please note, this permit was issued to SUEZ Water Pennsylvania, Inc. to purchase up to 1.0 mgd from Steelton Borough Water Authority.



**Schedule 4.15**

**Contracts and Assigned Contracts**

Name of Contract	Parties to Contract	Date of Contract
Hach Service Partnership	Borough of Steelton and Hach Company	2017
Platinum Service Agreement	"Steelton Boro Water Plant" and ThyssenKrupp Elevator Corporation	March 14, 2016
Memorandum of Understanding	Steelton Borough Authority and UGI Energy Services, LLC ("UGIES")	April 17, 2017
1999 Emergency Purchase – Interconnect Agreement with United Water Pennsylvania, Inc.	United Water Pennsylvania, Inc. ("United Water") and Steelton Borough Authority	October 7, 1999
First Addendum to Emergency Purchase-Interconnection Agreement	Steelton Borough Authority and United Water Pennsylvania, Inc.	2013
Recorded Deed – UGI	UGIES and Steelton Borough Authority	January 2018

**Schedule 4.16**

**Litigation Involving the System**

Threatened Litigation

I. None

Pending/Recently Resolved Litigation

I. *Jerome Davis v. Steelton Water Authority*, Dauphin County C.C.P. No. 2015-CV-2131-CV

**Schedule 5.04**

**Consents and Approvals – Buyer**

Pennsylvania Public Utility Commission Approval of PAWC's Application seeking, among other things, a Certificate of Public Convenience

**Schedule 5.11**

**Litigation Involving Buyer**

None

Schedule 6.03(a)

Employer Officers

Name	Position
Charles Berry	Operator
Brian Handley	Lead Foreman
Mark Handley	Chief Operator
Nate Handley	Laborer
Barry Hockenberry	Operator
Roy Long	Laborer
Todd Melcdin	Operator

Schedule 6.03(a)(i)

Open Positions

- I Operator Position
- I Laborer Position

Schedule 6.04

Rates

The below Steelton Borough Authority Rates will be adopted by PAWC effective at Closing

All Customers:

Service (Minimum) Charge - includes first 5,000 gallons per quarter or 1 700 gallons per Month)

Steelton Borough Authority - Quarterly      Under PAWC - Monthly

Size of meter	Steelton Borough Authority - Quarterly	Under PAWC - Monthly
5/8 inch & 3/4 inch	\$44.35	\$14.78
1 inch	\$97.13	\$32.37
1.25 inch & 1.5 inch	\$174.87	\$58.29
2 inch	\$262.60	\$84.20
3 inch	\$573.19	\$191.06
4 inch	\$748.59	\$249.52
6 inch	\$1,197.69	\$399.23
8 inch	\$1,739.91	\$579.97

Consumption Charge

Steelton Borough Authority - Quarterly      Under PAWC - Monthly

First 5,000	\$0	First 1,700	\$0
Next 55,000 gallons)	\$ 8.26 (per 1,000 gallons)	Next 18,300	\$ 8.260 (per 100
Next 90,000 gallons)	\$ 9.12 (per 1,000 gallons)	Next 30,000	\$ 9.120 (per 100
All Over 150,000 gallons)	\$ 7.88 (per 1,000 gallons)	All over 50,000	\$ 7.880 (per 100

PAWC intends to bill on a monthly basis in lieu of quarterly billing.

Public Fire Hydrant Rates  
Unmetered and Metered Private Fire Service Rates

Rates Zone 1:

Public Fire Service: Each public fire hydrant - \$15.95 per month

Unmetered Private Fire Service:

Service Charge - The following shall apply based on the size of service line connection required to render adequate service, as determined by the Company:

Size of Connection with Main	Service Charge Per Month
1 inch	\$ 4.11
1-1/4 inch	4.11
1-1/2 inch	5.92
2 inch	10.52
3 inch	23.93
4 inch	42.12
6 inch	95.71
8 inch	170.36
10 inch	286.07
12 inch	382.63

Qualified Private Fire Hydrants

Service under this classification is subject to regulations set forth in Section 2.11 "Qualified Private Fire Hydrants" of Buyer's tariff.

Qualified Private Fire Hydrants \$25.05 per month

Metered Private Fire Service:

Service Charge - The following shall apply based on the size of service line connection required to render adequate service, as determined by the Company:

Size of Connection with Main	Minimum Per Month
1 inch	\$ 33.64
1-1/4 inch	33.64
1-1/2 inch	48.05
2 inch	78.89
3 inch	144.16
4 inch	180.20
6 inch	270.31
8 inch	414.47
10 inch	582.57
12 inch	874.31

Note: The rates above reflect the impact of a negative surcharge of -6.79% to implement the effects of the Tax Cuts & Jobs Act

Metered Private Fire Service Rates  
 UGI Energy Services LLC - Liquefied Natural Gas Facility

Schedule 6.09

Capital Improvement Plan

Metered Private Fire Service - UGI Energy Services LLC located at the West Franklin Street Liquefied Natural Gas Facility:

Service (Minimum) Charge - Includes first 5,000 gallons per quarter or 1,700 gallons per Month

	Steelton Borough Authority - Quarterly	Under PAWC - Monthly
Size of meter		
16 inch	\$3,478.82	\$1,159.94
18 inch	\$3,914.80	\$1,304.93
20 inch	\$4,349.78	\$1,449.92

Consumption Charge

Steelton Borough Authority - Quarterly		Under PAWC - Monthly	
First 5,000	\$0	First 1,700	\$0
Next 55,000	\$ 8.28 (per 1,000 gallons)	Next 18,300	\$0.8260 (per 100 gallons)
Next 90,000	\$ 9.12 (per 1,000 gallons)	Next 30,000	\$0.9120 (per 100 gallons)
All Over 150,000	\$ 7.88 (per 1,000 gallons)	All over 50,000	\$0.7880 (per 100 gallons)

PAWC Intends to bill on a monthly basis in lieu of quarterly billing.

The following recommendations are based on PAW's due diligence, a site visit, and Steelton's 2017 Filter Plant Performance Evaluation. These are only projected improvements and costs and are subject to change.

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Water Treatment	\$ 42,900												
Sewer Water Mainline	\$ 20,000												
TUCC Monitoring	\$ 20,000												
SCADA	\$ 100,000												
Security	\$ 100,000												
Salinity	\$ 200,000												
Miscellaneous Plant Improvement	\$ 200,000												
Wast Treatment Plant Replacement	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	
Distribution System													
Automatic Meters	\$ 15,000												
OP Survey	\$ 100,000												
Distribution System Study	\$ 100,000												
Distribution System Improvements	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 400,000	
SCADA/Process Control	\$ 200,000												
Lead service replacement	\$ 500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	
Water Meters Replacement	\$ 200,000	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000	
Total	\$ 1,762,900	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000
Grand Total	\$ 1,762,900	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000	\$ 4,325,000

Treatment

Based on the 2017 filter plant performance evaluation, the recommendation of Steelton's engineer, and PAW's own analysis, a new filter plant is necessary to address identified treatment issues.

Distribution System

The lead and copper corrosion control program and results will need to be further evaluated post acquisition. Based on these findings there may be the need to make interim changes to the corrosion control plan to minimize lead and copper corrosion.

Most of the water meters are older than Pennsylvania American Water Company standards and are a mix of manual and radio read meters of different manufacturers. It is proposed to coordinate meter and services line replacement together if possible.

Based on on-going concerns with the disinfection by-product levels in the finished water it is recommended to conduct a system wide assessment to ensure regulatory standards are being met. It is estimated this study would cost approximately \$100,000. No additional capital improvement costs are incorporated in the 10 year plan until the report findings are available.

Finally, typical distribution system replacements are planned based on estimated average repairs and replacement for a system of this type.

Schedule 6.10

Low-Income Assistance Plan

**Assisting low-income customers for decades.**

**H2O HELP TO OTHERS™**

**WATER SERVICE ASSISTANCE**  
 Pennsylvania American Water has been assisting low-income customers since 1990 through the H2O Help to Others program. The program provides financial assistance to eligible customers who are unable to pay their water bills.

**WASTEWATER SERVICE ASSISTANCE**  
 Pennsylvania American Water has been assisting low-income customers since 1990 through the H2O Help to Others program. The program provides financial assistance to eligible customers who are unable to pay their wastewater bills.

**FOR MORE INFORMATION**  
 Call 1-888-282-6816 or visit our website at [www.paw.com](http://www.paw.com).

**OGELAR ENERGY FUND**  
 1-888-282-6816

**SERVICE. ONE MORE WAY WE KEEP LIFE FLOWING.**



**Water-Saving Devices and Education**  
 Customers who qualify for the H2O Help to Others program can also receive water-saving devices and education. This includes low-flow showerheads, faucet aerators, and toilet flushers. We also provide water-saving tips and information on how to reduce water usage in the home.

**MONTHLY INCOME GUIDELINES**

Number of Persons in Household	GRANT PROGRAM Total Combined Monthly Income	DISCOUNT PROGRAM Total Combined Monthly Income
1	\$2,000	\$1,518
2	\$3,148	\$2,068
3	\$4,300	\$2,598
4	\$5,450	\$3,130
5	\$6,600	\$3,670
6	\$7,750	\$4,218
7	\$8,900	\$4,758
8	\$10,050	\$5,298
Family assistance option	\$720	\$540

**WANT TO LEND A HAND?**  
 We are currently seeking qualified individuals to assist with the H2O Help to Others program. If you are interested in becoming a volunteer, please contact us at [volunteer@paw.com](mailto:volunteer@paw.com).

**LEARN MORE ONLINE**  
 Visit our website at [www.paw.com](http://www.paw.com) for more information about the H2O Help to Others program and how to apply for assistance.

**H2O Help to Others**

**ASSIST A FAMILY IN NEED**

**H2O HELP TO OTHERS™ PROGRAM**  
**PLEASE FILL IN**  
 1. How many people are in the household?  
 2. How many people are unable to pay their water bills?  
 3. How long have they been unable to pay?  
 4. How long have they been in the program?  
 5. How long have they been in the program?  
 6. How long have they been in the program?  
 7. How long have they been in the program?  
 8. How long have they been in the program?

**FOR MORE INFORMATION**  
 Call 1-888-282-6816 or visit our website at [www.paw.com](http://www.paw.com).

**OGELAR ENERGY FUND**  
 1-888-282-6816

Schedule 7.06

Data Room Items Known to Buyer

Closing Documents

Water System - Assessment of Tangible Assets (Updated 10/5/18)  
Valuation Report (Final) (10/11/18)

Request for Proposals

UPDATED Version Dated May 8, 2018  
Request for Proposals - Water System Assets (Clean)

Contracts

Contracts Related to APA Schedule 4.15 (added 10/11/18)  
Hach Service Contract  
Recorded Deed - UGI  
1999 Emergency Purchase Interconnect Agreement with United Water  
ThyssenKrupp - Platinum Service Agreement  
UGI - Authority Agreement for LNG Facility  
United Water - 2013  
Guaranteed Energy Savings Contract - Constellation Energy (added 4/6/18)  
Cooperation Agreement - Steelton Borough  
Comcast Business - 2016  
ESCO Lease to Own

DEP

August 2018 DBP Report  
Updated DEP Violation History (2013-2018)  
Floodplain Management Permit - Executed Floodplain Management Permit (added 5/29/18)  
FPPE Study (Feb. 2017) (added 5/14/18)  
Violation Information 2012-2016 (added 5/14/18)  
RTRC 2016 (added 5/14/18) RTRC Sampling Plan 2016 (added 5/14/18)  
Tracer Test Permit 2016 (added 5/14/18)  
Public Comment Confirmation 2016 (added 5/14/18)  
Construction Permit 2016 (added 5/14/18)  
Joint Permit Application 2016 (added 5/14/18)  
Incompleteness Review 2016 (added 5/14/18)  
Final Permit - Contact Tank 2016 (added 5/14/18)  
EPA LCR Sampling Memo 2016 (added 5/14/18)  
Transmittal Letter and Check 2015 (added 5/14/18)  
Primary Facility Report 2014 (added 5/14/18)  
FPPE Report (1/6/14) (added 5/14/18)  
CO&A Correspondence (11/26/14) (added 5/2/18)  
Consent Order and Agreement (added 4/6/18)  
CO&A Termination Letter (added 4/6/18)  
Water Allocation Permits (added 4/18/18)  
Steelton River Withdrawal SUEZ Subsidiary Allocation SUEZ Interconnect

Deed to Authority (Book V, Vol 57, Page 646)  
Deed to Authority (Book 675, Page 421)  
Deed to Authority (Book N, Vol 56, Page 618)<sup>1</sup>  
Water Line ROW to Authority (20110015567)  
Water Line ROW to Authority (Book 4002, Page 338)

Water System

Deed to Authority - Water System (added 10/11/18)  
Operator Daily (added 5/23/18)  
Logs:

2018:	Jan.	Feb.	Mar.									
2017:	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2016:	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2015:	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

List of Water-Only Customers (added 5/17/18)  
Water Pumping Reports (Raw & Finished) - 2015 to 2017 (added 5/17/18)  
Meters List (added 5/3/18)  
Distribution Chlorine Residuals (2015 to present) (added 5/2/18)  
Entry Point Chlorine Residuals (added 5/2/18): 2015 2016 2017 2018YTD  
Filter Performance Study Report (Feb. 2015) (added 5/2/18)  
Chemical Usage (added 4/25/18)  
Primary Facility Reports: (added 4/20/18) 2015 2016 2017  
2003 Vulnerability Assessment (added 4/20/18)  
Susquehanna River Basin Commission Dockets (added 4/20/18)  
LT2 Sampling Plan (added 4/20/18)  
LT2 Results (added 4/20/18)  
LT2 Sampling Schedule (added 4/20/18)  
Lead and Copper Sampling Plan (added 4/20/18)  
RTRC Sampling Plan (added 4/20/18)  
Distribution System Evaluation Report (Nov. 2016) (added 4/19/18)  
DEP Filter Plant Performance Evaluation (Feb. 2017) (added 4/18/18)  
Consumer Confidence Report (2017) (added 4/18/18)  
10-Year Capital Improvement Plan (March 2018) - Water System  
Capital Asset Detail (2016)  
Emergency Response Plan (added 4/6/18)  
Contingency Plans: (added 4/6/18) Flood CP Drought CP Ice CP Power Failure CP  
1999 Emergency Purchase - Interconnect Agreement (added 4/4/18) 2013 Addendum (added 4/4/18) [included under Contracts, above.]  
Operator Certificates (added 4/4/18)  
Rates, Rules & Regulations:  
2017 Resolution 1995 Resolution  
Subsidy Agreements:  
2015 Bonds 2017 Bonds  
Rate Card (Current) (added 4/5/18)

Public Water Supply Permit - WTP Clearwell & Booster Station (added 4/18/18)  
Operations Permit - WTP Clearwell & Booster Station (added 4/18/18)  
Approval of Bathing Factor for New Clearwell (added 4/18/18)  
Notices of Violation (added 4/6/18)  
9/25/17 5/8/17 2/2/17  
11/2/16 8/21/17 11/7/17 (each added 5/14/18)  
Public Notices (added 4/6/18)  
9/25/17 7/5/17 12/22/15

Employees

Dental, Vision, Benefits (added 5/22/18)  
PPO Plan - Full (added 5/22/18)  
Seniority List (added 5/3/18)  
List of Water & Sewer Employees  
AFSCME Contract (2017-2019)  
Employee Handbook  
Healthcare Package  
Employee PTO

Financials

Accounts Receivable Aging Reports: 2017 2016 2015 (added 5/22/18)  
Steelton Borough Authority - 2017 Unaudited Financials (added 5/15/18)  
Income Statement Summary - Water (2014-2018)  
Income Statement Summary - Sewer (2014-2018)  
Audited Financial Statements:  
Steelton Borough Authority: 2016 2015 2014

Maps

Water System  
General Water System Map  
Water System Map by Diameter

Real Estate

Plan - Bethlehem Steel 1992 (Plan Book L, Vol 5, Page 54)  
Plan - ISG 2004 (Plan Book B, Vol 9, Page 44)  
Deed of Easements - Bethlehem 1959 (Misc Book Y, Vol 9, Page 260)  
Assignment to Authority - 1959 (Misc Book Y, Vol 9, Page 290)  
Deed of Dedication - Water Lines (20180004454)  
Deed to Authority (Book B, Vol 62, Page 560)  
Deed to Authority (Book B, Vol 62, Page 551)  
Deed to Authority (Book S, Vol 56, Page 140)  
Deed to Authority (Book A, Vol 59, Page 661)  
Deed to Authority (Book X, Vol 57, Page 506)  
Deed to Authority (Book W, Vol 57, Page 335)  
Deed to Authority (Book Y, Vol 57, Page 423)  
Deed to Authority (Book M, Vol 58, Page 388)

Usage

Water/Sewer Meter Reading Reports					
2017:	Residential	Industrial	Commercial	Institutional	Steel Mill
2016:	Residential	Industrial	Commercial	Institutional	Steel Mill
2015:	Residential	Industrial	Commercial	Institutional	Steel Mill
2014:	Residential	Industrial	Commercial	Institutional	Steel Mill

Information Requests from Potential Proposers

Information Requests & Responses (Updated 6/11/18)  
Attachment Q106 Attachment Q107

PUC Application

Updated Response Sheet (10/2/18)  
Steelton Response Sheet Regarding Additional PUC Application Documents (9/24/18)  
Letter to Dauphin County  
Standard Shut-Off Agreement  
Standard Usage Data Agreement  
SUEZ Subsidiary Allocation  
WAP - Steelton River Withdrawal  
WAP - SUEZ Interconnect  
Steelton Response Sheet Regarding PUC Application Documents (9/14/18)  
Water Sewer Sale - HRG, Inc.  
Invoice HRG - Capital Study 2018  
Check to HRG  
Meter Master List 9/10/18

<sup>1</sup> See Deed to Authority - Water System (added 10/11/18) under "Water System."

Schedule 10.01(a)

Required Nongovernmental Consents and Approvals for Seller

None

Schedule 11.01(a)

Required Nongovernmental Consents and Approvals for Buyer

None

**Steelton Water Utility  
Inspection Pictures**

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Property Inspections  
Steelton Borough (Water) Authority**

**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)**



Raw Water Station (1973)



Raw Water Station (1973)



Emergency Generator (2015)



Chlorine Contact Tank (2017)





Filter Building (1973)



Filter Building



Control Panel  
Steelton Plant Inspection Pictures



Laboratory Page 3 of 7



Borough of Steelton



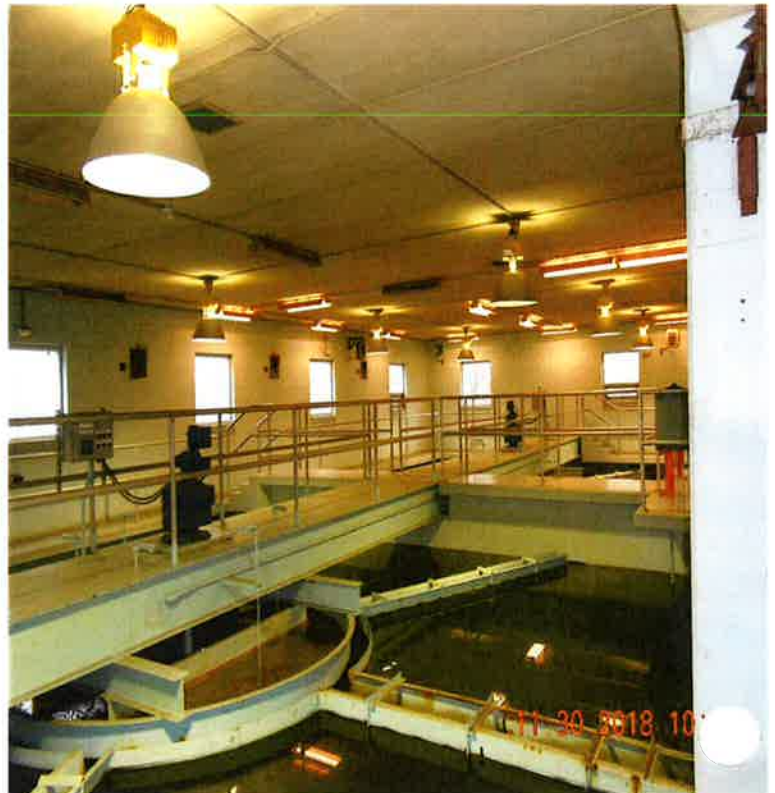
Filters



Pipe Gallery



Steelton Plant Inspection Pictures  
Chemical Room



Clarifiers





Piping Gallery



Back Wash Station



Piping Gallery & Booster Pumps  
Steelton Plant Inspection Pictures



Piping Gallery & Booster Pumps  
Page 5 of 7





Booster Pumps



Booster Pumps



2 Million Gallon Tanks



Tank Booster Pump Building



Tank Booster Pumps



Tank Booster Pumps

**PAWC-AUS Consultants  
UVE Contract**



**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Utility Valuation Expert (UVE) Contract between:  
AUS Consultants and Pennsylvania-American Water Company**

**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)**

## **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 September 18, 2018. 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 Final Implementation Order 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 water system assets currently owned by Steelton Borough Authority, Dauphin County, Pa. (the "Project"). Upon the issuance of a notice to proceed by PA-American, 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 2016-2017 & 2017-2018 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 September 17, 2020. 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**

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**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 September 17, 2020 ("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.

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**Section 6. Prices:**

Supplier fees for the Services are as follows:

<b>Appraisal Activity</b>	<b>Fees (not to exceed)</b>	<b>Expenses (not to exceed)</b>
Appraisal		
Initial Appraisal	\$30,000	\$2,500
Appraisal updates	\$3,500	\$500
Pre-filed Direct testimony related to the above described Valuation studies	\$3,000	\$500

<b>Valuation Activity performed by AUS Consultants staff following completion of pre-filed testimony</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.

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 and the PUC Implementation Order regarding Act 12.

**Section 7. Payment:**

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:**

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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 mailbox 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.
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

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- 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.
  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

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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 (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

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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 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.

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**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 17055-4475  
717-790-3044 (office)  
717-875-2282 (cell)  
717-790-3058 (fax)  
Email: [Scott.Fogelsanger@amwater.com](mailto:Scott.Fogelsanger@amwater.com)

The Legal Counsel contact for PA-American shall be:

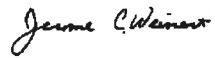
Brian A. Ardire, Director, Corporate Counsel  
Pennsylvania-American Water Company  
800 West Hersheypark Drive  
Hershey, PA 17033  
Office: 717.531.3362  
Mobile: 717.454.7606

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**Section 13. Signatures:**

AUS Consultants (Supplier)



Jerome C. Weinert  
September 18, 2018

Pennsylvania American Water Company



Bernard J. Grundusky  
September 18, 2018

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# **Income Approach**

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Income Approach**

**Discounted Cash Flow Analysis  
Investor-owned Rate Regulated Water Utility**

**Periods 1 through 19 & 20 to perpetuity**

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

Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System

Potential Purchaser: Investor-Owned Utility  
As of July 1, 2018

Discounted Cash Flow Analysis

Discount Rate: Capitalization Rate:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
7.06% 5.54%	Age	Revenues	O&M Expenses	Depreciation	Tax	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	Accumated PW of Cashflows
						(3)-(4)	(6)-(5)	(7) * 28.89%			(3)-(4)-(6)-(9)-(10)		(11)*(12)	Sum (13)
1	0.5	2,904,114	1,867,980	959,657	1,036,134	1,036,134	76,477	22,094	322,714	1,198	690,128	0.966	666,664	666,664
2	1.5	2,933,155	1,924,012	970,554	1,009,143	1,009,143	38,589	11,148	327,557	146	670,292	0.903	605,274	1,271,938
3	2.5	2,962,487	1,981,723	981,821	980,764	980,764	(1,057)	(305)	332,482	147	648,440	0.843	546,635	1,818,573
4	3.5	2,992,112	2,041,166	993,469	950,946	950,946	(42,523)	(12,285)	337,490	147	625,594	0.788	492,968	2,311,541
5	4.5	3,590,534	2,102,392	1,005,506	1,488,142	1,488,142	482,636	139,433	342,584	2,993	1,003,132	0.736	738,305	3,049,846
6	5.5	3,662,345	2,165,455	1,017,944	1,496,890	1,496,890	478,946	138,367	347,764	359	1,010,400	0.687	594,145	3,743,991
7	6.5	3,735,592	2,230,409	1,051,902	1,505,183	1,505,183	453,281	130,953	429,390	366	944,474	0.642	606,352	4,350,343
8	7.5	3,810,304	2,297,315	1,069,193	1,512,989	1,512,989	443,796	128,213	437,917	373	946,486	0.600	567,892	4,918,235
9	8.5	4,343,747	2,366,226	1,087,196	1,977,521	1,977,521	890,325	257,215	446,631	2,668	1,271,007	0.560	711,764	5,629,999
10	9.5	4,604,372	2,437,205	1,105,935	2,167,167	2,167,167	1,061,232	306,590	455,537	1,302	1,403,738	0.523	734,155	6,364,154
11	10.5	4,696,459	2,510,312	1,125,434	2,186,147	2,186,147	1,060,713	306,440	464,640	461	1,414,606	0.489	691,742	7,055,896
12	11.5	4,790,388	2,585,612	1,145,717	2,204,776	2,204,776	1,059,059	305,962	473,942	470	1,424,402	0.456	649,527	7,705,423
13	12.5	5,365,235	2,663,173	1,166,810	2,702,062	2,702,062	1,535,252	443,534	483,451	2,874	1,772,203	0.426	754,958	8,460,381
14	13.5	5,472,540	2,743,059	1,188,740	2,729,481	2,729,481	1,540,741	445,120	493,169	537	1,790,655	0.398	712,681	9,173,062
15	14.5	5,800,892	2,825,342	1,211,535	2,975,550	2,975,550	1,764,015	509,624	503,103	1,642	1,961,181	0.372	729,559	9,902,621
16	15.5	6,090,937	2,910,094	1,176,414	3,180,843	3,180,843	2,004,429	579,079	421,370	1,450	2,178,944	0.347	756,094	10,658,715
17	16.5	6,090,937	2,997,386	1,194,727	3,093,551	3,093,551	1,898,824	548,570	427,883	-	2,117,098	0.324	685,940	11,344,655
18	17.5	6,090,937	3,087,297	1,196,264	3,003,640	3,003,640	1,807,376	522,151	434,505	-	2,046,984	0.303	620,236	11,964,891
19	18.5	6,090,937	3,179,905	1,197,842	2,911,032	2,911,032	1,713,190	494,941	441,242	-	1,974,849	0.283	558,882	12,523,773
20 and beyond	19.5	6,334,574	3,275,291	1,217,348	3,059,283	3,059,283	1,841,935	532,135	448,095	1,217	2,077,836	4.765	9,900,889	22,424,662
			50,191,354						8,371,466					

Age  
 PW(Age) = 1/(1+Discount Rate)<sup>(Age)</sup>  
 PW to Perpetuity = 1/Capitalization Rate  
 PW<sub>(20and Beyond)</sub> = PW to Perpetuity \* PW Factor<sub>(19.5)</sub>

De' Tax

**Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System**

**Potential Purchaser: Investor-Owned Utility**

As of July 1, 2018

**Calculated Rates of Return on Rate Base and Equity  
(Years 1 through 20)**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Period	Age	Revenues	O&M Expenses	Book Depreciation	Rate-making Interest Expense	Book Taxable Income (Current + Deferred)	State and Federal Taxes @ 28.89%	Net Operating Income	Net (Equity) Income	Net Plant	Working Capital	Accumulated Deferred Income Taxes (ADIT)	Rate Base	Return on Rate Base	Net Equity	Return on Equity
						(3)-(4)-(5)-(6)	(7) *28.89%	(7)-(8)-(6)	(9) - (6)			(11)-(12)-(13)	(9)/(14)		(10)/(16)	
1	0.5	2,804,114	1,867,980	756,379	258,352	21,403	6,183	273,572	15,220	23,487,813	14,520	(58,727)	23,443,606	1.17%	16,521,040	0.09%
2	1.5	2,933,155	1,924,012	756,943	249,740	2,460	711	251,489	1,749	23,058,428	14,666	(120,439)	22,952,655	1.10%	16,291,548	0.01%
3	2.5	2,862,487	1,981,723	749,555	241,416	(10,207)	(2,949)	234,158	(7,258)	22,841,355	14,813	(187,540)	22,468,628	1.04%	16,060,757	-0.05%
4	3.5	2,992,112	2,041,166	739,537	233,368	(21,959)	(6,344)	217,753	(15,615)	22,239,308	14,960	(260,901)	21,993,367	0.99%	15,829,060	-0.10%
5	4.5	3,590,534	2,102,392	738,817	225,589	523,736	151,307	598,018	372,429	21,843,075	17,953	(337,947)	21,523,081	2.78%	15,992,611	2.33%
6	5.5	3,662,345	2,165,455	733,057	218,070	545,763	157,671	606,162	388,092	21,457,783	18,312	(420,251)	21,055,844	2.88%	16,178,787	2.40%
7	6.5	3,735,592	2,230,409	726,606	210,801	567,776	164,031	614,546	403,745	21,160,083	18,678	(514,230)	20,664,531	2.97%	16,387,346	2.46%
8	7.5	3,810,304	2,297,315	722,755	203,774	586,460	169,428	620,806	417,032	20,874,760	19,051	(614,316)	20,279,495	3.06%	16,615,698	2.51%
9	8.5	4,343,747	2,366,226	720,036	196,982	1,060,503	306,379	951,106	754,124	20,600,869	21,719	(720,388)	19,902,200	4.78%	17,187,432	4.39%
10	9.5	4,604,372	2,437,205	713,532	190,416	1,263,219	364,944	1,088,691	898,275	20,342,387	23,021	(833,753)	19,531,655	5.57%	17,909,396	5.02%
11	10.5	4,696,459	2,510,312	709,758	184,068	1,292,321	373,951	1,103,038	918,970	20,096,781	23,482	(953,841)	19,166,422	5.76%	18,657,932	4.93%
12	11.5	4,790,388	2,585,612	706,843	177,933	1,320,000	381,348	1,116,585	938,652	19,863,390	23,952	(1,080,632)	18,806,710	5.94%	19,491,931	4.83%
13	12.5	5,365,235	2,663,173	705,175	172,002	1,824,885	577,209	1,469,678	1,297,676	19,641,175	26,826	(1,213,998)	18,454,003	7.96%	20,570,246	6.31%
14	13.5	5,472,540	2,743,059	702,855	166,268	1,860,358	537,457	1,489,169	1,322,901	19,430,996	27,363	(1,354,370)	18,103,989	8.23%	21,739,194	6.09%
15	14.5	5,800,892	2,825,342	696,099	160,726	2,118,725	612,100	1,667,351	1,506,625	19,237,507	29,005	(1,503,280)	17,763,232	9.39%	23,096,999	6.52%
16	15.5	6,090,937	2,910,094	693,660	155,368	2,331,816	673,661	1,813,523	1,658,155	18,964,723	30,455	(1,642,747)	17,352,431	10.45%	24,611,294	6.74%
17	16.5	6,090,937	2,997,386	697,356	150,190	2,246,005	648,871	1,747,324	1,597,134	18,694,753	30,455	(1,786,438)	16,938,770	10.32%	26,063,364	6.13%
18	17.5	6,090,937	3,087,297	694,079	145,183	2,164,378	625,289	1,684,272	1,539,089	18,434,682	30,455	(1,931,519)	16,533,618	10.19%	27,474,023	5.60%
19	18.5	6,090,937	3,179,905	686,080	140,344	2,084,608	602,243	1,622,709	1,482,365	18,189,346	30,455	(2,079,367)	16,140,434	10.05%	28,826,440	5.14%
20	19.5	6,334,574	3,275,291	686,880	135,666	2,236,737	646,193	1,726,210	1,590,544	17,950,062	31,672	(2,232,619)	15,749,115	10.96%	30,291,369	5.25%

Deferred Tax

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Income Approach  
Income Forecast  
Investor-owned Rate Regulated Water Utility  
Periods 1 through 19 & 20 to perpetuity**

**AUS Consultants  
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Pennsylvania American Water Company  
 Stearns Borough (Water) Authority  
 Water System  
 Potential purchaser: Investor-Owned Utility  
 As of July 1, 2018

Income Statement	1.5		2		3		4		5		6		7		8		9		10
	6.15	1.0%	2.0%	0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Revenues																			
Annual Revenue Growth rate		0.0%																	
Subscriber Growth Rate (Annually)																			
Periodic Subscriber Growth																			
Period for Periodic Growth		4.0%																	
Rate Case Activities																			
Periodic Rate Case (Years)																			
Required Rate Increase		46.31%																	
Proposed Rate Increase		8.0%																	
Total Revenue Adjustments		9.0%																	
Base and Forecast		2,664,325																	
Operating Expenses																			
Waste & Sewerage Collection		894,391																	
Waste & Sewerage Collection Rate of Change			3%																
Treatment		797,490																	
Treatment Rate of Change			3%																
Sewer Administration		123,227																	
Sewer Administration Rate of Change			3%																
Insurance & Benefits																			
Insurance & Benefits Rate of Change			3.0%																
Property Taxes		23,921,486																	
Begin Plant		478																	
Plant Rate % of beginning net plant																			
Book Depreciation (Based on Beginning Year Property Plant & Equipment)		0.002%																	
Total Operating Expenses		25,821,379																	
Cost of Operation as % of Revenues (Calculation)																			
Operating Expenses less Depreciation		2,158,102																	
Operating Income		446,223																	
Nonoperating Revenues (Expenses)																			
Interest Income																			
Interest Expense		258,352																	
Interest Exp. as % of Debt		3.60%																	
Total nonoperating revenues (expenses)		258,352.00																	
Income (loss) before State and Federal Taxes		21,003																	
State and Federal Taxes																			
State and Federal Tax Rate		28.89%																	
Income After Taxes		15,220																	
Income After Taxes plus interest		1,096,134																	
Earnings before interest, taxes, depreciation & amortization																			
Income (loss) before State and Federal Taxes		21,403																	
Book Depreciation		(756,943)																	
Tax Depreciation		(959,957)																	
Difference Tax over Book Depreciation		(203,276)																	
Income Adjusted for Tax Depreciation		(181,953)																	
Income Tax Rate		28.89%																	
Income Taxes		(52,700)																	
Income After Tax		(129,253)																	
Deferred Income Taxes		(58,121)																	
Accumulated Deferred Income Taxes		(58,121)																	
Income After Taxes (Book Depreciation) Plus Deferred Taxes		15,220																	
Plus Interest		(58,121)																	
After Tax Income Debt Free		332,259																	

Pennsylvania-American Water Company  
 Stetion Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

	Base	10	11	12	13	14	15	16	17	18	19	20
<b>Income Statement</b>												
<b>Revenues</b>												
Annual Revenue Growth rate												
Subscriber Growth Rate (Annually)	0.0%	0.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Periodic Subscriber Growth	4.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Period for Periodic Growth	5											
Rate Case Activities												
Periodic Rate Case (years)												
Required Rate Increase	Typically 3 years											
Proposed Rate Increase	Calculated in DCF											
Total Revenue Adjustments	Calculated in DCF											
	Calculated											
Base and Forecasts	2,864,325	4,596,459	4,790,388	5,352,235	5,672,540	5,800,892	6,090,937	6,090,937	6,090,937	6,090,937	6,090,937	6,334,574
Operating Expenses												
Waste & Sewage Collection	894,191	1,238,148	1,275,189	1,313,445	1,352,848	1,393,433	1,435,236	1,478,293	1,522,642	1,568,321	1,615,371	1,665,371
Treatment	795,490	1,101,148	1,134,180	1,168,205	1,202,151	1,239,349	1,276,529	1,314,825	1,354,170	1,394,898	1,436,745	1,480,745
Sewer Administration	123,227	170,577	175,694	180,965	186,394	191,986	197,746	203,678	209,788	216,082	222,564	229,241
Insurance & Benefits		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Property Taxes	23,921,486	541	549	558	566	574	583	590	597	604	611	618
Begin Plant		27,074,217	27,876,535	28,729,234	29,640,228	30,610,228	31,640,228	32,730,228	33,880,228	35,090,228	36,360,228	37,690,228
PI Rate % of beginning net plant	0.002%											
Plant & Equipment												
Total Operating Expenses		709,758	706,843	705,175	703,855	702,909	702,344	701,766	701,176	700,574	700,000	699,454
Cost of Operation as % of Revenues (Calculation)		3,220,770	3,822,455	3,388,348	3,466,914	3,521,441	3,603,754	3,694,742	3,781,176	3,865,995	3,951,171	4,037,745
Operating Expenses less Depreciation		2,510,112	2,985,612	2,653,173	2,740,059	2,825,342	2,910,094	2,997,386	3,087,197	3,179,905	3,275,291	3,373,403
Operating Income		1,476,389	1,497,933	1,996,887	2,028,626	2,279,451	2,487,184	2,396,195	2,309,561	2,234,952	2,214,952	2,237,403
Nonoperating Revenues (Expenses)												
Interest Income		184,068	177,933	172,002	167,268	162,726	158,368	154,190	150,190	145,183	140,344	135,666
Interest Expense		3,60%	3,60%	3,60%	3,60%	3,60%	3,60%	3,60%	3,60%	3,60%	3,60%	3,60%
Interest Exp. % of OI		184,068	177,933	172,002	167,268	162,726	158,368	154,190	150,190	145,183	140,344	135,666
Total nonoperating revenues (expenses)		184,068	177,933	172,002	167,268	162,726	158,368	154,190	150,190	145,183	140,344	135,666
Income (loss) before State and Federal Taxes		1,292,321	1,320,000	1,824,885	1,860,358	2,118,725	2,331,816	2,246,005	2,164,378	2,089,608	2,074,608	2,101,737
State and Federal Tax Rate		28.89%	28.89%	28.89%	28.89%	28.89%	28.89%	28.89%	28.89%	28.89%	28.89%	28.89%
Income After Taxes plus interest		918,970	938,652	1,297,676	1,322,301	1,506,625	1,658,155	1,597,134	1,539,089	1,482,165	1,590,544	1,590,544
Earnings before Interest, Taxes, Depreciation, & Amortization		1,003,038	1,116,585	1,468,678	1,488,169	1,667,351	1,813,523	1,747,324	1,684,172	1,622,709	1,726,230	1,726,230
Income (loss) before State and Federal Taxes		1,292,321	1,320,000	1,824,885	1,860,358	2,118,725	2,331,816	2,246,005	2,164,378	2,089,608	2,074,608	2,101,737
Book Depreciation		(709,758)	(706,843)	(705,175)	(703,855)	(702,909)	(702,344)	(701,766)	(701,176)	(700,574)	(700,000)	(699,454)
Tax Depreciation		(1,125,434)	(1,145,717)	(1,166,810)	(1,188,740)	(1,211,535)	(1,236,414)	(1,263,277)	(1,291,124)	(1,319,955)	(1,349,771)	(1,380,581)
Difference Tax over Book Depreciation		(415,675)	(419,677)	(441,635)	(428,382)	(492,810)	(484,598)	(466,273)	(457,745)	(437,845)	(429,227)	(421,847)
Income Adjusted for Tax Depreciation		876,645	888,126	1,363,250	1,379,778	1,615,915	1,847,218	1,740,861	1,626,333	1,546,260	1,647,381	1,704,383
Income Tax Rate		28.89%	28.89%	28.89%	28.89%	28.89%	28.89%	28.89%	28.89%	28.89%	28.89%	28.89%
Income Taxes		253,263	254,557	393,843	397,985	463,190	534,194	505,194	480,208	454,395	492,941	492,941
Income After Tax		623,382	633,569	963,833	981,793	1,152,725	1,313,024	1,235,667	1,146,055	1,091,865	1,154,400	1,211,442
Deferred Income Taxes		(120,088)	(126,791)	(133,366)	(140,372)	(148,919)	(158,467)	(169,024)	(180,591)	(192,262)	(204,941)	(218,621)
Accumulated Deferred Income Taxes		(953,841)	(1,080,632)	(1,213,998)	(1,354,170)	(1,503,280)	(1,661,747)	(1,831,171)	(2,012,152)	(2,204,193)	(2,407,934)	(2,623,075)
Income After Taxes (Book Depreciation)		918,970	938,652	1,297,676	1,322,301	1,506,625	1,658,155	1,597,134	1,539,089	1,482,165	1,590,544	1,590,544
Plus Deferred Taxes		(120,088)	(126,791)	(133,366)	(140,372)	(148,919)	(158,467)	(169,024)	(180,591)	(192,262)	(204,941)	(218,621)
Plus Interest		184,068	177,933	172,002	167,268	162,726	158,368	154,190	150,190	145,183	140,344	135,666
After Tax Income Debt Free		1,223,126	1,243,376	1,603,044	1,629,441	1,816,261	1,952,990	1,891,015	1,829,551	1,770,557	1,925,557	1,879,462

**Pennsylvania-American Water Company  
 Station Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018**

	Base	1.5	Periods 6.15	16 & beyond	Average Period 1.6	All Periods
<b>Income Statement</b>						
Revenues						
Annual Revenue Growth rate	0.0%	1.0%	2.0%	0.0%		
Subscriber Growth Rate (Annually)	4.0%					
Periodic Subscriber Growth						
Growth						
Period for Periodic Growth						
Rate Case Activities						
Periodic Rate Case (Years)	typically 3 years					
Required Rate Increase	Calculated in DCF					
Proposed Rate Increase	Calculated in DCF					
Total Revenue Adjustments	Calculated					
Base and Forecast	2,664,325	2,904,114	3,076,480	4,470,145		
Operating Expenses						
Waste & Sewage Collection	894,381	3%	3%	3%		
Waste & Sewage Collection Rate of Change						
Treatment	795,490	3%	3%	3%		
Treatment Rate of Change						
Sewer Administration	123,227	3%	3%	3%		
Sewer Administration Rate of Change						
Insurance & Benefits		3.0%	3.0%	3.0%		
Insurance & Benefits Rate of Change						
Property Taxes	23,921,486					
Begin Plant						
P/T Rate % of beginning net plant	0.002%					
Book Depreciation (Based on Beginning Year Property Plant & Equipment)						
Total Operating Expenses						
Cost of Operation as % of Revenues (Calculation)						
Operating Expenses less Depreciation						
Operating Income						
Nonoperating Revenues (Expenses)						
Interest Income						
Interest Expense						
Interest Exp as % of Debt	3.60%					
Total nonoperating revenues (expenses)						
Income (loss) before State and Federal Taxes		15,220	73,305	780,393		
<b>State and Federal Taxes</b>						
State and Federal Tax Rate	28.85%					
Income After Taxes						
Income After Taxes plus Interest						
Earnings before Interest, Taxes, Depreciation & Amortization		1,036,134	3,093,026	2,013,655		
Income (loss) before State and Federal Taxes						
Book Depreciation						
Tax Depreciation						
Difference Tax over Book Depreciation						
Income Adjusted for Tax Depreciation						
Income Tax Rate						
Income Taxes						
Income After Tax						
Deferred Income Taxes						
Accumulated Deferred Income Taxes						
Income After Taxes (Book Depreciation)						
Plus Deferred Taxes						
Plus Interest						
After Tax Income Debt Free						



**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Income Approach  
Balance Statement Forecast  
Investor-owned Rate Regulated Water Utility**

**Periods 1 through 19 & 20 to perpetuity**

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Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

Balance Statement Liabilities	Periods:								
	Base	1-5	6-15	16 & beyond	1	2	3	4	5
Current Liabilities									
Current Liabilities									
Cl. as % of Revenues	39,965 1.50%	1.50%	43,562 1.50%	43,997 1.50%	44,437 1.50%	44,882 1.50%	53,858 1.50%		
Noncurrent Liabilities									
Long Term Debt, Notes payable, net of current portion	7,176,443.83		7,176,443.83	6,937,228.83	6,705,987.83	6,482,454.83	6,266,372.83		
Additional Debt									
Debt Repayment			(239,215)	(231,241)	(223,533)	(216,082)	(208,879)		
Debt Repayment years	30.00		30.00	30.00	30.00	30.00	30.00		
End Long Term Debt, Notes payable, net of current portion	30.00		6,937,228.83	6,705,987.83	6,482,454.83	6,266,372.83	6,057,493.83		
Total noncurrent liabilities									
Deferred Tax Liabilities									
Begin Balance			58,727	58,727	120,439	187,540	260,901		
Additions to Deferred Asset			58,727	120,439	187,540	260,901	337,947		
Total Deferred Tax Liability									
Total Liabilities	7,039,517.83		6,870,423.83	6,714,431.83	6,572,155.83	6,449,298.83			
Equity									
Proportion of Capital	70%								
Beginning Equity Capital	16,745,035		16,745,035	16,521,040	16,291,548	16,060,757	15,829,060		
Additions to Equity (Retained Earnings)			(223,995)	(229,492)	(230,791)	(231,697)	(231,697)		
Deductions from Equity	0		0	0	0	0	0		
Ending Equity Capital			16,521,040	16,291,548	16,060,757	15,829,060	15,992,611		
Operating Income			279,755	252,200	231,209	211,409	749,325		
Return On Equity			1.69%	1.55%	1.44%	1.34%	4.69%		
Total Liabilities & Stockholders Equity	23,560,557		23,161,972	22,775,189	22,401,216	22,441,909			
Assets less Liabilities & Stockholders Equity	(14,662)		(44,881)	(74,584)	(102,066)	(527,023)			

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

Balance Statement	Base					Periods:				
	1-5	6-15	16 & beyond	6	7	8	9	10		
Liabilities										
Current Liabilities										
CL as % of Revenues	39,965 1.50%	54,935 1.50%	57,155 1.50%	65,156 1.50%	69,066 1.50%					
Noncurrent Liabilities										
Long Term Debt, Notes payable, net of current portion	7,176,443.83	6,057,493.83	5,855,577.83	5,660,391.83	5,471,711.83	5,289,321.83				
Additional Debt		(200,916)	(188,680)	30.00	30.00	30.00	(176,311)	30.00		
Debt Repayment		30.00	30.00	30.00	30.00	30.00	30.00	30.00		
Debt Repayment years	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00		
End Long Term Debt, Notes payable, net of current portion		5,855,577.83	5,660,391.83	5,471,711.83	5,289,321.83	5,113,010.83				
Total noncurrent liabilities										
Deferred Tax Liabilities										
Begin Balance	337,947	337,947	420,251	514,230	614,316	720,388				
Additions to Deferred Asset	82,304	93,979	100,086	106,072	113,365	113,365				
Total Deferred Tax Liability	420,251	420,251	514,230	614,316	720,388	833,753				
Total Liabilities	6,330,763.83	6,230,655.83	6,143,182.83	6,074,865.83	6,015,829.83					
Equity										
Proportion of Capital	70%									
Beginning Equity Capital	16,745,035	15,990,611	16,178,787	16,387,346	16,615,698	17,187,432				
Additions to Equity (Retained Earnings)		186,176	208,559	228,352	271,734	321,964				
Deductions from Equity	0	0	0	0	0	0				
Ending Equity Capital		16,178,787	16,387,346	16,615,698	17,187,432	17,909,396				
Operating Income		763,833	778,577	790,234	1,257,485	1,453,635				
Return On Equity		4.72%	4.75%	4.76%	7.32%	8.12%				
Total Liabilities & Stockholders Equity		22,509,551	22,618,002	22,758,881	23,262,298	23,925,226				
Assets less Liabilities & Stockholders Equity		(978,521)	(1,383,207)	(1,807,515)	(2,574,554)	(3,490,752)				

Pennsylvania-American Water Company  
 Steeiton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

	Base					Periods:				
	1-5	6-15	16 & beyond	11	12	13	14	15		
<b>Balance Statement</b>										
<b>Liabilities</b>										
Current Liabilities										
Current Liabilities										
CL as % of Revenues	39,965 1.50%	70,447 1.50%	71,856 1.50%	80,479 1.50%	82,088 1.50%	87,013 1.50%				
<b>Noncurrent Liabilities</b>										
Long Term Debt, Notes payable, net of current portion Begin										
Additional Debt	7,176,443.83	5,113,010.83	4,942,576.83	4,777,823.83	4,618,562.83	4,464,610.83				
Debt Repayment		(170,434)	(164,753)	(159,261)	(153,952)	(148,820)				
Debt Repayment years	30.00	30.00	30.00	30.00	30.00	30.00				
End Long Term Debt, Notes payable, net of current portion End		4,942,576.83	4,777,823.83	4,618,562.83	4,464,610.83	4,315,790.83				
Total noncurrent liabilities										
<b>Deferred Tax Liabilities</b>										
Begin Balance	833,753	833,753	953,841	1,080,632	1,213,998	1,354,370				
Additions to Deferred Asset	120,088	120,088	126,791	133,366	140,372	148,910				
Total Deferred Tax Liability	953,841	953,841	1,080,632	1,213,998	1,354,370	1,503,280				
<b>Total Liabilities</b>	5,966,864.83	5,930,311.83	5,930,311.83	5,913,039.83	5,901,068.83	5,906,083.83				
<b>Equity</b>										
Proportion of Capital	70%									
Beginning Equity Capital	16,745,035	17,909,396	18,657,932	19,431,831	20,570,246	21,739,194				
Additions to Equity (Retained Earnings)		748,536	773,899	1,138,415	1,168,949	1,357,805				
Deductions from Equity	0	0	0	0	0	0				
Ending Equity Capital		18,657,932	19,431,831	20,570,246	21,739,194	23,096,999				
Operating Income		1,476,389	1,497,933	1,996,887	2,026,626	2,279,451				
Return On Equity		7.91%	7.71%	9.71%	9.32%	9.87%				
<b>Total Liabilities &amp; Stockholders Equity</b>		24,624,797	25,362,143	26,483,286	27,640,263	29,003,083				
<b>Assets less Liabilities &amp; Stockholders Equity</b>		(4,434,087)	(5,402,945)	(6,734,806)	(8,099,816)	(9,649,558)				

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

	Base					Periods:				
	1-5	6-15	16 & beyond	16	17	18	19	20		
<b>Balance Statement</b>										
<b>Liabilities</b>										
Current Liabilities										
Current Liabilities										
CL as % of Revenues	39,965 1.50%	91,364 1.50%	91,364 1.50%	91,364 1.50%	91,364 1.50%	91,364 1.50%	91,364 1.50%	95,019 1.50%		
<b>Noncurrent Liabilities</b>										
Long Term Debt, Notes payable, net of current portion Begin										
Additional Debt										
Debt Repayment										
Debt Repayment years										
End Long Term Debt, Notes payable, net of current portion End										
Total noncurrent liabilities										
<b>Deferred Tax Liabilities</b>										
Begin Balance										
Additions to Deferred Asset										
Total Deferred Tax Liability										
<b>Total Liabilities</b>										
<b>Equity</b>										
Proportion of Capital										
Beginning Equity Capital										
Additions to Equity (Retained Earnings)										
Deductions from Equity										
Ending Equity Capital										
Operating Income										
Return On Equity										
<b>Total Liabilities &amp; Stockholders Equity</b>										
<b>Assets less Liabilities &amp; Stockholders Equity</b>										

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

	Base	1-5	6-15	16 & beyond	Average
<b>Balance Statement</b>					
Liabilities					
Current Liabilities					
Current Liabilities	39,965				
CL as % of Revenues	1.50%	1.50%	1.50%	1.50%	1.50%
<b>Noncurrent Liabilities</b>					
Long Term Debt, Notes payable, net of current portion	7,176,443.83				
Additional Debt					
Debt Repayment					
Debt Repayment years	30.00				
End Long Term Debt, Notes payable, net of current portion					
Total noncurrent liabilities					
<b>Deferred Tax Liabilities</b>					
Begin Balance					
Additions to Deferred Asset					
Total Deferred Tax Liability					
<b>Total Liabilities</b>					
<b>Equity</b>					
Proportion of Capital	70%				
Beginning Equity Capital	16,745,035				
Additions to Equity (Retained Earnings)					
Deductions from Equity	0				
Ending Equity Capital					
Operating Income					
Return On Equity					
<b>Total Liabilities &amp; Stockholders Equity</b>					
Assets less Liabilities & Stockholders Equity					

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Income Approach  
Balance Statement Forecast - Assets  
Investor-owned Rate Regulated Water Utility  
Periods 1 through 19 & 20 to perpetuity**

**AUS Consultants  
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Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

	Base	1-5	6-15	16 & beyond	1	2	3	4	5	6
<b>Balance Statement</b>										
Assets										
Current Assets										
Current Asset Balance			58,082		58,082	58,663	59,250	59,842	71,811	73,247
CA as % of Revenues		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
<b>Balance Statement</b>										
Property Plant & Equipment										
Total PP&E										
Begin Balance	23,921,478.83		23,921,478.83	24,184,872.83	24,184,872.83	24,452,450.83	24,452,450.83	24,724,285.83	25,000,448.83	25,281,015.83
Additions			322,714.00	327,557.00	332,482.00	337,490.00	342,584.00	347,764.00		
Retirements			(59,320.00)	(59,979.00)	(60,647.00)	(61,327.00)	(62,017.00)	(62,719.00)		
End Balance	23,921,478.83		24,184,872.83	24,452,450.83	24,452,450.83	24,724,285.83	24,724,285.83	25,000,448.83	25,281,015.83	25,566,060.83
End Balance Check			24,184,872.83	24,452,450.83	24,452,450.83	24,724,285.83	24,724,285.83	25,000,448.83	25,281,015.83	25,566,060.83
Book Depreciation of Property, Plant, & Equipment										
Total Book Depreciation										
Begin Balance			(697,059.41)	(756,942.69)	(816,826.07)	(876,709.35)	(936,592.63)	(996,475.91)	(1,056,359.19)	(1,116,242.47)
Depreciation			(756,379.41)	(756,942.69)	(749,554.78)	(742,167.06)	(734,779.34)	(727,391.62)	(720,003.90)	(712,616.18)
Retirements			59,320.00	59,979.00	60,647.00	61,327.00	62,017.00	62,719.00	63,421.00	64,123.00
End Balance			(697,059.41)	(756,942.69)	(816,826.07)	(876,709.35)	(936,592.63)	(996,475.91)	(1,056,359.19)	(1,116,242.47)
End Balance Check			(697,059.41)	(756,942.69)	(816,826.07)	(876,709.35)	(936,592.63)	(996,475.91)	(1,056,359.19)	(1,116,242.47)
Net Plant										
Begin Balance	23,921,478.83		23,487,813.42	23,487,813.42	23,058,427.73	22,641,354.95	22,229,308.30	21,817,251.65	21,405,197.40	20,993,143.15
End Balance	23,487,813.42		23,058,427.73	22,641,354.95	22,229,308.30	21,817,251.65	21,405,197.40	20,993,143.15	20,581,088.90	20,169,034.65
Total Asset										
Tax Depreciation of Property, Plant, & Equipment										
Total MACRS Depreciation										
Begin Balance			(959,656.91)	(970,553.75)	(981,450.59)	(992,347.43)	(1,003,244.27)	(1,014,141.11)	(1,025,037.95)	(1,035,934.79)
Depreciation			(959,656.91)	(970,553.75)	(981,450.59)	(992,347.43)	(1,003,244.27)	(1,014,141.11)	(1,025,037.95)	(1,035,934.79)
Retirements			59,320.00	59,979.00	60,647.00	61,327.00	62,017.00	62,719.00	63,421.00	64,123.00
End Balance			(900,336.91)	(910,574.75)	(920,812.59)	(931,050.43)	(941,288.27)	(951,526.11)	(961,763.95)	(972,001.79)
End Balance Check			(900,336.91)	(910,574.75)	(920,812.59)	(931,050.43)	(941,288.27)	(951,526.11)	(961,763.95)	(972,001.79)
Net Plant										
Begin Balance	23,921,478.83		23,284,535.92	23,284,535.92	22,452,450.83	21,817,251.65	21,182,052.47	20,546,853.30	19,911,654.12	19,276,454.95
End Balance	23,284,535.92		22,452,450.83	21,817,251.65	21,182,052.47	20,546,853.30	19,911,654.12	19,276,454.95	18,641,255.78	18,006,056.61
Tax Book										
Begin Balance			(959,656.91)	(970,553.75)	(981,450.59)	(992,347.43)	(1,003,244.27)	(1,014,141.11)	(1,025,037.95)	(1,035,934.79)
Depreciation			(756,379.41)	(756,942.69)	(749,554.78)	(742,167.06)	(734,779.34)	(727,391.62)	(720,003.90)	(712,616.18)
Retirements			203,277.50	(213,611.06)	(223,944.52)	(234,277.98)	(244,611.44)	(254,944.90)	(265,278.36)	(275,611.82)
End Balance			(203,277.50)	(213,611.06)	(223,944.52)	(234,277.98)	(244,611.44)	(254,944.90)	(265,278.36)	(275,611.82)



Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

	Base	1-5	6-15	16 & beyond	7	8	9	10	11	12
<b>Balance Statement</b>										
<b>Assets</b>										
Current Assets										
Current Asset Balance		74,712	76,206	86,875	92,087	99,929	95,808			
CA as % of Revenues		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%			
<b>Balance Statement</b>										
Property Plant & Equipment										
Total PP&E										
Begin Balance		25,566,060.83	25,931,535.83	26,304,624.83	26,685,493.82	27,074,316.83	27,471,271.83			
Additions		429,390.00	437,917.00	446,631.00	455,537.00	464,640.00	473,942.00			
Retirements		(63,915.00)	(64,828.00)	(65,762.00)	(66,714.00)	(67,685.00)	(68,679.00)			
End Balance		25,931,535.83	26,304,624.83	26,685,493.83	27,074,316.83	27,471,271.83	27,876,534.83			
End Balance Check		25,931,535.83	26,304,624.83	26,685,493.83	27,074,316.83	27,471,271.83	27,876,534.83			
Book Depreciation of Property, Plant, & Equipment										
Total Book Depreciation										
Begin Balance		(4,108,278.07)	(4,771,452.66)	(5,429,864.68)	(6,084,524.76)	(6,731,929.77)	(7,374,491.04)			
Depreciation		(726,605.59)	(722,755.02)	(720,036.08)	(713,532.01)	(709,758.27)	(706,863.15)			
Retirements		63,431.00	64,343.00	65,276.00	66,227.00	67,197.00	68,189.00			
End Balance		(4,771,452.66)	(5,429,864.68)	(6,084,624.76)	(6,731,929.77)	(7,374,491.04)	(8,013,145.19)			
End Balance Check		(4,771,452.66)	(5,429,864.68)	(6,084,624.76)	(6,731,929.77)	(7,374,491.04)	(8,013,145.19)			
Net Plant										
Begin Balance		21,457,782.76	21,160,083.17	20,874,760.15	20,600,869.07	20,342,387.06	20,096,780.79			
End Balance		21,160,083.17	20,874,760.15	20,600,869.07	20,342,387.06	20,096,780.79	19,863,386.64			
Total Asset										
Tax Depreciation of Property, Plant, & Equipment										
Total MACRS Depreciation										
Begin Balance		(1,051,901.99)	(1,069,192.87)	(1,087,196.03)	(1,105,934.51)	(1,125,433.55)	(1,145,716.51)			
Depreciation										
Retirements		63,915.00	64,828.00	65,762.00	66,714.00	67,685.00	68,679.00			
End Balance		(987,986.99)	(1,004,364.87)	(1,021,434.03)	(1,039,220.51)	(1,057,748.55)	(1,077,037.51)			
End Balance Check		(987,986.99)	(1,004,364.87)	(1,021,434.03)	(1,039,220.51)	(1,057,748.55)	(1,077,037.51)			
Net Plant										
Begin Balance		25,566,060.83	25,931,535.83	26,304,624.83	26,685,493.83	27,074,316.83	27,471,271.83			
End Balance		24,943,548.84	25,300,259.96	25,664,059.80	26,035,096.32	26,413,523.28	26,799,497.32			
Tax Book										
Begin Balance		(1,051,901.99)	(1,069,192.87)	(1,087,196.03)	(1,105,934.51)	(1,125,433.55)	(1,145,716.51)			
End Balance		(726,605.59)	(722,755.02)	(720,036.08)	(713,532.01)	(709,758.27)	(706,863.15)			
End Balance Check		(726,605.59)	(722,755.02)	(720,036.08)	(713,532.01)	(709,758.27)	(706,863.15)			
End Balance		(325,296.40)	(346,437.85)	(367,159.95)	(392,402.51)	(415,675.28)	(438,873.36)			

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

	Base	Periods:					16 & beyond	18
		1-5	6-15	14	15	16		
<b>Balance Statement</b>								
Assets								
Current Assets								
Current Asset Balance	53,287	107,305	116,018	121,819	121,819	121,819	121,819	
CA as % of Revenues	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
<b>Balance Statement</b>								
Property Plant & Equipment								
Total PP&E								
Begin Balance		27,876,534.83	28,712,736.83	29,144,058.83	29,492,567.83	29,846,719.83	29,846,719.83	
Additions		483,451.00	503,103.00	421,370.00	427,883.00	434,505.00	434,505.00	
Retirements		(69,692.00)	(71,781.00)	(72,861.00)	(73,731.00)	(74,617.00)	(74,617.00)	
End Balance	23,921,478.83	28,290,293.83	29,144,058.83	29,492,567.83	29,846,719.83	30,206,607.83	30,206,607.83	
End Balance Check		28,290,293.83	29,144,058.83	29,492,567.83	29,846,719.83	30,206,607.83	30,206,607.83	
Book Depreciation of Property, Plant, & Equipment								
Total Book Depreciation								
Begin Balance		(8,013,145.19)	(9,281,740.63)	(9,905,551.69)	(10,527,845.19)	(11,151,966.43)	(11,151,966.43)	
Depreciation		(705,175.09)	(695,099.06)	(693,659.50)	(697,356.24)	(694,079.13)	(694,079.13)	
Retirements		69,201.00	71,288.00	72,366.00	73,235.00	74,120.00	74,120.00	
End Balance		(8,649,119.28)	(9,281,740.63)	(9,905,551.69)	(10,527,845.19)	(11,151,966.43)	(11,151,966.43)	
End Balance Check		(8,649,119.28)	(9,281,740.63)	(9,905,551.69)	(10,527,845.19)	(11,151,966.43)	(11,151,966.43)	
Net Plant								
Begin Balance		19,863,389.64	19,430,996.20	19,237,507.14	18,964,722.64	18,694,753.40	18,694,753.40	
End Balance		19,641,174.55	19,430,996.20	19,237,507.14	18,964,722.64	18,694,753.40	18,434,682.27	
Total Asset								
Tax Depreciation of Property, Plant, & Equipment								
Total MACRS Depreciation								
Begin Balance		(1,166,810.03)	(1,211,534.87)	(1,176,414.47)	(1,194,727.11)	(1,196,263.91)	(1,196,263.91)	
Depreciation								
Retirements		69,692.00	71,781.00	72,861.00	73,731.00	74,617.00	74,617.00	
End Balance		(1,097,118.03)	(1,139,753.87)	(1,103,553.47)	(1,120,996.11)	(1,121,646.91)	(1,121,646.91)	
End Balance Check		(1,097,118.03)	(1,139,753.87)	(1,103,553.47)	(1,120,996.11)	(1,121,646.91)	(1,121,646.91)	
Net Plant								
Begin Balance		27,876,534.83	28,712,736.83	29,144,058.83	29,492,567.83	29,846,719.83	29,846,719.83	
End Balance		27,193,175.80	27,594,722.44	28,004,304.96	28,389,014.36	28,725,723.72	29,084,960.92	
Tax Book								
Begin Balance		(1,166,810.03)	(1,188,740.39)	(1,176,414.47)	(1,194,727.11)	(1,196,263.91)	(1,196,263.91)	
Book		(705,175.09)	(696,099.06)	(693,659.50)	(697,356.24)	(694,079.13)	(694,079.13)	
End Balance		(461,634.94)	(485,885.04)	(482,754.97)	(497,370.87)	(502,184.78)	(502,184.78)	

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

	Base	1-5	6-15	16 & beyond	19	20	Average
<b>Balance Statement</b>							
Assets							
Current Assets							
Current Asset Balance	53,287				121,819	126,691	
CA as % of Revenues	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
<b>Balance Statement</b>							
Property Plant & Equipment							
Total PP&E							
Begin Balance					30,206,607.83	30,572,333.83	
Additions					441,242.00	448,095.00	
Retirements					(75,516.00)	(76,431.00)	
End Balance					30,572,333.83	30,943,997.83	
End Balance Check	23,921,478.83				30,572,333.83	30,943,997.83	
Book Depreciation of Property, Plant, & Equipment							
Total Book Depreciation							
Begin Balance					(11,771,925.56)	(12,382,987.56)	
Depreciation					(686,080.00)	(686,879.68)	
Retirements					75,018.00	75,931.00	
End Balance					(12,382,987.56)	(12,993,936.24)	
End Balance Check					(12,382,987.56)	(12,993,936.24)	
Net Plant							
Begin Balance					18,434,662.27	18,189,346.27	
End Balance					18,189,346.27	17,950,061.59	
Total Asset					18,311,165.27	18,076,752.59	
Tax Depreciation of Property, Plant, & Equipment							
Total MACRS Depreciation							
Begin Balance					(1,197,842.31)	(1,217,347.59)	
Depreciation							
Retirements					75,516.00	76,431.00	
End Balance					(1,122,326.31)	(1,140,916.59)	
End Balance Check					(1,122,326.31)	(1,140,916.59)	
Net Plant							
Begin Balance					30,206,607.83	30,572,333.83	
End Balance					29,450,007.52	29,803,081.24	
Tax Book							
Begin Balance					(1,197,842.31)	(1,217,347.59)	
End Balance					(686,080.00)	(686,879.68)	
End Balance Check					(511,762.31)	(530,467.91)	

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Income Approach  
Cash Flow Forecast  
Investor-owned Rate Regulated Water Utility  
Periods 1 through 19 & 20 to perpetuity**

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**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018**

	Base	Periods:					5	
		1-5	6-15	16 & beyond	1	2		3
<b>Capital Expenditures and Changes in Working Capital</b>								
Capital Expenditures		322,714.00	327,557.00	332,482.00	337,490.00	342,584.00		
Changes to Working Capital								
Current Assets	53,287	58,082	58,663	59,250	59,842	71,811		
Current Liabilities	39,965	43,562	43,997	44,437	44,882	53,858		
Working Capital	13,322	14,520	14,666	14,813	14,960	17,953		
Changes to Working Capital		1,198	146	147	147	3,993		
<b>CASH FLOW</b>								
Income from Operations		273,572	251,489	234,158	217,753	598,018		
Non Cash Expense (depreciation)		756,379	756,943	749,555	739,537	738,817		
Capital Expenditures		322,714	327,557	332,482	337,490	342,584		
Change in Working Capital		1,198	146	147	147	2,993		
Net Cash Flows		706,039	680,729	651,084	619,653	993,258		
Period		0.5	1.5	2.5	3.5	4.5		
PW Factor		7.06%	7.06%	7.06%	7.06%	7.06%		
Discount Rate with growth		5.54%	5.54%	5.54%	5.54%	5.54%		
Discount Rate without growth								
Period Present Worth Factor (PW)		0.966	0.903	0.843	0.788	0.736		
PW of Cashflow		682,034	614,698	548,864	488,287	729,566		
Accumulated PW of Cashflows	21,473,865	682,034	1,296,732	1,845,596	2,333,883	3,063,449		

**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018**

	Base	1-5	6-15	16 & beyond	6	7	8	9	10
<b>Capital Expenditures and Changes in Working Capital</b>									
Capital Expenditures			347,764.00	429,390.00	437,917.00	446,631.00	455,537.00		
Changes to Working Capital									
Current Assets	53,287		73,247	74,712	76,206	86,875	92,087		
Current Liabilities	39,965		54,935	56,034	57,155	65,156	69,066		
Working Capital	13,322		18,312	18,678	19,051	21,719	23,021		
Changes to Working Capital			359	366	373	2,668	1,302		
CASH FLOW									
Income from Operations			606,162	614,546	620,806	951,106	1,088,691		
Non-Cash Expense (depreciation)			733,057	726,606	722,755	720,036	713,532		
Capital Expenditures			347,764	429,390	437,917	446,631	455,537		
Change in Working Capital			359	366	373	2,668	1,302		
Net Cash Flows			991,096	911,396	905,271	1,221,843	1,345,384		
Period		5.5	6.5	7.5	8.5	9.5			
PW Factor		7.06%	7.06%	7.06%	7.06%	7.06%	7.06%		
Discount Rate with growth		5.54%	5.54%	5.54%	5.54%	5.54%	5.54%		
Discount Rate without growth									
Period Present Worth Factor (PW)			0.687	0.642	0.6	0.56	0.523		
PW of Cashflow			680,883	585,116	543,163	684,232	703,636		
Accumulated PW of Cashflows	21,473,865		3,744,332	4,329,448	4,872,611	5,556,843	6,260,479		

**Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System  
Potential Purchaser: Investor-Owned Utility  
As of July 1, 2018**

	Base	Periods:								
		1-5	6-15	16 & beyond	11	12	13	14	15	
<b>Capital Expenditures and Changes in Working Capital</b>										
Capital Expenditures			464,640.00	473,942.00	483,451.00	493,169.00	503,103.00			
Changes to Working Capital										
Current Assets	53,287		93,929	95,808	107,305	109,451	116,018			
Current Liabilities	39,965		70,447	71,856	80,479	82,088	87,013			
Working Capital	13,322		23,482	23,952	26,826	27,363	29,005			
Changes to Working Capital			461	470	2,874	537	1,642			
<b>CASH FLOW</b>										
Income from Operations		1,103,038	1,116,585	1,146,678	1,469,678	1,489,169	1,667,351			
Non Cash Expense (depreciation)		709,758	706,843	705,175	702,855	702,855	696,099			
Capital Expenditures		464,640	473,942	483,451	493,169	493,169	503,103			
Change in Working Capital		461	470	2,874	537	537	1,642			
Net Cash Flows		1,347,695	1,349,016	1,688,528	1,698,318	1,698,318	1,858,705			
Period		10.5	11.5	12.5	13.5	14.5				
PW Factor		7.06%	7.06%	7.06%	7.06%	7.06%	7.06%			
Discount Rate with growth		5.54%	5.54%	5.54%	5.54%	5.54%	5.54%			
Discount Rate without growth										
Period Present Worth Factor (PW)		0.489	0.456	0.426	0.398	0.372				
PW of Cashflow		659,023	615,151	719,323	675,931	691,438				
Accumulated PW of Cashflows	21,473,865	6,919,502	7,534,653	8,253,966	8,929,897	9,621,335				

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

Capital Expenditures and Changes in Working Capital Capital Expenditures	Periods:					16 & beyond	18	19	20
	Base	1-5	6-15	16	17				
Changes to Working Capital									
Current Assets	53,287			121,819	121,819	121,819	121,819	121,819	126,691
Current Liabilities	39,965			91,364	91,364	91,364	91,364	91,364	95,019
Working Capital	13,322			30,455	30,455	30,455	30,455	30,455	31,672
Changes to Working Capital				1,450					1,217
CASH FLOW									
Income from Operations				1,813,523	1,747,324	1,684,272	1,622,709	1,622,709	1,726,210
Non Cash Expense (depreciation)				693,660	697,356	694,079	686,080	686,080	686,880
Capital Expenditures				421,370	427,883	434,505	441,242	441,242	448,095
Change in Working Capital				1,450					1,217
Net Cash Flows				2,084,362	2,016,797	1,943,846	1,867,547	1,867,547	1,963,778
Period				15.5	16.5	17.5	18.5	18.5	19.5
PW Factor				7.06%	7.06%	7.06%	7.06%	7.06%	7.06%
Discount Rate with growth				5.54%	5.54%	5.54%	5.54%	5.54%	5.54%
Discount Rate without growth									
Period Present Worth Factor (PW)				0.347	0.374	0.303	0.283	0.283	0.264
PW of Cashflow				723,274	653,442	588,985	528,516	528,516	9,358,313
Accumulated PW of Cashflows	21,473,865			10,998,051	10,998,051	11,587,036	12,115,552	12,115,552	21,473,865



**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018**

	Base	1-5	6-15	16 & beyond	Average
<b>Capital Expenditures and Changes in Working Capital</b>					
Capital Expenditures					
Changes to Working Capital					
Current Assets	53,287				
Current Liabilities	39,965				
Working Capital	13,322				
Changes to Working Capital					
<b>CASH FLOW</b>					
Income from Operations					
Non Cash Expense (depreciation)					
Capital Expenditures					
Change in Working Capital					
Net Cash Flows					
Period					
PW Factor					
Discount Rate with growth	7.06%				
Discount Rate without growth	5.54%				
Period Present Worth Factor (PW)					
PW of Cashflow					
Accumulated PW of Cashflows	21,473,865				

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Income Approach  
Cash Flow Forecast - 2  
Investor-owned Rate Regulated Water Utility  
Periods 1 through 19 & 20 to perpetuity**

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**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018**

	Base	1-5	6-15	16 & beyond	1	2	3	4	5
			Periods:						
<b>CASH FLOW</b>									
Income from Operations					(129,331)	(150,150)	(172,423)	(196,186)	182,786
Depreciation					(959,657)	(970,554)	(981,821)	(993,469)	(1,005,506)
Capital Expenditures					322,714	327,557	332,482	337,490	342,584
Change in Working Capital					1,198	145	147	147	2,993
Net Cash Flows					505,414	492,701	476,769	459,646	842,715
Period		0.5	1.5	2.5	3.5	4.5			
PW Factor									
Discount Rate with growth	7.06%				7.06%	7.06%	7.06%	7.06%	7.06%
Discount Rate without growth	5.54%				5.54%	5.54%	5.54%	5.54%	5.54%
Period Present Worth Factor (PW)		0.966	0.903	0.843	0.788	0.736			
PW of Cashflow		489,196	444,909	401,916	362,201	620,238			
Accumulated PW of Cashflows	20,399,693	489,196	934,105	1,336,021	1,698,222	2,318,460			

**Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System  
Potential Purchaser: Investor-Owned Utility  
As of July 1, 2018**

	Base	Periods:				16 & beyond	8	9	10
		1-5	6-15	6	7				
CASH FLOW									
Income from Operations				185,509	172,428	170,680	493,036	619,237	
Depreciation			(1,017,944)	(1,051,902)	(1,069,193)	(1,087,196)	(1,105,935)	(1,124,784)	
Capital Expenditures			347,764	429,390	437,917	446,631	455,537	464,443	
Change in Working Capital			359	366	373	2,668	1,302	1,302	
Net Cash Flows			855,330	794,574	801,583	1,130,933	1,268,333	1,413,204	
Period			5.5	6.5	7.5	8.5	9.5		
PW Factor			7.06%	7.06%	7.06%	7.06%	7.06%	7.06%	
Discount Rate with growth			5.54%	5.54%	5.54%	5.54%	5.54%	5.54%	
Discount Rate without growth									
Period Present Worth Factor (PW)			0.687	0.642	0.6	0.56	0.523	0.489	
PW of Cashflow			587,612	510,117	480,950	633,322	663,338	693,354	
Accumulated PW of Cashflows	20,399,693		2,906,072	3,416,189	3,897,139	4,530,461	5,193,799	5,857,117	

**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018**

	Base	Periods:							
		1-5	6-15	16 & beyond	11	12	13	14	15
<b>CASH FLOW</b>									
Income from Operations			623,382	626,569	969,407	577,388	1,140,099		
Depreciation			(1,125,434)	(1,145,717)	(1,166,810)	(1,188,740)	(1,211,535)		
Capital Expenditures			464,640	473,942	483,451	493,169	503,103		
Change in Working Capital			461	470	2,874	537	1,642		
Net Cash Flows			1,283,715	1,297,874	1,649,892	1,672,422	1,846,889		
Period			10.5	11.5	12.5	13.5	14.5		
PW Factor			7.06%	7.06%	7.06%	7.06%	7.06%		
Discount Rate with growth			5.54%	5.54%	5.54%	5.54%	5.54%		
Discount Rate without growth									
Period Present Worth Factor (PW)			0.489	0.456	0.426	0.398	0.372		
PW of Cashflow			627,737	591,831	702,854	665,624	687,043		
Accumulated PW of Cashflows			20,399,693	6,413,367	7,116,221	7,781,845	8,468,888		



**Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018**

	Base	1-5	6-15	16 & beyond	Average
<b>CASH FLOW</b>					
Income from Operations					
Depreciation					
Capital Expenditures					
Change in Working Capital					
Net Cash Flows					
Period					
PW Factor					
Discount Rate with growth			7.06%		
Discount Rate without growth			5.54%		
Period Present Worth Factor (PW)					
PW of Cashflow					
Accumulated PW of Cashflows					20,399,693

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Income Approach  
Rate Case Scenarios and Forecast  
Investor-owned Rate Regulated Water Utility**

**Periods 1 through 19 & 20 to perpetuity**

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Pennsylvania-American Water Company  
 Steellon Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

Base	Periods:							
	1-5	1	2	3	4	5	6	7
Rate Case Forecasts								
Rate Base	24,184,672.83	24,452,450.83	24,724,285.83	25,000,448.83	25,281,015.83	25,566,060.83	25,931,535.83	
Plant in Service	(697,059.41)	(1,394,023.10)	(2,082,930.88)	(2,761,140.53)	(3,437,940.34)	(4,108,278.07)	(4,771,452.66)	
Accumulated Book Depreciation	14,520.00	14,666.00	14,813.00	14,960.00	17,953.00	18,312.00	18,678.00	
Working Capital	(58,727)	(120,439)	(187,540)	(260,901)	(337,947)	(420,251)	(514,230)	
Accumulated Deferred Income Tax	23,443,606.42	22,952,654.73	22,468,627.95	21,993,367.30	21,523,081.49	21,053,843.76	20,664,531.17	
Rate Base	2,904,114.00	2,933,155.00	2,962,487.00	2,992,112.00	3,590,534.00	3,662,345.00	3,735,592.00	
Revenues	1,867,980.00	1,924,012.00	1,981,723.00	2,041,166.00	2,102,392.00	2,165,455.00	2,230,409.00	
O&M Expenses	756,379.41	756,942.59	749,554.78	739,536.65	738,816.81	733,056.73	726,605.59	
Book Depreciation	258,352.00	249,740.00	241,416.00	233,368.00	225,589.00	218,070.00	210,801.00	
Ratemarking Interest Expense	21,402.59	2,460.31	(10,206.78)	(21,958.65)	523,736.19	545,763.27	567,776.41	
Book Income (Current+Deferred)	6,183.00	711.00	(2,949.00)	(6,344.00)	151,307.00	157,671.00	164,031.00	
State & Federal Taxes @ 28.89%	273,571.59	251,489.31	234,158.22	217,753.35	598,018.19	606,162.27	614,546.41	
Net Operating Income	273,572	251,489	234,158	217,753	598,018	606,162	614,546	
Income from Operations	1,177%	1.10%	1.04%	0.99%	2.78%	2.88%	2.97%	
Return on Rate Base	6.93%	6.93%	6.93%	6.93%	6.93%	6.93%	6.93%	
Required Return	1,624,642	1,590,619	1,557,076	1,524,140	1,491,550	1,459,170	1,432,052	
Authorized Return	15,220	1,749	(7,258)	(15,615)	372,429	388,092	403,745	
After-tax Net Income	6,183	711	(2,949)	(6,344)	151,307	157,671	164,031	
Taxes	21,403	2,460	(10,207)	(21,959)	523,736	545,763	567,776	
Pre-tax Net Income	(258,352)	(249,740)	241,416	233,368	225,589	218,070	210,801	
Interest Expense	279,755	252,700	231,209	211,409	749,325	763,833	778,577	
Operating Income	2,674,359	2,680,555	2,731,278	2,780,703	2,841,209	2,898,512	2,957,015	
Operating Expenses	2,904,114	2,933,155	2,962,487	2,992,112	3,590,534	3,662,345	3,735,592	
Revenue Requirement	1,624,642	1,590,619	1,557,076	1,524,140	1,491,550	1,459,170	1,432,052	
Required Return	2,624,359	2,680,555	2,731,278	2,780,703	2,841,209	2,898,512	2,957,015	
Operating Expenses	4,249,001	4,271,574	4,288,354	4,304,863	4,332,759	4,357,682	4,389,067	
Revenue Requirement	46,31%	45,63%	44,76%	43,87%	20,67%	18,99%	17,49%	
Required Rate Increase	1	2	3	4	5	6	7	
Proposed Rate Increase	8%	0%	0%	0%	15%	0%	0%	
Rate Increase	0	1	2	3	4	5	6	
Scenario	6%	8%	0%	0%	15%	0%	0%	
6% period 1, No Rate Increase								
Increase afterword (input 2)								
No Rate Increase (input 2)								
Modest Rate Increase (input 4)								
Modest Rate Inc								
Required Rate Increase (input 6)								
Required Rate Ir								
22,424,662.00								

Pennsylvania-American Water Company  
 Steelton Borough (Water) Authority  
 Water System  
 Potential Purchaser: Investor-Owned Utility  
 As of July 1, 2018

	Base	Periods:																
		1.5	8	9	10	11	12	13	14	16 & beyond	8	9	10	11	12	13	14	
Rate Case Forecasts																		
Rate Base		26,304,624.83	26,685,493.83	27,074,316.83	27,471,271.83	27,876,534.83	28,290,293.83	28,712,736.83										
Plant in Service		(5,429,864.68)	(5,084,524.76)	(6,731,929.77)	(7,374,491.04)	(8,013,145.19)	(8,645,119.28)	(9,281,740.63)										
Accumulated Book Depreciation		19,051.00	21,719.00	23,021.00	23,482.00	23,952.00	24,422.00	24,892.00										
Working Capital		(614,316)	(720,388)	(833,753)	(953,841)	(1,080,632)	(1,213,998)	(1,354,370)										
Accumulated Deferred Income Tax		20,279,495.15	19,802,200.07	19,531,655.06	19,166,421.79	18,806,709.64	18,454,002.55	18,103,989.70										
Rate Base		3,810,304.00	4,343,747.00	4,604,372.00	4,696,459.00	4,790,388.00	4,885,235.00	4,979,610.00										
Revenues		2,297,315.00	2,366,226.00	2,437,205.00	2,510,312.00	2,585,612.00	2,663,173.00	2,743,059.00										
O&M Expenses		722,755.02	720,036.08	713,532.01	709,758.27	706,843.15	705,175.09	702,855.35										
Book Depreciation		203,774.00	196,982.00	190,416.00	184,068.00	177,933.00	172,002.00	166,268.00										
Ratmaking Interest Expense		586,459.98	1,060,502.92	1,263,218.99	1,292,320.73	1,319,999.85	1,824,884.91	1,860,357.65										
Book Income (Current+Deferred)		169,428.00	306,379.00	364,944.00	373,351.00	381,348.00	527,209.00	537,457.00										
State & Federal Taxes @ 28.89%		620,805.98	951,105.92	1,088,690.99	1,103,037.73	1,116,584.85	1,469,677.91	1,489,168.65										
Net Operating Income		620,806	951,106	1,088,691	1,103,038	1,116,585	1,469,678	1,489,169										
Income from Operations		620,806	951,106	1,088,691	1,103,038	1,116,585	1,469,678	1,489,169										
Return on Rate Base		3.06%	4.78%	5.57%	5.76%	5.94%	7.56%	8.23%										
Required Return		6.93%	6.93%	6.93%	6.93%	6.93%	6.93%	6.93%										
Authorized Return		1,405,369	1,379,222	1,353,544	1,328,233	1,303,305	1,278,862	1,254,606										
After-tax Net Income		417,032	754,124	898,275	918,970	938,652	1,297,676	1,322,901										
Taxes		169,428	306,379	364,944	373,351	381,348	527,209	537,457										
Pre-tax Net Income		586,460	1,060,503	1,263,219	1,292,321	1,320,000	1,824,885	1,860,358										
Interest Expense		203,774	196,982	190,416	184,068	177,933	172,002	166,268										
Operating Income		790,234	1,257,485	1,453,635	1,476,389	1,497,993	1,996,887	2,026,626										
Operating Expenses		3,020,070	3,086,262	3,150,737	3,220,070	3,292,455	3,368,348	3,445,914										
Revenue Requirement		3,810,304	4,343,747	4,604,372	4,696,459	4,790,388	5,365,235	5,472,540										
Required Return		1,405,369	1,379,222	1,353,544	1,328,233	1,303,305	1,278,862	1,254,606										
Operating Expenses		3,020,070	3,086,262	3,150,737	3,220,070	3,292,455	3,368,348	3,445,914										
Revenue Requirement		4,425,439	4,465,484	4,504,303	4,548,303	4,595,760	4,647,210	4,700,520										
Required Rate Increase		16.14%	2.80%	-2.17%	-3.15%	-4.06%	-13.38%	-14.11%										
Proposed Rate Increase		8	9	10	11	12	13	14										
Rate Increase		0%	12%	0%	0%	0%	10%	0%										
Scenario		6	8	9	10	11	12	13										
6% Period 1, No Rate Increases		0	0%	12%	0%	0%	0%	0%										
Modest Rate Increase (Input 2)		2	0%	0%	0%	0%	0%	0%										
Modest Rate Increase (Input 3)		3	0%	0%	0%	0%	0%	0%										
Modest Rate Increase (Input 4)		4	0.0%	6.0%	0.0%	0.0%	0.0%	0.0%										
Modest Rate Increase (Input 5)		5	0.0%	12.0%	0.0%	0.0%	0.0%	0.0%										
Modest Rate Increase (Input 6)		6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%										
Modest Rate Increase (Input 7)		7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%										
Required Rate Increase		4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%										
Base		22,424,662.00																



**Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System  
Potential Purchaser: Investor-Owned Utility  
As of July 1, 2018**

	Base	1-5	6-15	16 & beyond
Rate Case Forecasts				
Rate Base				
Plant In Service				
Accumulated Book Depreciation				
Working Capital				
Accumulated Deferred Income Tax				
Rate Base				
Revenues				
O&M Expenses				
Book Depreciation				
Rate-making Interest Expense				
Book Income (Current+Deferred)				
State & Federal Taxes @ 28.65%				
Net Operating Income				

Income from Operations				
Return on Rate Base				
Required Return	6.93%			
Authorized Return				
After-tax Net Income				
Taxes				
Pre-tax Net Income				
Interest Expense				
Operating Income				
Operating Expenses				
Revenue Requirement				
Required Return				
Operating Expenses				
Revenue Requirement				
Required Rate Increase				
Proposed Rate Increase				
Rate Increase				
Scenario				
6% Period 1				
No Rate				
Increase				
afterward				
(Input 2)				
No Rate Increase				
Modest Rate				
Increase (Input				
4)				
Modest Rate Inc				
Required Rate				
Increase (Input				
6)				
Required Rate Ir				
7				
8				

22,424,662.00

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Income Approach  
DCF Forecast Parameters  
Private Rate Regulated Water Utility  
Period 1 through 19 & 20 to perpetuity**

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# **Market Approach**

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Market Approach**

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**Pennsylvania-American Water Company  
Steelton Borough (Water) Authority  
Water System  
Investor-Owned Utility  
As of July 1, 2018**

**Market Approach Summary**

	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Comparable Sales			
Depreciated Original Cost (AUS Consultants) OCLD	<b>14,433,434.76</b>	1.5793	22,794,724
Replacement Cost New less Depreciation RCNLD	<b>23,921,472.83</b>	0.9556	22,859,359
Average			22,827,042
 Use (RCNLD)			 <b>22,859,359</b>
	 Market Value per Share to Book Value per Share		
Financial Markets			
Market to Book (equity)	2.61		
Market to Book (equity and debt)	1.77		
 Use (equity and debt)	 1.77		
	 Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)		
Market Conclusion			
	 Steelton Borough (Water) Authority		
Steelton Borough (Water) Authority AUS Depreciated Original Cost	 <b>14,433,435</b>	 1.77	 <b>25,547,180</b>
 <b>Market Value</b>			 <b>Indicated Value \$s</b>
Minimum			22,794,724
Mean			23,733,754
Median			22,859,359
Maximum			25,547,180
 Use (RCNLD)			 <b>22,859,359</b>

**Pennsylvania American Water Company  
Steeltown Borough (Water) Authority  
Water System  
Investor-Owned Utility  
As of July 1, 2018**

**Comparable Sales Approach**

**Market Sales Basis**

Description	New Green Wastewater System	McIntosh Wastewater System	Ames Wastewater System	East Bradford Wastewater Collection System	High-Bury Wastewater Collection System	Simple Average of Purchase Premiums	Simple Average of Purchase Premiums	Weighted Average	Weighted Average, Standard Deviation	Price
<b>System Description</b>										
Type of System	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection Only	Wastewater Collection Only					
<b>System Attributes</b>										
Purchase Price	29,000,000	118,000,000	75,000,000	1,000,000	9,150,000			272,850,000	272,850,000	
Acquirer	Black & Veatch	McAnamara	Black & Veatch	Black & Veatch	Black & Veatch	100%				
<b>Price</b>										
Original Cost										
Depreciated Original Cost (AUS Consultants) DC, D	18,367,728	101,013,080	46,151,867	5,381,991	6,228,876			178,149,142	172,765,551	
Purchase Price to DC, D	1.5884	1.5601	1.6272	0.9287	1.5092	1.4428	1.5713	1.5596	1.5793	1.5793
Variance to Simple Mean	0.146	0.1378	0.1844	-0.5141	0.0664	0.3399	0.043			
Variance to Wtd Mean	0.0292	0.0005	0.0676	-0.1079	-0.0504				0.0168	
<b>Replacement Cost (New/As-Depreciated) RC, D</b>										
Replacement Cost (New/As) RC, D	10,615,410	160,101,291	88,086,156	9,216,581	8,517,587			294,757,835	285,521,244	
Purchase Price to RC, D	0.9636	0.9939	0.8724	0.5413	1.086	0.891	0.9785	0.9426	0.9556	0.9556
Variance to Simple Mean	0.0726	0.1009	-0.0186	-0.3497	0.195	0.1877				
Variance to Wtd Mean	0.071	0.0493	-0.0702	-0.4013	0.1434	0.2098	0.088		0.0263	

**Pennsylvania American Water Company  
Steeltown Borough (Water) Authority  
Water System  
Investor-Owned Utility  
July 1, 2018**

**Comparable Sales Approach**

**Financial Basis**

	Industry Average	American & ASLA Average	American Water	American Water	Aqua America	California Water	Connecticut Water	McAnamara Water	WESCO	York
Price per Share			19.43	39.05	11.19	26.59	43.81	11.05	16.41	19.87
Stock value per share			12.77	78.25	7.78	13.41	20.02	18.83	8.52	
Market to Book Equity Ratio			3.07	2.44	3.21	1.98	2.19	2.44	1.93	3.51
<b>Minimum</b>	1.93	2.44								
<b>Mean</b>	2.60	2.825		2.44	3.21					
<b>Standard Deviation</b>	0.56	0.385								
<b>Weighted Market to Book (Debt&amp;Equity) Ratio</b>	2.61		5,396.12	46,004.33	23,553.34	3,614.75	2,316.09	1,583.17	2,131.69	1,649.47
<b>Median</b>	2.44	2.825								
<b>Maximum</b>	3.51	3.21								
<b>Debt (Total Systemless)</b>			325.8	6,544.0	1,793.9	157.5	180.3	144.9	118.9	87.1
<b>Outstanding Shares (Millions)</b>			16.50	7.7828	176.74	47.88	20.02	16.23	18.83	12.81
<b>Debt per Share</b>			19.69	86.71	10.17	3.34	9.07	8.93	7.225	6.81
<b>Equity (Total Systemless)</b>			1,473.30	12,310.23	5,541.59	1,373.13	877.28	503.94	685.60	382.61
<b>Total Capital (Debt + Equity)</b>			1,797.70	18,854.23	7,337.49	1,825.63	1,057.58	648.84	1,104.50	469.93
<b>Market Value per Share (Equity/Debt)</b>			48.16	105.76	41.56	38.13	52.83	39.08	58.66	36.68
<b>Stock Value per Share (Equity/Debt)</b>			21.7	64.96	19.95	24.95	29.04	21.67	31.08	15.33
<b>Market to Stock (Total Capital) Ratio</b>			2.22	1.83	2.08	1.93	1.81	1.94	1.43	2.39
<b>Minimum</b>	1.43	1.83								
<b>Mean</b>	1.87	1.855		1.63	2.08					
<b>Standard Deviation</b>	0.32	0.295								
<b>Weighted Market to Book (Debt&amp;Equity) Ratio</b>	1.77		1,902.08	38,732.40	15,261.58	2,797.21	1,924.79	1,193.87	1,573.44	1,123.14
<b>Variance to Wtd Mean</b>	0.0817		0.45	(0.14)	0.31	(0.24)	0.05	0.07	(0.34)	0.62
<b>Median</b>	1.83	1.855								
<b>Maximum</b>	2.39	2.08								

Value Line Investment Survey July 1, 2018

**Pennsylvania American Water Company  
Steeltown Borough (Water) Authority  
Water System  
Investor-Owned Utility  
As of July 1, 2018**

**Market Approach Summary**

Comparable Sales	Purchase Price to Depreciated Original Cost (Book Value)	Weighted Market Value
Depreciated Original Cost (AUS Consultants) DC, D	14,433,435	22,794,724
Replacement Cost (New/As) Depreciated RC, D Average	23,933,472.83	22,859,359
Price to RC, D		22,859,359
<b>Market Value per Share to Book Value per Share</b>		
<b>Market to Book (Equity)</b>	2.61	
<b>Market to Book (Debt&amp;Equity)</b>	1.77	
<b>Price to RC, D</b>	0.9556	
<b>Market to Purchase Price to Depreciated Original Cost (Book Value)</b>		
<b>Market Contribution</b>		
Steeltown Borough (Water) Authority 5-25 Depreciated Original Cost	14,433,435	1.77
<b>Market Value</b>		
Minimum		22,794,724
Mean		23,732,754
Median		22,859,359
Maximum		25,547,180
<b>Use (RC, D)</b>		22,859,359

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Market Approach  
Sales Comparison Approach  
Acquisitions by:  
Aqua PA:  
New Garden Township Sewer Authority  
Limerick Wastewater System  
East Bradford Collection System  
PA American:  
McKeesport Wastewater System  
Sadsbury Collection System**

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**Pennsylvania-American Water Company**  
**Steelton Borough (Water) Authority**  
**Water System**  
**Investor-Owned Utility**  
**As of July 1, 2018**

Comparable Sales Approach

Market Sales Basis

Description	New Garden Wastewater System	McKeesport Wastewater System	Limerick Wastewater System	East Bradford Wastewater Collection System	Sadsbury Wastewater Collection System	Simple Average / Standard Deviation	Remove Outliers Simple Average / Standard Deviation	Weighted Average	Remove Outliers Weighted Average / Standard Deviation	US\$
System Description										
Type of System	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection Only	Wastewater Collection Only					
System Attributes										
Purchase Price	29,500,000	159,000,000	75,100,000	5,000,000	9,250,000			277,850,000	272,850,000	
Acquirer Date	11%	57%	27%	2%	3%	100%				
Customers	Aqua PA	PA-American	Aqua-PA	Aqua-PA						
Original Cost										
Depreciated Original Cost (AUS Consultants) OCLD	18,567,728	101,915,080	46,153,867	5,383,591	6,128,876			178,149,142	172,765,551	
Purchase Price to OCLD	1.5888	1.5601	1.6272	0.9287	1.5092	1.4428	1.5713	1.5596	1.5793	1.5793
Variance to Simple Mean	0.146	0.1173	0.1844	-0.5141	0.0664	0.2599	0.043			
Variance to Wtd Mean	0.0292	0.0005	0.0676	-0.6309	-0.0504				0.0168	
Replacement Cost New less Depreciation RCNLD	30,615,410	160,201,491	86,086,756	9,236,581	8,517,587			294,757,825	285,521,244	
Purchase Price to RCNLD	0.9636	0.9919	0.8724	0.5413	1.086	0.891	0.9785	0.9426	0.9556	0.9556
Variance to Simple Mean	0.0726	0.1009	-0.0186	-0.3497	0.195	0.1877				
Variance to Wtd Mean	0.021	0.0493	-0.0702	-0.4013	0.1434	0.2098	0.088		0.0263	

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Market Approach  
Market Financial Ratios  
July 2018**

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**Pennsylvania - American Water Company  
Steelton Borough (Water) Authority  
Water System  
Investor-Owned Utility  
July 1, 2018**

**Comparable Sales Approach**

**Financial Basis<sup>1</sup>**

	Industry Averages	American & Aqua Averages	American States Water	American Water	Aqua America	California Water	Connecticut Water	Middlesex Water	SIW Corp	York
Price per Share			39.23	69.05	31.39	26.59	43.81	31.05	36.41	29.87
Book value per share			12.77	28.25	9.78	13.41	20.02	12.74	18.83	8.52
Market to Book Equity Ratio			3.07	2.44	3.21	1.98	2.19	2.44	1.93	3.51
Minimum	1.93	2.44								
Mean	2.60	2.825		2.44	3.21					
Standard Deviation	0.56	0.385								
Weighted Market to Debt Ratio	2.61		5,396.12	46,004.83	23,553.34	3,614.75	2,316.09	1,583.17	2,131.69	1,649.47
Median	2.44	2.825								
Maximum	3.51	3.21								
Debt (Total) \$s millions			325.8	6,514.0	1,795.9	552.5	180.5	144.9	418.9	87.3
Outstanding Shares (millions)			36.50	178.28	176.54	47.88	20.02	16.23	18.83	12.81
Debt per share			8.93	36.71	10.17	11.54	9.02	8.93	22.25	6.81
Equity (Total) \$s millions			1,431.90	12,310.23	5,541.59	1,273.13	877.08	503.94	685.60	382.63
Total Capital (Debt + Equity)			1,757.70	18,854.23	7,337.49	1,825.63	1,057.58	648.84	1,104.50	469.93
			0.05	0.57	0.22	0.06	0.03	0.02	0.03	0.01
Market Value per Share (Equity+Debt)			48.16	105.76	41.56	38.13	52.83	39.88	58.66	36.68
Book Value per Share (Equity+Debt)			21.7	64.96	19.95	24.95	29.04	21.67	41.08	15.33
Market to Book (Total Capital) Ratio			2.22	1.63	2.08	1.53	1.82	1.84	1.43	2.39
Minimum	1.43	1.63								
Mean	1.87	1.855		1.63	2.08					
Standard Deviation	0.32	0.225								
Weighted Market to Book (Debt&Equity) Ratio	1.77		3,902.08	30,732.40	15,261.88	2,793.21	1,924.79	1,193.87	1,579.44	1,123.14
Variance to Wtd Mean	0.0817		0.45	(0.14)	0.31	(0.24)	0.05	0.07	(0.34)	0.62
Median	1.83	1.855								
Maximum	2.39	2.08								

1. Value Line Investment Survey July 13, 2018



**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Market Approach  
Value Line Investment Surveys**

**July 2018**

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INDUSTRY TIMELINESS: 94 (of 97)

The Water Utility Industry carries one of the lowest Timeliness ranks of any industry under review by *Value Line*.

Prospects for higher short-term interest rates seem likely as the Federal Reserve once again raised the Fed Funds rate and indicated that more hikes are on the way. With yields on Treasury notes maturing by 2021 carrying a higher yield than that of most water utilities stocks, investors could be tempted to switch into fixed-income securities.

In general, the Tax Cuts and Jobs Act will not have a major impact on water utilities' bottom lines. All of the savings will be passed through to customers.

The fundamentals of the industry remain unchanged. Following years of low capital investments, most water utilities are spending heavily to modernized existing pipelines and other facilities.

Regulators continue to play a constructive, non-adversarial role in working with the utilities to improve the nation's water systems.

Short-Term Interest Rates Are Rising

The Federal Reserve increased the key federal funds rate by 25 basis points last month. Moreover, citing historically low unemployment, the Fed stated that it planned on increasing rates in a gradual manner through 2020. How does this impact water utilities? For starters, dividend paying stocks and fixed-income vehicles have always been in competition for income-oriented investors. Over the past decade, the extraordinary easy monetary policy (along with quantitative easing), had made dividend stocks much more appealing. This is no longer the case, however. The median yield on all dividend paying stocks in the *Value Line* universe is just about 2.0%. Individuals can now purchase an extremely secure three-month Treasury bill and get almost 2%, with as close to zero risk as possible. Moreover, should an investor be willing to extend slightly further out on the yield curve to one- or two-year Treasury notes, yields of 2.31% and 2.54% can be had. As the front end of the curve continues to rise over the next several years, utility stocks may continue to lose much of their former luster.

The Tax Cuts And Jobs Act

For most U.S.-based companies, the recent TCJA provided a nice boost to the bottom line. Water utilities were not among them, however. Knowing that regulatory commissions would mandate that the tax savings be passed on to customers, water companies simply set up reserve accounts. The surplus funds generated by the tax cut will go straight towards reducing ratepayers bills. Still, we would suggest that the TCJA is not a neutral event. That's because state regulatory commissions are given a little more flexibility when it comes to the next time a water utility in their state seeks rate relief. For example, even if a utility has a very sound reason for higher rates, but water users are already paying high prices, politicians will get push back from their constituents (i.e. voters) to keep their bills down. So, with the consumer benefiting from the tax cut, regulators will have a little more breathing room the next time a petition for higher rates is filed.

Industry Fundamentals Remain Unchanged

Following a period in which both water utilities and regulators allowed the condition of the nation's water infrastructure to deteriorate significantly, utilities have been playing catchup over the past decade or so. Thousands of miles of aging pipelines, as well as waste-water projects, are being replaced or refurbished. As a result, capital expenditures are relatively large for most members of this group. This also means that many of the balance sheets are only average, as they have had to rely upon the issuance of new debt to fund their construction projects

Another trend that continues, (particularly for two of the biggest publicly traded water utilities, *American Water Works* and *Aqua American*) is consolidation. Larger companies are acquiring smaller water districts as a means of expanding the customer base. This strategy has proven profitable to date and we expect it possibly to accelerate. Indeed, there are over 50,000 small, inefficient water districts that could be combined to extract huge cost savings.

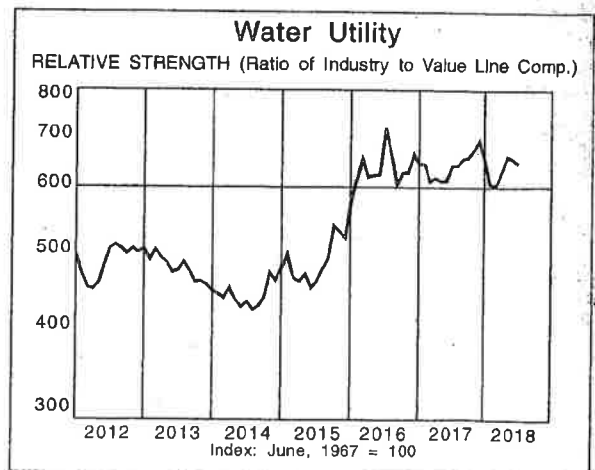
Regulation

Perhaps the best thing that water utilities have going for them is constructive regulation, as authorities realize that the nation's water systems are in a terrible state and much has to be done to fix the problem. Relations between regulators and utilities can sometimes be hostile as was the case in the electric utility industry in the 1980's and 1990's. Accounts should always keep a close eye on any change in this relationship as state commissions determine the rate of return that a regulated company can earn.

Conclusion

In general, water utility companies have done pretty well over the past few year. However, the premium that these stocks trade at is starting to seem expensive. While part of this will always be due to the scarcity value (there are only a handful of large-cap stocks in this group), the recent flattening of the front end of treasury yield curve could prove to provide investors with a better alternative.

James A. Flood



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# AMER. STATES WATER NYSE-AWR

RECENT PRICE **58.12** P/E RATIO **33.2** (Trailing: 31.8 Median: 20.0) RELATIVE P/E RATIO **1.80** DIV YLD **1.9%** VALUE LINE **1784**



2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	© VALUE LINE PUB. LLC	21-23
6.89	6.99	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	12.65	12.45	Revenues per sh	15.35
1.27	1.04	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	3.05	3.25	"Cash Flow" per sh	4.00
.67	.39	.53	.66	.67	.81	.78	.81	1.11	1.12	1.41	1.61	1.57	1.60	1.62	1.88	1.75	1.90	Earnings per sh A	2.45
.44	.44	.44	.45	.46	.48	.50	.51	.52	.55	.64	.76	.83	.87	.91	.99	1.05	1.12	Div'd Decl'd per sh B	1.45
1.34	1.88	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	3.40	3.40	Cap'l Spending per sh	3.25
7.02	6.98	7.51	7.86	8.32	8.77	9.97	9.70	10.13	10.84	11.80	12.72	13.24	12.77	13.52	14.45	15.20	15.95	Book Value per sh D	17.35
30.36	30.42	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	36.80	37.00	Common Shs Outst'g C	37.50
18.3	31.9	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	25.7	25.7	Avg Ann'l P/E Ratio	22.0
1.00	1.82	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	1.29	1.29	Relative P/E Ratio	1.20
3.6%	3.5%	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%	2.0%	2.0%	Avg Ann'l Div'd Yield	2.8%

CAPITAL STRUCTURE as of 3/31/18		2018	2019	2020	2021	2022	2023
Total Debt \$390.4 mill. Due In 5 Yrs \$100.7 mill.	LT Debt \$281.1 mill. LT Interest \$19.6 mill. (35% of Cap'l)	318.7	361.0	398.9	419.3	468.9	472.1
Leases, Uncapitalized: Annual rentals \$2.3 mill.	Pension Assets-12/17 \$173.6 mill. Oblig. \$207.7 mill.	26.8	29.5	41.4	42.0	54.1	62.7
Pfd Stock None	Common Stock 36,733,416 shs. as of 6/1/18	37.8%	38.9%	43.2%	41.7%	39.9%	36.3%
MARKET CAP: \$2.1 billion (Mid Cap)	CURRENT POSITION (\$ MILL.)	6.9%	3.2%	5.8%	2.0%	2.5%	--
	Cash Assets	46.2%	45.9%	44.3%	45.4%	42.2%	39.8%
	Accts Receivable	53.8%	54.1%	55.7%	54.6%	57.8%	60.2%
	Other	57.0%	665.0	677.4	749.1	787.0	818.4
	Current Assets	825.3	866.4	855.0	896.5	917.8	981.5
	Accts Payable	6.4%	5.8%	7.6%	7.1%	8.3%	8.9%
	Debt Due	8.6%	8.2%	11.0%	10.3%	11.9%	12.7%
	Other	8.6%	8.2%	11.0%	10.3%	11.9%	12.7%
	Current Liab.	3.1%	3.2%	5.8%	5.3%	6.6%	6.8%
		64%	61%	47%	49%	45%	47%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17 to '21-'23
Revenues	4.5%	1.5%	4.0%
"Cash Flow"	6.5%	4.5%	6.0%
Earnings	9.0%	7.0%	6.0%
Dividends	7.0%	10.5%	8.0%
Book Value	5.0%	4.5%	4.0%

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	100.9	114.6	133.0	110.1	458.6
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	114.3	125	105	440
2019	97.0	118	128	107	450

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.32	.41	.56	.31	1.60
2016	.28	.45	.59	.30	1.62
2017	.34	.62	.57	.35	1.88
2018	.20	.50	.60	.40	1.75
2019	.30	.55	.63	.42	1.90

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.2025	.2025	.213	.213	.83
2015	.213	.213	.224	.224	.87
2016	.224	.224	.224	.242	.91
2017	.242	.242	.255	.255	.99
2018	.255	.255			

**BUSINESS:** American States Water Co. operates as a holding company. Through its principal subsidiary, Golden State Water Co., it supplies water to 258,949 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 24,274 customers in Big Bear Lake and San Bernardino Cnty. Provides water & wastewater services to U.S. military bases through its ASUS sub. Sold Chaparral City Wtr. of AZ. (6/11). Employs 758. BlackRock, Inc. owns 11.7% of out. shares; Vanguard, 9.5%; off. & dir. 1.5%. (4/18 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.

**A recent ruling is hurting American States Water's utility operations.** Earlier this year, California regulators made a decision on Golden States Water's petition for higher rates. Despite being granted a higher return on equity, the permitted return on rate base was lowered. This has had a more meaningful impact on the utility than was expected, and was the main reason for first-quarter results falling short of the consensus.

**We are lowering our near-term earnings estimates.** Management believes that the California authorities' decree will shave \$3.6 million off the top line and reduce share earnings \$0.07 this year. As a result, we have deducted \$0.10 a share from both our 2018 and 2019 earnings expectations.

**Nonregulated activities should do pretty well.** Through its ASUS subsidiary, American States provides water services to 11 U.S. Army bases. As more of these installations are privatized in the coming years, we think ASUS will win its fair share of competitive bids for these 50-year contracts. Responsible for 25% of first-quarter earnings, this percentage ought to

rise in the future. This is good news because profitability in this segment isn't capped, as is the case in the utility sector. **The equity's dividend yield is unattractive relative to its peer group.** Investors purchase water utility stocks for the income they generate. At the recent quote, AWR is yielding less than the Value Line median. Often with issues that have strong dividend growth potential, holders are willing to accept a lower current yield. However, we are now expecting the dividend to be raised only 6% at the next board meeting (being held in early August). Also, since our last report in April, the value of AWR has increased about 10%. By comparison, the S&P 500 Index is up approximately 2%. Moreover, considering that the Federal Reserve is expected to continue raising short-term interest rates into next year, we believe one- and two-year U.S. Treasury notes may well draw greater interest from those seeking safe income. Thus, some investors may want to take profits now, as AWR is also rated to underperform the market averages in the year ahead.

James A. Flood July 13, 2018

(A) Primary earnings. Excludes nonrecurring gains/losses: '04, 7¢; '05, 13¢; '06, 3¢; '08, (14¢); '10, (23¢); '11, 10¢. Next earnings report due early August. (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 12/31/17; \$7.9 million/\$0.22 a share.

# AMERICAN WATER NYSE-AWK

RECENT PRICE **86.31** P/E RATIO **26.2** (Trailing: 35.2 Median: 19.6) RELATIVE P/E RATIO **1.42** DIV'D YLD **2.1%** VALUE LINE **1785**

**TIMELINESS** 3 Lowered 5/11/18  
**SAFETY** 3 New 7/25/08  
**TECHNICAL** 3 Lowered 7/6/18  
**BETA** .65 (1.00 = Market)

**2021-23 PROJECTIONS**

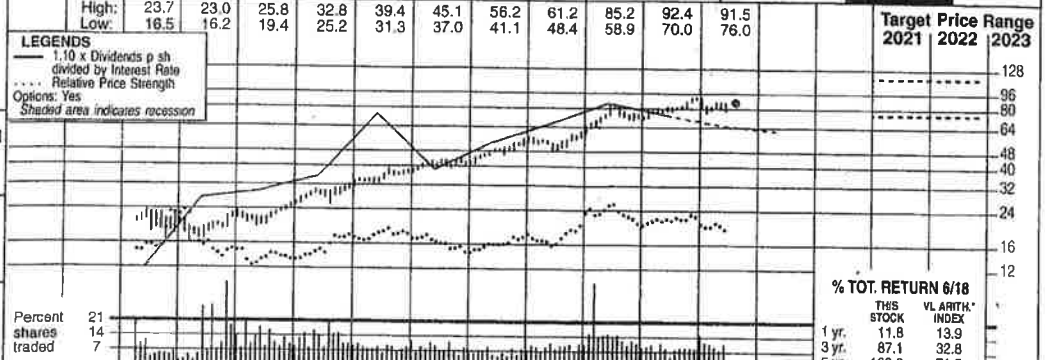
Price	115	Gain	(+35%)	Ann'l Total Return	10%
High	75	Low	(-15%)	Nil	Nil

**Insider Decisions**

S	O	N	D	J	F	M	A	M
to Buy	0	0	0	0	0	0	0	0
Options	0	0	2	7	13	2	0	9
to Sell	0	0	3	0	0	0	0	2

**Institutional Decisions**

302017	402017	102018	
to Buy	262	265	262
to Sell	292	237	337
Net(%)	160782	153130	150336



2002	2003	2004	2005	2006	2007	2008 <sup>E</sup>	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	VALUE LINE PUB. LLC	21-23
13.08	13.84	14.61	13.98	15.49	15.18	16.25	16.28	16.78	17.72	18.54	18.81	19.20	20.00	Revenues per sh	22.95				
.85	d.47	2.87	2.89	3.56	3.73	4.27	4.36	4.75	5.13	5.26	5.14	5.60	6.30	"Cash Flow" per sh	7.70				
d.97	d2.14	1.10	1.25	1.53	1.72	2.11	2.06	2.39	2.64	2.62	2.38	3.30	3.50	Earnings per sh <sup>A</sup>	4.50				
4.31	4.74	6.31	4.50	4.38	5.27	5.25	5.50	5.33	6.51	7.36	8.04	9.60	9.55	Div'd Decl'd per sh <sup>B,M</sup>	2.60				
23.86	28.39	25.64	22.91	23.59	24.11	25.11	26.52	27.39	26.25	29.24	30.13	31.75	33.90	Cap'l Spending per sh	9.20				
160.00	160.00	160.00	174.63	175.00	175.66	176.99	178.25	179.46	178.28	178.10	178.44	179.00	180.00	Book Value per sh <sup>D</sup>	42.00				
18.9	15.6	14.6	16.8	16.7	19.9	20.0	20.5	27.7	33.8	33.8	33.8	33.8	33.8	Common Shs Outstg <sup>C</sup>	187.50				
1.14	1.04	.93	1.05	1.06	1.12	1.05	1.03	1.45	1.70	1.70	1.70	1.70	1.70	Avg Ann'l P/E Ratio	21.5				
1.9%	4.2%	3.8%	3.1%	3.4%	2.0%	2.5%	2.5%	2.0%	2.5%	2.0%	2.0%	2.0%	2.0%	Relative P/E Ratio	1.20				
37.4%	37.9%	40.4%	39.5%	40.7%	39.1%	39.4%	39.1%	39.2%	39.4%	39.1%	39.2%	39.4%	39.1%	Avg Ann'l Div'd Yield	2.7%				
53.1%	56.9%	56.8%	55.7%	53.9%	52.4%	52.4%	53.7%	52.4%	54.7%	52.4%	54.7%	56.6%	57.5%	Revenues (\$mill)	4300				
46.9%	43.1%	43.2%	44.2%	46.1%	47.6%	47.4%	46.2%	47.5%	45.3%	43.5%	42.5%	43.5%	42.5%	Net Profit (\$mill)	845				
8750.2	9289.0	9561.3	9580.3	9635.5	9940.7	10364	10911	10967	11875	13085	14400	14800	15200	Income Tax Rate	21.0%				
9991.8	10524	11059	11021	11739	12391	12900	13933	14992	16246	17400	18800	18800	18800	AFUDC % to Net Profit	5.0%				
3.7%	3.8%	4.4%	4.8%	5.4%	5.1%	5.5%	5.7%	5.6%	4.9%	5.0%	5.5%	5.5%	5.5%	Long-Term Debt Ratio	57.5%				
4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	7.9%	10.0%	10.5%	10.5%	10.5%	Common Equity Ratio	42.5%				
4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	7.9%	10.0%	10.5%	10.5%	10.5%	Total Capital (\$mill)	18625				
3.0%	1.8%	2.8%	3.5%	3.6%	4.7%	4.3%	4.7%	4.0%	2.5%	4.5%	4.5%	4.5%	4.5%	Net Plant (\$mill)	21200				
34%	65%	56%	52%	57%	40%	50%	50%	56%	68%	59%	56%	56%	56%	Return on Total Cap'l	6.5%				

**CAPITAL STRUCTURE as of 3/31/18**  
 Total Debt \$9007.0 mil. Due in 5 Yrs \$2192.0 mil.  
 LT Debt \$9403.0 mil. LT Interest \$320.0 mil.  
 (54% of Cap'l)

**Leases, Uncapitalized:** Annual rentals \$15.0 mil.  
**Pension Assets:** 12/16 \$1649.0 mil.  
**Obliq.** \$2034.0 mil.  
**Pfd Stock:** \$7.0 mil. **Pfd Div'd:** \$.4 mil

**Common Stock:** 178,047,882 shs. as of 4/26/18

**MARKET CAP:** \$15.4 billion (Large Cap)

**CURRENT POSITION**

2016	2017	3/31/18	
Cash Assets	75.0	82.0	81.0
Accts Receivable	269.0	272.0	273.0
Other	440.0	366.0	375.0
Current Assets	784.0	720.0	729.0
Accts Payable	154.0	195.0	133.0
Debt Due	1423.0	1227.0	1604.0
Other	815.0	903.0	802.0
Current Liab.	2392.0	2325.0	2539.0

**ANNUAL RATES**

Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17 to '21-'23	
Revenues	3.0%	3.5%	4.0%
"Cash Flow"	50.0%	6.0%	7.0%
Earnings	--	7.5%	10.0%
Dividends	--	8.5%	10.0%
Book Value	1.0%	4.0%	6.0%

**QUARTERLY REVENUES (\$ mill.)**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	698.0	782.0	896.0	783.0	3159.0
2016	743.0	827.0	930.0	802.0	3302.0
2017	756.0	844.0	936.0	821.0	3357.0
2018	761.0	859	975	845	3440
2019	780	890	1050	880	3600

**EARNINGS PER SHARE<sup>A</sup>**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.44	.68	.96	.56	2.64
2016	.46	.77	.83	.57	2.62
2017	.52	.73	1.12	.01	2.38
2018	.59	.81	1.20	.70	3.30
2019	.60	.88	1.27	.75	3.50

**QUARTERLY DIVIDENDS PAID<sup>B,M</sup>**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.28	.31	.31	.31	1.21
2015	.31	.34	.34	.34	1.33
2016	.34	.375	.375	.375	1.47
2017	.375	.415	.415	.415	1.62
2018	.415	.455			

**BUSINESS:** American Water Works Company, Inc. is the largest investor-owned water and wastewater utility in the U.S., providing services to over 15 million people in 46 states and Canada. (Regulated presence in 16 states.) Nonregulated business assists municipalities and military bases with the maintenance and upkeep as well. Regulated operations made up 88% of 2017 revenues.

**American Water Works has hiked the quarterly dividend by a generous amount.** Since our last report in April, the board raised the payout by \$0.04 a share to \$0.455 a share. This was at the higher end of the 7%-10% target range. The growth rate was also well above the industry average.

**The method of the company's success is not a mystery.** American Water has been following a simple formula for some time now. By continually purchasing smaller water districts, it can meaningfully reduce operating expenses due to economies of scale. Making this easier is the current state of the water sector in the U.S. Most districts are small and municipally run. Many local governments do not have the financial wherewithal to maintain and replace aging pipelines and waste facilities. In addition, because of the many redundancies in the water operations, American Water can really cut costs and raise operating margins.

**Bottom-line prospects are good for both this year and next.** The company's operating strategy (with a few exceptions mostly resulting from unusual expenses),

New Jersey is its largest market accounting for 25% of regulated revenues. Has 6,900 employees. The Vanguard Gp, owns 10.4% of outstanding shares; BlackRock, Inc., 7.4%; officers & directors, less than 1.0%. (3/18 Proxy). President & CEO: Susan N. Story. Chair.: George MacKenzie. Address: 1025 Laurel Oak Road, Voorhees, NJ 08043. Tel.: 856-346-8200. Internet: www.amwater.com.

has enabled the utility to be more profitable than the rest of the group. This year, we expect share net to recover to \$3.30 and rise another 6% in 2019, to \$3.50. **The capital budget remains large.** The utility will most likely spend \$1.7 billion annually through early next decade on improving its water assets. External debt will likely aid in funding a decent portion of the expenditures. Still, the company's balance sheet should not deteriorate much. **Certain investors may find these shares of interest.** True, the equity is only expected to keep pace with the market in the year ahead. But, that's not too bad considering the Water Utility Industry ranks among the lowest of all the groups followed by Value Line. Also, investors often have to forfeit a substantial amount of current income when purchasing a stock with healthy dividend growth prospects. In this case, AWK's yield is close to the industry norm. And though total return potential out to 2021-2023 is subpar, that's the case for the entire group. Thus, AWK is a viable option for those investors who must have exposure to the water sector.

*James A. Flood July 13, 2018*

(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, except for (\$0.65) loss in '17 due to change in tax law. Next earnings report due mid-August. Quarterly earnings do not sum in '16 due to rounding. (B) Dividends paid in March, June, September, and December. (C) Div. reinvestment available. (D) Includes intangibles. On 12/31/17: \$1.379 billion, \$7.72/share. (E) Pro forma numbers for '06 & '07.

**Company's Financial Strength** B+  
**Stock's Price Stability** 100  
**Price Growth Persistence** 85  
**Earnings Predictability** 90

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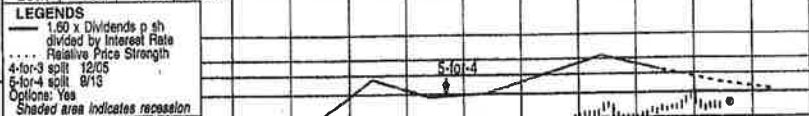


# AQUA AMERICA NYSE-WTR

RECENT PRICE **35.44** P/E RATIO **25.3** (Trailing: 26.1 Median: 22.0) RELATIVE P/E RATIO **1.37** DIV'D YLD **2.5%** VALUE LINE **1786**

**TIMELINESS** 4 Lowered 5/18/18  
**SAFETY** 2 Raised 4/20/12  
**TECHNICAL** 3 Lowered 6/29/18  
**BETA** .75 (1.00 = Market)

High:	21.3	17.6	17.2	18.4	19.0	21.5	28.1	28.2	31.1	35.8	39.6	39.4
Low:	15.1	9.8	12.3	13.2	15.4	16.8	20.6	22.4	24.4	28.0	29.4	32.4



**2021-23 PROJECTIONS**  
 Price Gain Return  
 High 50 (+40%) 72%  
 Low 40 (+15%) 6%

**Insider Decisions**  
 S O N D J F M A M  
 to Buy 0 0 0 0 0 0 0 0 0 0  
 to Sell 1 8 0 0 7 6 6 7 0  
 Options 1 0 1 0 0 0 0 0 0

**Institutional Decisions**  
 3Q2017 4Q2017 1Q2018  
 to Buy 187 187 192  
 to Sell 120 134 191  
 High(100) 105796 95401 96914

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	VALUE LINE PUB. LLC	21-23
2.28	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	4.75	5.00	Revenues per sh	6.35
.76	.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	2.20	2.40	"Cash Flow" per sh	2.90
.43	.46	.51	.57	.58	.57	.58	.62	.72	.83	.87	1.16	1.20	1.14	1.32	1.35	1.40	1.50	Earnings per sh <sup>A</sup>	1.95
.26	.28	.29	.32	.35	.36	.41	.44	.47	.50	.54	.58	.63	.69	.74	.79	.85	.91	Div'd Decl'd per sh <sup>B</sup>	1.25
.96	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	2.65	2.65	Cap'l Spending per sh	2.70
3.49	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	11.00	12.00	Book Value per sh	14.50
141.49	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	178.25	178.75	Common Shs Outst'g <sup>C</sup>	180.00
23.6	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	24.7	24.7	Avg Ann'l P/E Ratio	23.0
1.29	1.40	1.33	1.69	1.87	1.70	1.50	1.54	1.34	1.34	1.39	1.19	1.09	1.18	1.25	1.24	1.18	1.25	Relative P/E Ratio	1.25
2.5%	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%	2.3%	2.4%	Avg Ann'l Div'd Yield	2.8%

**CAPITAL STRUCTURE** as of 3/31/18  
 Total Debt \$2186.8 mill. Due In 5 Yrs \$368.4 mill.  
 LT Debt \$2063.1 mill. LT Interest \$83.0 mill. (51% of Cap'l)

**Pension Assets-12/17** \$270.4 mill. Oblig. \$321.0 mill.  
**Pfd Stock** None  
**Common Stock** 177,897,654 shares as of 4/30/18

**MARKET CAP: \$6.3 billion (Large Cap)**  
**CURRENT POSITION (\$MILL.)**

	2016	2017	3/31/18
Cash Assets	3.7	4.2	3.2
Receivables	97.4	98.6	91.8
Inventory (AvgCst)	13.0	14.4	15.3
Other	14.6	14.0	13.8
Current Assets	128.7	131.2	124.1
Accts Payable	59.9	59.2	40.2
Debt Due	157.2	117.4	123.7
Other	84.4	107.9	95.2
Current Liab.	301.5	284.5	259.1

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17 to '21-'23
Revenues	3.5%	2.0%	5.5%
"Cash Flow"	7.0%	6.5%	6.0%
Earnings	8.5%	9.5%	7.5%
Dividends	7.5%	8.0%	9.0%
Book Value	6.5%	7.5%	5.5%

Cal-ender	QUARTERLY REVENUES (\$mill.)				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2015	190.3	205.8	221.0	197.1	814.2
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	215.7	225	215	850
2019	205	225	235	225	890

Cal-ender	EARNINGS PER SHARE <sup>A</sup>				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2015	.27	.32	.38	.17	1.14
2016	.29	.34	.41	.28	1.32
2017	.28	.34	.43	.30	1.35
2018	.29	.36	.44	.31	1.40
2019	.31	.38	.48	.33	1.50

Cal-ender	QUARTERLY DIVIDENDS PAID <sup>B</sup>				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2014	.152	.152	.165	.165	.63
2015	.165	.165	.178	.178	.69
2016	.178	.178	.1913	.1913	.74
2017	.1913	.1913	.2047	.2047	.79
2018	.2047	.2047			

**BUSINESS:** Aqua America, Inc. is the holding company for water and wastewater utilities that serve approximately three million residents in Pennsylvania, Ohio, North Carolina, Illinois, Texas, New Jersey, Florida, Indiana, and five other states. Has 1,530 employees. Acquired AquaSource, 7/13; North Maine Utilities, 7/15; and others. Water supply revenues '2017: residential, 60%; commercial, 16%; industrial, wastewater & other, 24%. Off. & dir. own less than 1% of the common stock; Vanguard Group, 10.0%; Blackrock, Inc, 8.8%; State Street Capital, 5.0% (3/18 Proxy). President & Chief Executive Officer: Christopher Franklin. Incorporated: Pennsylvania. Address: 762 West Lancaster Avenue, Bryn Mawr, Pennsylvania 19010. Tel.: 610-525-1400. Internet: www.aquaamerica.com.

**Aqua America is pretty busy on the regulatory front.** Due to its wide geographical base, the water utility is continually involved in rate cases with several state authorities. Indeed, so far in 2018, rate decisions have been made in seven states including Illinois, Indiana, Ohio, and Pennsylvania. Final decisions in four other states are pending, and are expected to be made before yearend.

**Meanwhile, the company is growing through acquisition.** Aqua America is following the same strategy as industry leader American Water Works. That is, the utility is taking advantage of the incredibly fragmented water business to purchase some of the over 50,000 water districts in the U.S. These local entities typically don't have the financial means to spend the funds required to maintain and refurbish their antiquated infrastructure. By absorbing these smaller water districts, Aqua is able to wring significant savings from these operations due to the amount of redundancies in this industry. Most acquisitions are relatively small, so the company has to continually buy a host of small water authorities. We think that Aqua will

be able to increase its customer base by at least 3% annually using this strategy. Aqua has a large capital budget. Due in part to all of the M&A activity, the utility will probably spend \$500 million this year on modernizing its water assets. The annual outlays should remain substantial through early next decade.

**The balance sheet remains solid.** Despite the large construction program, Aqua has managed to stay in sound financial strength. Of the nine companies we follow in the industry, it is one of only two that garner an 'A' Financial Strength rating.

**These shares are ranked to underperform the market averages in the year ahead.** Even with the company's improving fundamentals, the equity seems almost fully valued at this juncture. In addition, with the Federal Reserve announcing that it plans on raising short-term rates into 2020, yields on U.S. Treasury notes could be viewed as a more attractive option than utilities. Finally, like almost all members in this group, total return prospects out to 2021-2023 are subpar.

James A. Flood July 13, 2018

(A) Diluted eqs. Excl. nonrec. gains: '02, 4¢; '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 Aug. 1st.

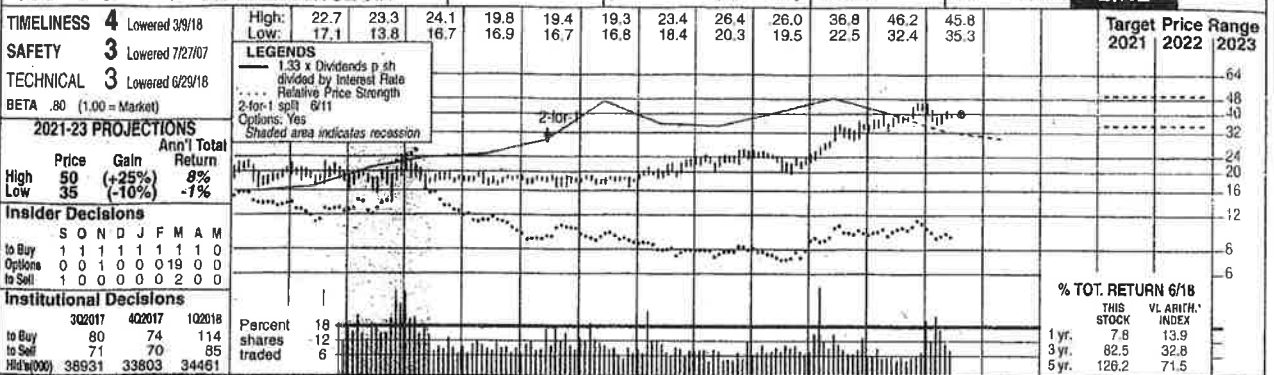
(B) Dividends historically paid in early March, June, Sept. & Dec. = Div'd. reinvestment plan available (5% discount).

Company's Financial Strength	A
Stock's Price Stability	95
Price Growth Persistence	65
Earnings Predictability	90

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# CALIFORNIA WATER NYSE-CWT

RECENT PRICE **39.90** P/E RATIO **27.5** (Trailing: 30.0 Median: 20.0) RELATIVE P/E RATIO **1.49** DIV'D YLD **1.9%** VALUE LINE **1787**



**TIMELINESS** 4 Lowered 3/9/18  
**SAFETY** 3 Lowered 7/27/07  
**TECHNICAL** 3 Lowered 6/29/18  
**BETA** .80 (1.00 = Market)

**2021-23 PROJECTIONS**

Price	Gain	Ann'l Total Return
High 50	(+25%)	8%
Low 35	(-10%)	-1%

**Insider Decisions**

	S	O	N	D	J	F	M	A	M
To Buy	1	1	1	1	1	1	1	1	0
To Sell	0	0	1	0	0	0	1	0	0
Options	0	0	0	0	0	0	1	0	0

**Institutional Decisions**

	3Q2017	4Q2017	1Q2018
To Buy	80	74	114
To Sell	71	70	85
(Mld)(000)	38931	33803	34461

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	20	21-23
8.67	8.18	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	14.10	14.40	Revenues per sh	15.20
1.32	1.26	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	2.80	3.00	"Cash Flow" per sh	3.30
.63	.61	.73	.74	.67	.75	.95	.99	.91	.86	1.02	1.02	1.19	.94	1.01	1.40	1.45	1.65	Earnings per sh A	1.90
.56	.56	.57	.57	.58	.58	.59	.59	.60	.62	.63	.64	.65	.67	.69	.72	.75	.78	Div'd Decl'd per sh B	1.02
2.91	2.19	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	4.35	3.95	Cap'l Spending per sh	3.55
6.56	7.22	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	14.45	15.00	Book Value per sh C	16.70
30.36	33.86	36.73	36.78	41.31	41.33	41.45	41.53	41.67	41.82	41.98	47.74	47.81	47.88	47.97	48.01	48.50	49.00	Common Shs Outst'g D	50.00
19.8	22.1	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	26.9	26.9	Avg Ann'l P/E Ratio	23.0
1.08	1.26	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	1.34	1.34	1.34	Relative P/E Ratio	1.25
4.5%	4.2%	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%	1.9%	1.9%	Avg Ann'l Div'd Yield	2.4%

**CAPITAL STRUCTURE as of 3/31/18**

Total Debt \$796.7 mill. Due in 6 Yrs \$291.0 mill.  
 LT Debt \$515.7 mill. LT Interest \$36.0 mill.  
 (43% of Cap'l).

**Pension Assets-12/17** \$460.9 mill.  
 Obl'g. \$671.3 mill.

**Pfd Stock None**

**Common Stock** 48,074,000 shs.

**MARKET CAP: \$1.9 billion (Mid Cap)**

**CURRENT POSITION (MILL)**

	2016	2017	3/31/18
Cash Assets	25.5	94.8	34.7
Other	116.6	133.1	131.1
Current Assets	142.1	227.9	165.8
Accts Payable	77.8	94.0	73.6
Debt Due	123.3	291.0	281.0
Other	49.1	106.0	109.7
Current Liab.	250.2	491.0	464.3

410.3	449.4	460.4	501.8	560.0	584.1	597.5	588.4	609.4	666.9	685	705	760	Revenues (\$mill) E	760
39.8	40.6	37.7	36.1	42.6	47.3	56.7	45.0	48.7	48.7	70.5	80.0	95.0	Net Profit (\$mill)	95.0
37.7%	40.3%	39.5%	40.5%	37.5%	30.3%	33.0%	36.0%	35.5%	30.1%	21.0%	21.0%	21.0%	Income Tax Rate	21.0%
8.6%	7.6%	4.2%	7.6%	8.0%	4.3%	2.7%	4.3%	6.1%	3.5%	5.0%	5.0%	5.0%	AFUDC % to Net Profit	5.0%
41.6%	47.1%	52.4%	51.7%	47.8%	41.6%	40.1%	44.4%	44.6%	42.7%	43.0%	42.5%	42.0%	Long-Term Debt Ratio	42.0%
58.4%	52.9%	47.6%	48.3%	52.2%	58.4%	59.9%	55.6%	55.4%	57.3%	57.0%	57.5%	57.5%	Common Equity Ratio	58.0%
690.4	794.9	914.7	931.5	908.2	1024.9	1045.9	1154.4	1191.2	1209.3	1240	1280	1435	Total Capital (\$mill)	1435
1112.4	1198.1	1294.3	1381.1	1457.1	1515.8	1590.4	1701.8	1859.3	2048.0	2075	2100	2200	Net Plant (\$mill)	2200
7.1%	6.5%	5.5%	5.5%	6.3%	6.0%	6.3%	5.2%	5.5%	7.1%	7.0%	7.5%	7.5%	Return on Total Cap'l	7.5%
9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.1%	7.0%	7.4%	9.7%	10.0%	11.0%	11.5%	Return on Shr. Equity	11.5%
9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.1%	7.0%	7.4%	9.7%	10.0%	11.0%	11.5%	Return on Com Equity	11.5%
3.8%	3.6%	3.0%	2.3%	3.4%	3.4%	4.1%	2.0%	2.4%	4.7%	5.0%	6.0%	6.0%	Retained to Com Eq	5.5%
61%	60%	66%	71%	62%	56%	55%	71%	68%	51%	52%	47%	47%	All Div'ds to Net Prof	54%

**BUSINESS:** California Water Service Group provides regulated and nonregulated water service to 484,900 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. Acquired Rio Grande Corp; West Hawaii Utilities (9/08). Revenue breakdown, '17: residential, 72%; business, 19%; industrial, 4%; public authorities, 4%; other 1%. Off. and dir. own 1% of common stock (4/18 proxy). Has 1,163 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.

**ANNUAL RATES Past**

of change (per sh)	10 Yrs.	5 Yrs.	to '15-'17
Revenues	4.0%	1.5%	2.5%
"Cash Flow"	5.5%	3.5%	4.5%
Earnings	4.5%	4.0%	9.5%
Dividends	2.0%	2.5%	6.5%
Book Value	4.5%	5.0%	3.0%

**QUARTERLY REVENUES (\$ mill) F**

Cal-ender	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	122.0	144.4	183.5	138.5	588.4
2016	121.7	152.4	184.3	151.0	609.4
2017	122.1	171.1	211.7	162.0	666.9
2018	132.2	173	215	164.8	685
2019	135	180	220	170	705

**EARNINGS PER SHARE A**

Cal-ender	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.03	.21	.52	.18	.94
2016	d.02	.24	.48	.31	1.01
2017	.02	.39	.70	.29	1.40
2018	d.05	.42	.73	.35	1.45
2019	.11	.45	.74	.35	1.65

**QUARTERLY DIVIDENDS PAID B**

Cal-ender	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.1625	.1625	.1625	.1625	.65
2015	.1675	.1675	.1675	.1675	.67
2016	.1725	.1725	.1725	.1725	.69
2017	.18	.18	.18	.18	.72
2018	.1875	.1875			

**California Water Service Group's profits should rebound in the second quarter.** The regulated and nonregulated water provider posted a net loss of \$0.05 in the March interim. Several factors, including higher wages and benefit costs, general operating expenses (water production), as well as an unforeseen water main break in the San Francisco area weighed on results. Nevertheless, we expect that earnings recovered nicely in the recently ended second quarter, to \$0.42 a share. That said, the miss has spurred us to shave a dime from our current-year bottom-line estimate, to \$1.45 a share.

**Revenues are still on track to rise.** Indeed, recent rate increases for customers and recoverable production costs played a role in the first quarter's 8% year-over-year advance. This was able to offset a \$1.2 million revenue reduction associated with cost of capital adjustment. On balance, our call for modest top-line improvement in this year and next remains unaltered.

**The company made an attempt to acquire SJW Group.** Subsequent to the merger announcement of SJW Group and

Connecticut Water, CWT stepped in with an unsolicited all-cash tender offer for the former, worth \$68.25 a share. However, the bid was immediately rejected, despite the lofty premium at the time of the proposal. Connecticut Water's go-shop period has come to an end, and both sides have reiterated their desires for a deal, thus shutting the door on California's efforts. Looking forward, we do not think there is any acquisition activity on the horizon.

**But abundant capital investments are likely on tap over the long haul.** California ought to stick to its plan to heavily invest in its aging infrastructure. Old water mains and pipes, as well as inefficient treatment plants, need to be brought up to speed. This should help reduce operating costs and prevent future uninsured losses from water main breaks.

**This equity lacks investment appeal at this juncture.** CWT shares are pegged to underperform the year-ahead broader market (Timeliness: 4). Moreover, total return potential over the three- to five-year stretch is nothing to write home about at the recent quotation.

Nicholas P. Patrikis  
 July 13, 2018

(A) Basic EPS. Excl. nonrecurring gain (loss) '02, '46; '11, '46. Next earnings report due late August.  
 (B) Dividends historically paid in late Feb., May, Aug., and Nov. = Div'd reinvestment plan available.  
 (C) Incl. intangible assets. In '17: \$24.8 mill., \$0.52/sh.  
 (D) In millions, adjusted for splits.  
 (E) Excludes non-reg. rev.

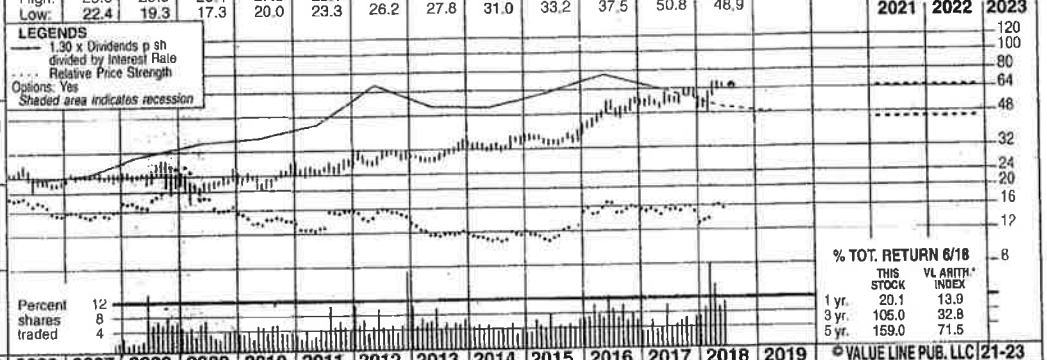
Company's Financial Strength B++  
 Stock's Price Stability 75  
 Price Growth Persistence 35  
 Earnings Predictability 65

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# CONNECTICUT WATER NDQ-CTWS

RECENT PRICE **66.20** P/E RATIO **35.8** (Trailing: 39.6 Median: 20.0) RELATIVE P/E RATIO **1.95** DIV'D YLD **1.9%** VALUE LINE **1788**

**TIMELINESS** — Suspended 3/23/18  
**SAFETY** **3** New 1/18/13  
**TECHNICAL** — Suspended 3/23/18  
 BETA .65 (1.00 = Market)



**2021-23 PROJECTIONS**

	Price	Gain	Ann'l Total
	(NI)	(%)	Return
High	65		2%
Low	45	(-30%)	-6%

**Inlder Decisions**

	S	O	N	D	J	F	M	A	M
To Buy	0	0	0	0	0	0	0	0	0
Options to Sell	0	1	0	0	5	0	1	0	0
To Sell	0	0	0	0	0	0	0	0	0

**Institutional Decisions**

	3Q2017	4Q2017	1Q2018
To Buy	54	53	59
To Sell	45	33	58
Net (000)	6356	5642	6002

Percent shares traded  
 12  
 8  
 4

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	VALUE LINE PUB. LLC	21-23
5.77	5.91	6.04	5.81	5.68	7.05	7.24	6.93	7.65	7.93	9.47	8.29	8.45	8.58	8.77	8.87	9.45	9.95	Revenues per sh	12.80
1.78	1.89	1.91	1.82	1.52	1.90	1.95	1.93	2.04	2.11	2.64	2.63	2.97	3.18	3.31	3.39	3.35	3.85	"Cash Flow" per sh	4.50
1.12	1.15	1.16	.88	81	1.05	1.11	1.19	1.13	1.13	1.53	1.65	1.92	2.04	2.08	2.13	1.85	2.40	Earnings per sh A	2.90
.81	.83	.84	.85	.86	.87	.88	.90	.92	.94	.96	.98	1.01	1.05	1.12	1.18	1.24	1.30	Div'd Decl'd per sh B=C	1.52
1.98	1.49	1.58	1.36	1.96	2.24	2.44	3.28	3.06	2.61	2.79	3.02	4.11	4.29	5.93	4.39	4.45	4.00	Cap'l Spending per sh	3.35
10.06	10.46	10.94	11.52	11.60	11.95	12.23	12.67	13.05	13.50	20.95	17.92	18.83	20.01	20.98	24.34	24.70	25.70	Book Value per sh D	28.80
7.94	7.97	8.04	8.17	8.27	8.38	8.46	8.57	8.68	8.76	8.85	11.04	11.12	11.19	11.25	12.07	12.15	12.25	Common Shs Outst'g C	12.50
24.3	23.5	22.9	26.6	29.0	23.0	22.2	18.4	20.7	23.0	19.4	18.4	17.5	17.6	23.3	26.5	23.2	26.5	Avg Ann'l P/E Ratio	19.0
1.33	1.34	1.21	1.52	1.22	1.22	1.34	1.23	1.42	1.44	1.23	1.03	.92	.89	1.22	1.33	1.25	1.33	Relative P/E Ratio	1.05
3.0%	3.0%	3.1%	3.4%	3.6%	3.6%	3.6%	4.1%	3.9%	3.6%	3.2%	3.2%	3.0%	2.9%	2.3%	2.1%	2.1%	2.1%	Avg Ann'l Div'd Yield	2.9%

**CAPITAL STRUCTURE** as of 3/31/18  
 Total Debt \$258.4 mill. Due in 5 Yrs \$6.2 mill.  
 LT Debt \$252.2 mill. LT Interest \$9.0 mill.  
 (46% of Cap'l)

**Leases, Uncapitalized:** Annual rentals \$3 mill.  
**Pension Assets-12/17:** \$73.1 mill.  
 Oblig. \$88.6 mill.

**Pfd Stock** \$0.8 mill. **Pfd Divd** NMF

**Common Stock** 12,089,125 shs.

**MARKET CAP:** \$800 million (Small Cap)

61.3	59.4	66.4	69.4	83.8	91.5	94.0	96.0	98.7	107.1	115	122	122	122	Revenues (\$mill)	160
9.4	10.2	9.8	9.9	13.6	18.3	21.3	22.8	23.4	25.1	22.5	29.5	29.5	29.5	Net Profit (\$mill)	36.0
27.2%	19.5%	35.2%	41.3%	32.0%	28.0%	14.4%	3.5%	9.9%	19.0%	21.0%	21.0%	21.0%	21.0%	Income Tax Rate	21.0%
1.7%	..	..	..	1.7%	2.0%	2.4%	2.3%	5.1%	3.1%	3.0%	2.5%	2.5%	2.5%	AFUDC % to Net Profit	2.5%
46.9%	50.6%	49.5%	53.2%	49.0%	46.9%	45.7%	44.1%	45.4%	46.3%	46.5%	46.5%	46.5%	46.5%	Long-Term Debt Ratio	45.0%
52.7%	49.1%	50.2%	46.5%	50.8%	52.9%	54.1%	55.7%	54.4%	53.6%	53.5%	54.5%	54.5%	54.5%	Common Equity Ratio	55.0%
196.5	221.3	225.6	254.2	364.6	373.6	386.8	402.4	433.8	547.8	560	580	580	580	Total Capital (\$mill)	610
302.3	325.2	344.2	362.4	447.9	471.9	506.9	546.3	601.4	697.7	700	715	715	715	Net Plant (\$mill)	750
5.9%	5.5%	5.4%	4.9%	4.8%	5.9%	6.4%	6.5%	6.3%	5.4%	4.5%	6.0%	6.0%	6.0%	Return on Total Cap'l	6.5%
9.0%	9.3%	8.8%	8.3%	7.3%	9.2%	10.1%	10.1%	9.9%	8.5%	7.5%	9.5%	9.5%	9.5%	Return on Shr. Equity	11.0%
9.1%	9.4%	8.7%	8.3%	7.3%	9.2%	10.2%	10.1%	9.9%	8.3%	7.5%	9.5%	9.5%	9.5%	Return on Com Equity	11.0%
1.9%	2.3%	1.6%	1.4%	2.8%	3.8%	4.8%	4.9%	4.6%	3.5%	2.5%	4.5%	4.5%	4.5%	Retained to Com Eq	5.0%
79%	76%	81%	83%	62%	59%	53%	52%	54%	55%	67%	54%	54%	54%	All Div'ds to Net Prof	52%

**CURRENT POSITION**

	2016	2017	3/31/18
Cash Assets	1.6	3.6	4.0
Accounts Receivable	13.0	15.0	12.8
Other	14.8	17.1	19.4
Current Assets	29.4	35.7	36.2
Accts Payable	13.1	11.3	6.9
Debt Due	4.9	6.2	6.2
Other	37.1	24.0	34.0
Current Liab.	55.1	41.5	47.1

**BUSINESS:** Connecticut Water Service, Inc. is a non-operating holding company, whose income is derived from earnings of its wholly-owned subsidiary companies (regulated water utilities). In 2017, 95% of net income was derived from these activities. Provides water services to 450,000 people in 80 municipalities throughout Connecticut and Maine. Acquired The Maine Water Company, January, 2012; Biddeford and Saco Water, December, 2012; Heritage Village, February, 2017. Inc.: Conn. Has 294 employees. Chairman/President/Chief Executive Officer: Eric W. Thornburg. Officers and directors own 1.2% of the common stock; BlackRock, Inc., 7.0% (4/18 proxy). Address: 93 West Main Street, Clinton, CT 06413. Telephone: (860) 669-8636. Internet: www.ctwater.com.

**Connecticut Water's all-stock merger with SJW Group, announced early this year, appears to be back on track.** There has been a bit of noise surrounding the transaction, specifically an amended 45-day go-shop provision in which Connecticut could have solicited offers from other parties. This period has since ended, and no proposals of interest have been officially received. However, prior to the abovementioned go-shop process, news broke that California Water Service made a sizable cash offer for SJW Group (\$68.25 per share), which subsequently sent SJW stock markedly higher. On a similar note, Eversource Energy attempted to enter the race with a bid (which was promptly rejected) for Connecticut Water. To reiterate the deal points, CTWS shareholders would receive 1.1375 shares of SJW Group common stock (merger is currently valued at \$77.20) for each share of CTWS stock held. Overall, the board of directors from both entities are now fully behind the merger, and are presently moving forward to secure shareholder and regulatory approval. The transaction is expected to close by the end of 2018.

**The deal with SJW ought to create significant value on several fronts.** The combined company would be the third-largest investor-owned water utility in the U.S., spanning Connecticut, Texas, Maine, and California. Indeed, the total geographic customer base would expand noticeably, with operational efficiency and customer service likely to improve from scale. Moreover, capital investments are poised to continue over the long haul, as both companies already have strategic plans in motion to boost spending on water mains, treatment plants, and other aging infrastructure. Connecticut is on track to spend nearly \$70 million this year on upgrades.

**At the recent quotation, there is still some near-term upside to Connecticut Water's stock price.** This issue is unranked for Timeliness due to the pending merger but, based on SJW's recent price, shares of CTWS are trading at roughly a 15% discount to the deal's valuation. We think it would be wise for investors, both short and long term, to hold on to their shares, for now.

**ANNUAL RATES** of change (per sh)

	Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17 to '21-'23
Revenues	3.5%	1.0%	6.5%
"Cash Flow"	7.0%	8.0%	5.5%
Earnings	8.5%	10.5%	5.5%
Dividends	2.5%	3.5%	5.5%
Book Value	6.5%	6.5%	3.5%

**QUARTERLY REVENUES (\$mill.)**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	20.0	26.6	28.4	21.0	96.0
2016	21.6	26.1	29.5	21.5	98.7
2017	22.5	27.9	31.8	24.9	107.1
2018	24.9	30.0	33.5	26.6	115
2019	27.0	32.0	35.0	28.0	122

**EARNINGS PER SHARE A**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.28	.77	.79	.20	2.04
2016	.28	.89	.84	.07	2.08
2017	.36	.73	.90	.14	2.13
2018	.10	.77	.93	.25	1.85
2019	.36	.80	.95	.27	2.40

**QUARTERLY DIVIDENDS PAID B=C**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.2475	.2475	.2575	.2575	1.01
2015	.2575	.2575	.2675	.2675	1.05
2016	.2675	.2825	.2825	.2825	1.12
2017	.2825	.2975	.2975	.2975	1.18
2018	.2975	.3125			

vestment plan available.  
 (C) In millions.  
 (D) Includes intangibles. In 2017: \$67.0 million/\$5.55 a share.

Company's Financial Strength	B+
Stock's Price Stability	85
Price Growth Persistence	50
Earnings Predictability	85

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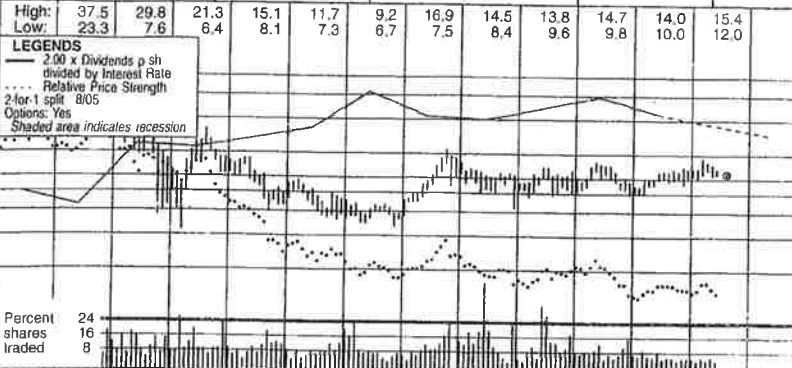
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# CONSOL. WATER CO. NDQ-CWCO

RECENT PRICE **12.75** P/E RATIO **21.3** (Trailing: 34.5) Median: 25.0 RELATIVE P/E RATIO **1.16** DIV'D YLD **2.8%** VALUE LINE **1789**

**TIMELINESS** 4 Raised 6/29/18  
**SAFETY** 3 New 1/17/14  
**TECHNICAL** 2 Lowered 7/6/18  
**BETA** .95 (1.00 = Market)



High: 37.5 29.8 21.3 15.1 11.7 9.2 16.9 14.5 13.8 14.7 14.0 15.4  
 Low: 23.3 7.6 6.4 8.1 7.3 6.7 7.5 8.4 9.6 9.8 10.0 12.0

**2021-23 PROJECTIONS**  
 Price High 35 (+175%) Low 25 (+95%)  
 Gain 30%  
 Annl Total Return 20%

**Insider Decisions**  
 S O N D J F M A M  
 to Buy 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
 to Sell 0 0 7 0 0 8 0 5 0 0 0 0 0 0 0 0 0 0  
 Options 0 0 0 0 0 0 0 2 0 0 0 0 0 0 0 0 0 0

**Institutional Decisions**  
 3Q2017 4Q2017 1Q2018  
 to Buy 39 42 40  
 to Sell 32 21 39  
 Hld's(000) 7940 7715 8203

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	20 VALUE LINE PUB. LLC	21-23
1.52	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	4.05	4.20	Revenues per sh	10.00
.50	.63	.77	.37	.97	1.20	.95	1.18	.86	.83	1.17	.96	.80	.89	.95	1.12	1.05	1.15	"Cash Flow" per sh	1.90
.32	.42	.49	.23	.59	.79	.50	.74	.43	.42	.64	.58	.42	.51	.27	.41	.60	.70	Earnings per sh A	1.30
.21	.21	.23	.12	.24	.20	.33	.28	.30	.30	.30	.30	.30	.30	.30	.31	.35	.40	Div'd Decl'd per sh B	.65
.39	.19	.24	.77	1.83	.54	.46	.18	.09	.96	.31	.29	.32	.21	.23	.31	.20	.20	Cap'l Spending per sh	1.90
2.64	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	10.45	11.15	Book Value per sh C	12.50
7.99	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	15.00	15.25	Common Shs Outst'g C	16.00
21.6	19.3	23.1	80.0	43.0	35.4	37.8	19.0	26.9	22.4	12.4	20.0	28.3	22.7	44.8	29.0	29.0	29.0	Avg Annl P/E Ratio	22.5
1.18	1.10	1.22	4.26	2.32	1.88	2.27	1.27	1.71	1.41	.79	1.12	1.49	1.14	2.35	1.41	1.41	1.41	Relative P/E Ratio	1.25
3.1%	2.6%	2.0%	.7%	.9%	.7%	1.7%	2.0%	2.6%	3.2%	3.8%	2.6%	2.5%	2.6%	2.5%	2.6%	2.5%	2.6%	Avg Annl Div'd Yield	2.2%

**CAPITAL STRUCTURE as of 3/31/18**  
 Total Debt \$3.3 mill. Due in 5 Yrs \$0.3 mill.  
 LT Debt None LT Interest None

**Leases, Uncapitalized:** Annual rentals \$6.6 mill.

**No Defined Benefit Pension Plan**

**Pfd Stock NMF** (33,488 shares out.)  
 Div'd NMF

**Common Stock** 14,959,309 shs.  
 as of 5/4/18

**MARKET CAP:** \$200 million (Small Cap)

CURRENT POSITION (\$ MILL.)	2016	2017	3/31/18
Cash Assets	39.3	47.2	43.7
Accts Receivable	16.5	15.0	14.8
Other	5.1	4.5	7.3
Current Assets	60.9	66.7	65.8
Accts Payable	4.9	5.7	5.6
Debt Due	.5	.7	.3
Other	1.3	1.2	1.3
Current Liab.	6.7	7.6	7.2

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17 to '21-'23
Revenues	5.0%	.5%	16.5%
"Cash Flow"	2.0%	.5%	11.5%
Earnings	-3.0%	-4.5%	22.0%
Dividends	5.0%	--	13.5%
Book Value	5.0%	2.0%	4.5%

Cal-endar	QUARTERLY REVENUES (\$ mill.)				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2015	14.7	14.4	14.6	13.4	57.1
2016	14.0	15.4	14.4	14.1	57.9
2017	15.6	15.3	16.6	14.8	62.3
2018	14.3	15.5	15.5	15.7	61.0
2019	16.0	16.0	16.0	16.0	64.0

Cal-endar	EARNINGS PER SHARE A				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2015	.13	.15	.12	.11	.51
2016	.15	.15	.13	.10	.27
2017	.18	.11	.08	.04	.41
2018	.14	.17	.16	.13	.60
2019	.19	.18	.17	.16	.70

Cal-endar	QUARTERLY DIVIDENDS PAID B				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2014	.075	.075	.075	.075	.30
2015	.075	.075	.075	.075	.30
2016	.075	.075	.075	.075	.30
2017	.075	.075	.075	.075	.30
2018	.085	.085	.085	.085	.30

**BUSINESS:** Consolidated Water Co. Ltd. develops and operates seawater desalination plants and water distribution systems in areas where naturally occurring supplies of potable water are scarce or nonexistent. Its desalination process involves reverse osmosis tech. It provides water in the Cayman Islands, Belize, the Bahamas, the British Virgin Islands, and Bali. At 12/31/17, it opera-

**Consolidated Water's Aerex subsidiary isn't doing well.** CWCO owns 51% of this business, which manufactures custom and speciality products, as well as provides designing and engineering services, for municipal systems. The fundamentals of this market are excellent as many water utilities, after deferring capital improvement for decades, are now spending heavily to upgrade and refurbish existing pipelines. Since becoming involved in Aerex, results have not matched expectations, however. Sales have been declining, forcing a recent writedown (noncash) in the value of the company.

**The news out of Mexico remains encouraging.** Consolidated has been working for some time on planning a large desalination plant to provide water mostly to Tijuana. The city's population has been expanding, and there is a need for more potable water. In March, the company found two partners, including Suez International, a global leader in water treatment, to form a joint venture. Having such a credible associate has greatly reduced the risk related to the construction of the Rosarito plant.

ted 13 plants with a capacity of 25.8 million gallons per day. Inc.: Cayman Islands. Has 120 employees. President & CEO: Frederick McTaggart. Off./Dir. own 2.5% of stock; First Manhattan, 5.1% (4/18 proxy). Address: Regatta Office Park Windward Three, 4th Floor, West Bay Road P.O. Box 1114 Grand Cayman, KYI-1102, Cayman Islands. Tel.: (345) 945-4277. Internet: www.cwco.com.

**Operations in the Caribbean remain the heart of the business.** Through subsidiaries, Consolidated uses desalination plants to provide water to several countries in this region. In the first quarter, the Cayman Islands represented 42% of the company's total revenues, and 51% of its operating profit. Relations with regulators here have not always been smooth. A new agency named "OReg" was established two years ago, and it is yet to be seen if a long-term deal can be reached between the two parties.

**The company has a small, but pristine, balance sheet.** At the end of the first quarter, all debt outstanding totaled only \$0.3 million. Moreover, the company had almost \$44 million in cash on hand, or close to \$3 a share.

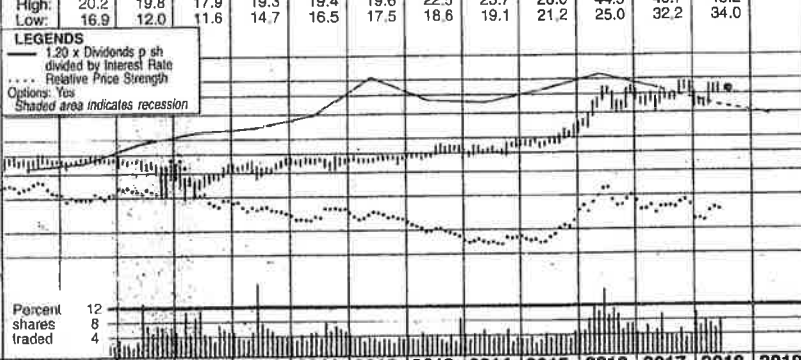
**These shares offer the highest potential total returns in the group, but also the greatest downside.** CWCO builds projects in which it is not guaranteed a return on the assets, as is the case with the other members in this industry. Therefore, this stock may carry too much uncertainty for a typical utility investor.

James A. Flood July 13, 2018

(A) Fully diluted earnings. Excludes losses from discontinued operations: '17, \$0.08 a share. Next earnings report due mid-August.  
 (B) Dividends historically paid in late January.  
 (C) In millions adjusted for stock split.  
 (D) Includes intangibles. As of 12/31/17, \$12.1 million/\$0.81 a share.  
 Company's Financial Strength B+  
 Stock's Price Stability 30  
 Price Growth Persistence 20  
 Earnings Predictability 45  
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**TIMELINESS 3** Raised 3/23/18  
**SAFETY 2** New 10/21/11  
**TECHNICAL 3** Lowered 6/29/18  
 BETA .80 (1.00 = Market)



High	Low	20.2	19.8	17.9	19.3	19.4	19.6	22.5	23.7	28.0	44.5	46.7	45.2	34.0
Low	High	16.9	12.0	11.6	14.7	16.5	17.5	18.6	19.1	21.2	25.0	32.2	34.0	

**2021-23 PROJECTIONS**

High	Price	Gain	Ann'l Total
50	35	(+20%)	7%
35	35	(-15%)	-2%

**Institutional Decisions**

3Q2017	4Q2017	1Q2018
46	49	49
41	36	57
9500	8418	8601

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
5.99	6.12	6.25	6.44	6.16	6.50	6.79	6.75	6.60	6.50	6.98	7.19	7.26	7.77	8.16	8.00	8.20	8.50
1.20	1.15	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	2.40	2.55
.73	.61	.73	.71	.82	.87	.89	.72	.96	.84	.90	1.03	1.13	1.22	1.38	1.38	1.50	1.65
.83	.65	.66	.67	.66	.69	.71	.71	.72	.73	.74	.75	.76	.78	.81	.86	.91	.91
1.59	1.87	2.54	2.16	2.31	1.66	2.12	1.49	1.90	1.50	1.36	1.26	1.40	1.59	2.91	3.08	3.05	3.00
7.39	7.60	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	14.85	15.15
10.38	10.48	11.36	11.50	13.17	13.25	13.40	13.52	16.57	15.70	15.82	15.96	16.12	16.23	16.30	16.35	16.50	16.75
23.5	30.0	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	28.4	28.4
1.28	1.71	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	1.34	1.43
3.7%	3.5%	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%	2.3%	2.2%

**CAPITAL STRUCTURE as of 3/31/18**  
 Total Debt \$174.6 mill. Due in 5 Yrs \$34.9 mill.  
 LT Debt \$140.1 mill. LT Interest \$5.5 mill.  
 (Total interest coverage 9.5x).  
 (36% of Cap'l)

**Pension Assets-12/17 \$69.2 mill.**  
 Oblig. \$88.0 mill.

**Pfd Stock \$2.4 mill. Pfd Div'd: \$.1 mill.**

**Common Stock 16,359,184 shs.**  
 as of 4/30/18

**MARKET CAP: \$700 million (Small Cap)**

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
91.0	91.2	102.7	102.1	110.4	114.8	117.1	126.0	132.9	130.8	135	142	135	142	135	142	135	142
12.2	10.0	14.3	13.4	14.4	16.6	18.4	20.0	22.7	22.8	25.0	27.5	25.0	27.5	25.0	27.5	25.0	27.5
33.2%	34.1%	32.1%	32.7%	33.9%	34.1%	35.0%	34.5%	34.0%	32.7%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%
..	..	6.8%	6.1%	3.4%	1.9%	1.7%	1.9%	2.7%	3.1%	2.6%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
45.6%	46.6%	43.1%	42.3%	41.5%	40.4%	40.5%	39.4%	37.9%	37.5%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
51.8%	52.1%	55.8%	56.6%	57.4%	58.7%	58.8%	59.8%	61.5%	61.8%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%
259.4	267.9	310.5	312.5	316.5	321.4	335.8	345.4	355.4	370.7	390	410	390	410	390	410	390	410
366.3	376.5	405.9	422.2	435.2	446.5	465.4	481.9	517.8	557.2	565	575	565	575	565	575	565	575
5.8%	5.0%	5.7%	5.2%	5.4%	5.9%	6.3%	6.6%	7.1%	6.9%	7.0%	7.5%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
6.6%	7.0%	8.1%	7.5%	7.8%	8.7%	9.2%	9.6%	10.3%	9.8%	10.0%	11.0%	11.0%	11.0%	10.3%	9.8%	10.0%	11.0%
8.9%	7.0%	8.2%	7.5%	7.6%	8.7%	9.3%	9.8%	10.3%	9.8%	10.0%	11.0%	11.0%	11.0%	10.3%	9.8%	10.0%	11.0%
2.0%	.1%	2.1%	1.0%	1.4%	2.4%	3.1%	3.5%	4.3%	3.8%	4.0%	4.5%	4.5%	4.5%	4.3%	3.8%	4.0%	4.5%
78%	98%	75%	87%	83%	73%	67%	63%	58%	62%	61%	58%	58%	58%	58%	62%	61%	58%

**CURRENT POSITION**

(\$MILL.)	2016	2017	3/31/18
Cash Assets	3.9	4.9	2.0
Other	22.6	24.3	23.2
Current Assets	26.7	29.2	25.2
Accts Payable	12.3	13.9	11.0
Debt Due	18.2	34.9	34.5
Other	16.6	15.7	18.5
Current Liab.	47.1	64.5	64.0

**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 2017, the Middlesex System accounted for 58% of operating revenues. At 12/31/17, the company had 315 employees. Incorporated: NJ. President, CEO, and Chairman: Dennis W. Doll. Officers & directors own 3.5% of the common stock; BlackRock Institutional Trust Co., 6.4% (4/18 proxy). Add: 1500 Ronson Road, Iselin, NJ 08830. Tel.: 732-634-1500. Internet: www.middlesexwater.com.

**ANNUAL RATES**

Past 10 Yrs.	Past 5 Yrs.	Past Est'd '15-'17
of change (per sh)	10 Yrs.	5 Yrs.
Revenues	2.5%	3.5%
"Cash Flow"	4.5%	7.0%
Earnings	5.0%	8.0%
Dividends	2.0%	5.5%
Book Value	3.5%	4.0%

**Middlesex Water stock has regained some ground over the past three months.** Shares of the Northeast water provider struggled in the early part of this year, but have been performing better of late. Since our April review, they are up more than 15% in value, and are trading just several points shy of their recently etched all-time high price. At this time, it appears the market is pricing in a good amount of MSEX's anticipated top- and bottom-line growth, which includes a lower corporate tax bill, as well as recently approved water rate hikes. (The latter took effect April 1st, and ought to be evident in the second quarter).

**First-quarter financial results were mixed.** The company generated revenues of \$31.2 million, about 4% higher than the previous-year tally, due largely to a wider Delaware customer base and increased water usage from industrial and commercial customers in New Jersey. Meantime, earnings of \$0.27 a share came in flat, year over year, as an uptick in operation and maintenance expenses (increased production costs and unforeseen weather-related expenses) kept the lid on the bot-

**QUARTERLY REVENUES (\$mill.)**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	28.8	31.7	34.7	30.8	126.0
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	34.0	37.5	32.3	135
2019	33.0	36.0	39.0	34.0	142

**EARNINGS PER SHARE ^**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.22	.31	.41	.28	1.22
2016	.29	.36	.54	.19	1.38
2017	.27	.33	.46	.32	1.38
2018	.27	.35	.55	.33	1.50
2019	.32	.39	.59	.35	1.65

**QUARTERLY DIVIDENDS PAID ^**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.19	.19	.19	.1925	.76
2015	.1925	.1925	.1925	.19875	.78
2016	.19875	.19875	.19875	.21125	.81
2017	.21125	.21125	.21125	.22375	.86
2018	.22375	.22375			

tom line. Consequently, we now look for revenues of \$135 million (down \$1 million from our prior call) and share net of \$1.50 (down \$0.05) this year.

**Investments in its aging infrastructure are under way.** Middlesex has kicked off its capital spending program, known as "Water For Tomorrow," with a \$52 million project along its New Jersey territory. The construction of the Western Transmission Main will supplement its existing main, which services 300,000 customers through Middlesex County. Over the next five years, the company has earmarked approximately \$300 million to the program in an effort to increase efficiency and ultimately lower costs across its water delivery systems.

**At the current valuation, this issue does not stand out.** The recent run-up in price has eroded most of the gains we envision over the pull to next decade. Too, MSEX stock is neutrally ranked for the year ahead, and the dividend yield is only average. All told, we continue to recommend investors exercise patience and wait for a better entry point.

Nicholas P. Patrikis July 13, 2018

(A) Diluted earnings. Next earnings report due early August. (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	40
Earnings Predictability	80

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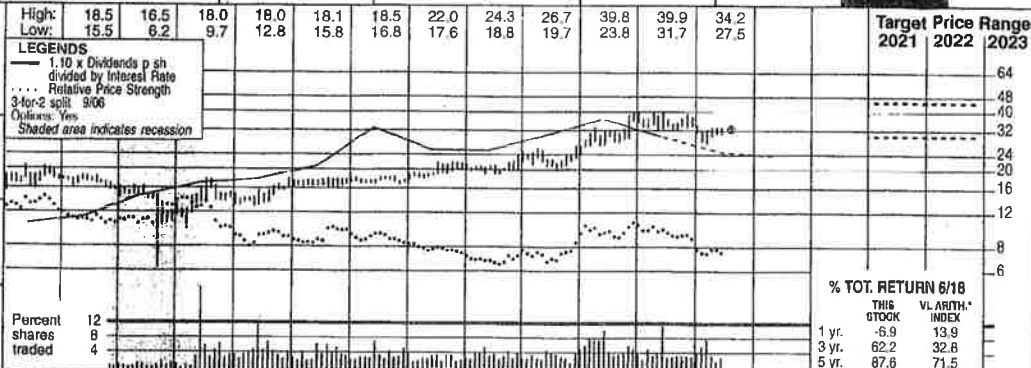
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# YORK WATER

NDQ-YORW RECENT PRICE **32.75** P/E RATIO **31.2** (Trailing: 32.4 Median: 24.4) RELATIVE P/E RATIO **1.70** DIV'D YLD **2.0%** VALUE LINE **1792**

**TIMELINESS** 5 Lowered 6/8/18  
**SAFETY** 3 Lowered 7/17/15  
**TECHNICAL** 4 Lowered 6/29/18  
**BETA** .60 (1.00 = Market)



**2021-23 PROJECTIONS**

High	Price	Gain	Ann'l Total Return
45	45	(+35%)	10%
Low	30	(-10%)	1%

**Insider Decisions**

	S	O	N	D	J	F	M	A	M
to Buy	213	2	2	15	2	2	14	2	
Options	0	0	0	0	0	0	0	0	15
to Sell	0	0	0	0	0	0	0	0	0

**Institutional Decisions**

	3Q2017	4Q2017	1Q2018
to Buy	40	29	38
to Sell	30	35	40
Net Buy	10	-6	-2

Percent shares traded: 12, 8, 4

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	21-23	
2.05	2.17	2.18	2.58	2.56	2.79	2.89	2.95	3.07	3.18	3.21	3.27	3.58	3.68	3.70	3.77	3.85	4.00	Revenues per sh	5.30
.57	.65	.65	.79	.77	.86	.88	.95	1.07	1.09	1.12	1.19	1.36	1.45	1.42	1.53	1.65	1.75	"Cash Flow" per sh	2.25
.40	.47	.49	.56	.58	.57	.57	.64	.71	.71	.72	.75	.89	.97	.92	1.01	1.05	1.15	Earnings per sh A	1.60
.35	.37	.39	.42	.45	.48	.49	.51	.52	.53	.54	.55	.57	.60	.63	.65	.70	.75	Div'd Decl'd per sh B	1.00
66	1.07	2.50	1.69	1.85	1.69	2.17	1.18	.83	.74	.94	.76	1.10	1.11	1.03	1.95	1.50	1.25	Cap'l Spending per sh	1.25
3.90	4.06	4.65	4.85	5.84	5.97	6.14	6.92	7.19	7.45	7.73	7.98	8.15	8.51	8.08	9.28	9.35	10.55	Book Value per sh	11.75
9.55	9.63	10.33	10.40	11.20	11.27	11.37	12.56	12.69	12.79	12.92	12.98	12.83	12.81	12.85	12.87	12.80	12.75	Common Shs Outst'g C	12.75
26.9	24.5	25.7	26.3	31.2	30.3	24.6	21.9	20.7	23.9	24.4	26.3	23.1	23.5	32.8	34.6	34.6	34.6	Avg Ann'l P/E Ratio	22.5
1.47	1.40	1.36	1.40	1.68	1.61	1.48	1.46	1.32	1.50	1.55	1.48	1.22	1.18	1.72	1.72	1.72	1.72	Relative P/E Ratio	1.25
3.3%	3.2%	3.1%	2.9%	2.5%	2.8%	3.5%	3.6%	3.5%	3.1%	3.1%	2.8%	2.8%	2.6%	2.1%	1.9%	1.9%	1.9%	Avg Ann'l Div'd Yield	2.7%

**CAPITAL STRUCTURE as of 3/31/18**  
 Total Debt \$90.0 mill. Due in 5 Yrs \$42.5 mill.  
 LT Debt \$78.0 mill. LT Interest \$5.3 mill.

(39% of Cap'l)

**Pension Assets 12/17 \$41.4 mill.**  
 Obl'g. \$44.6 mill.

**Pfd Stock None**

**Common Stock 12,892,798 shs.**

**MARKET CAP: \$425 million (Small Cap)**

32.8	37.0	39.0	40.6	41.4	42.4	45.9	47.1	47.6	48.6	49.5	51.0	Revenues (\$mill)	67.5
6.4	7.5	8.9	9.1	9.3	9.7	11.5	12.5	11.8	13.0	13.5	14.5	Net Profit (\$mill)	20.5
36.1%	37.9%	38.5%	35.3%	37.6%	37.8%	29.8%	27.5%	31.3%	25.9%	21.0%	21.0%	Income Tax Rate	21.0%
10.1%	--	1.2%	1.1%	1.1%	8%	1.8%	1.6%	1.9%	6.7%	2.0%	1.5%	AFUDC % to Net Profit	1.5%
54.5%	45.7%	48.3%	47.1%	46.0%	45.1%	44.8%	44.4%	42.6%	43.0%	35.5%	35.0%	Long-Term Debt Ratio	34.0%
45.5%	54.3%	51.7%	52.9%	54.0%	54.9%	55.2%	55.6%	57.4%	57.0%	64.5%	65.0%	Common Equity Ratio	66.0%
153.4	160.1	176.4	180.2	184.8	188.4	189.4	196.3	198.7	209.5	210	220	Total Capital (\$mill)	235
211.4	222.0	228.4	233.0	240.3	244.2	253.2	261.4	270.9	288.8	295	300	Ret Plant (\$mill)	320
5.7%	6.2%	6.5%	6.4%	6.4%	6.5%	7.4%	7.6%	7.2%	7.5%	7.5%	7.5%	Return on Total Cap'l	10.0%
9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	10.9%	10.0%	10.0%	Return on Shr. Equity	13.5%
9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	10.9%	10.0%	10.0%	Return on Com Equity	13.5%
1.4%	1.9%	2.7%	2.5%	2.4%	2.4%	3.9%	4.4%	3.4%	4.0%	3.5%	3.5%	Returned to Com Eq	5.0%
85%	78%	72%	73%	74%	74%	64%	62%	67%	63%	67%	67%	All Div'ds to Net Prof	63%

**CURRENT POSITION**

(SMILL)	2016	2017	3/31/18
Cash Assets	4.2	--	--
Accounts Receivable	4.3	4.5	4.2
Inventory (Avg. Cost)	.7	.9	.9
Other	3.4	3.2	3.3
Current Assets	12.6	8.6	8.4
Accs Payable	3.7	3.1	3.2
Debt Due	--	--	12.0
Other	4.5	6.0	5.6
Current Liab.	8.2	9.1	20.6

**ANNUAL RATES**

of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17 to '21-'23
Revenues	3.5%	3.5%	6.0%
"Cash Flow"	6.0%	6.0%	7.5%
Earnings	5.5%	6.5%	9.0%
Dividends	3.5%	3.5%	8.0%
Book Value	5.0%	8.5%	5.0%

**QUARTERLY REVENUES (\$mill.)**

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	11.2	11.9	12.4	11.6	47.1
2016	11.3	11.8	12.6	11.9	47.6
2017	11.3	12.3	12.7	12.3	48.6
2018	11.6	12.5	12.9	12.5	48.5
2019	12.0	12.8	13.3	12.9	51.0

**EARNINGS PER SHARE A**

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.20	.22	.28	.27	.97
2016	.19	.23	.27	.23	.92
2017	.20	.23	.31	.27	1.01
2018	.20	.25	.32	.28	1.05
2019	.24	.27	.33	.31	1.15

**QUARTERLY DIVIDENDS PAID B**

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.1431	.1431	.1431	.1431	.572
2015	.1495	.1495	.1495	.1555	.604
2016	.1555	.1555	.1555	.1602	.627
2017	.1602	.1602	.1602	.1666	.647
2018	.1666	.1666			

**BUSINESS:** The York Water Company is the oldest investor-owned regulated water utility in the United States. It has operated continuously since 1816. As of December 31, 2017, the company's average daily availability was 35.4 million gallons and its service territory had an estimated population of 198,000. Has more than 69,000 customers. Residential customers accounted for 64% of 2017 revenues; commercial and industrial (28%); other (8%). It also provides sewer billing services. Incorporated: PA. York had 102 full-time employees at 12/31/17. President/CEO: Jeffrey R. Hines. Officers/directors own 1.1% of the common stock (3/18 proxy). Address: 130 East Market Street, York, Pennsylvania 17401. Telephone: (717) 845-3601. Internet: www.yorkwater.com.

**York Water's first-quarter bottom line was unchanged compared to the previous-year figure.** The regulated utility posted earnings of \$0.20 a share for the March period, missing our mark by \$0.02. Nevertheless, we are retaining our current-year profit forecast of \$1.05 per share, as we think a lower effective tax rate, combined with higher asset improvement deductions, should help offset rising expenses in the back half of 2018. Meantime, first-quarter revenues of \$11.6 million were fractionally above our call, though the beat was not significant enough to spur an upward revision.

**As we expected, the company has inquired about a rate increase.** In May, York asked the Pennsylvania Public Utility Commission for more than \$6 million (annual revenues) in customer rate hikes to recover replacement costs associated with water pipeline improvements, other infrastructure upgrades, as well as personnel and operational cost increases. York hopes to recover expenses incurred since its last rate case filing in 2013, and help balance future capital investments. A time frame for the decision has not yet been established.

**Capital spending ought to continue through 2018 and beyond.** Year to date, York Water has invested only about \$3.0 million, specifically to complete a raw water pumping station and some modest infrastructure upgrades. An additional \$20 million is likely to be spent by year's end. Going forward, we expect further infrastructure upgrades and improvements to its waste water treatment plants. This spending is necessary not only as a response to its aging pipes and delivery methods, but also to handle its expanding customer base.

**This equity lacks investment appeal at this juncture.** Shares of York Water have been lowered two spots on our Timeliness ranking scale, to 5 (Lowest). Thus, short-term accounts should turn the page. Similarly, those with a buy-and-hold mantra should take a pass, as the shares offer limited price upside 3- to 5-years out. Lastly, as a stand-alone dividend play (2.0% current yield), we think investors can find more-attractive options elsewhere.

Nicholas P. Patrikis July 13, 2018

(A) Diluted earnings. Next earnings report due late August.  
 (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	60
Price Growth Persistence	55
Earnings Predictability	90

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# **Cost of Capital / Required Return**

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Cost of Capital / Required Return  
Weighted Cost of Capital**

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J. Weinert's E-Mail: [weinertj@auswest.net](mailto:weinertj@auswest.net)**

**Water and Wastewater Cost of Capital  
Second Quarter 2018 (7-1-2018)**

As a 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	30%	Market	3.60%	Market	28.89%	71.11%	0.77%
Equity	70%	Market	8.98%	Market	0.0%	100.0%	6.29%
<b>Total Capital r</b>	<b>100.0%</b>						<b>7.06%</b>
Growth (g)							<b>1.44%</b>
Rate without Growth: $[(1+r)/(1+g)]-1$							<b>5.54%</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	After-tax Market Capital Cost (2)*(3)
Debt	30%	Market	3.60%	Market	Not Applicable	Not Applicable	1.08%
Equity	70%	Market	8.98%	Market	Not Applicable	Not Applicable	6.29%
<b>Total Capital r</b>	<b>100.0%</b>						<b>7.37%</b>
Growth (g)							<b>1.44%</b>
Rate without Growth: $[(1+r)/(1+g)]-1$							<b>5.85%</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	After-tax Market Capital Cost (2)*(3)
Debt	40%	Embedded	3.84%	Embedded	Not Applicable	Not Applicable	1.54%
Equity	60%	Embedded	8.98%	Market	Not Applicable	Not Applicable	5.39%
<b>Total Capital r</b>	<b>100.0%</b>						<b>6.93%</b>
Growth (g)						Not Applicable	<b>0.00%</b>
Rate without Growth: $[(1+r)/(1+g)]-1$							<b>6.93%</b>

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**Cost of Capital / Required Return  
Cost of Debt**

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**Standard and Poor's Bond Guide  
Water Industry  
As of 2st Qtr 2018 (7-1-2018)**

**As of Investor-Owned Utility**

Standard & Poors Bond Guide Issue 1/1/2017B	Pricing 12/31/2018	Company	S&P Rating	Outstanding (\$ millions)	Embedded Interest Rate	wtd embedded rate	Price Range 2015			Current Yield	Yield to maturity	wtd current yield	
							High	Low	Close				
<b>American Water Capital</b>													
		American Water Capital	A	5/15	525	3.400	17.850	105.16	101.15	102.71	5.31	2.98	17.98
		American Water Capital	A	5/15	500	4.300	21.500	110.94	102.19	109.13	3.94	3.73	19.70
		<b>Weighted American Water</b>			<b>1,025</b>	<b>3.84%</b>	<b>39.350</b>				<b>3.62%</b>		<b>37.08</b>
<b>Cost of Debt Summary</b>													
		Debt Rating	A	Input									
		Cost of Debt											
		Embedded				3.84%							
		Use				3.8%	Input						
		Market											
		S&P				3.62%							
		Merigent				3.60%	Input						
<b>Cost of Debt (use)</b>													
		Market				3.60%	Input						
		Embedded											
		American Water				3.84%							
		Industry				3.80%	Input						
		Embedded Use				3.8%	Input						

**As a Municipal Financed Entity**

3.80%



Value Line Investment Surveys  
Water Industry  
As of Second Quarter 2018 (7-1-2018)

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	281.1	19.6	6.97%
American Water	6,403.0	320.0	5.00%
Aqua American	2,063.1	83.0	4.02%
California Water	515.7	36.0	6.98%
Connecticut Water	252.2	9.0	3.57%
Consolidated Water Company	-	-	-
Middlesex Water	140.1	5.5	3.93%
SIW Corporation	431.2	20.0	4.64%
York Water	78.0	5.3	6.79%
	10,164.4	498.4	4.90%
Minimum			3.57%
wtd Mean			4.90%
Mean			5.24%
Median			4.82%
Maximum			6.98%

Debt Rating and Cost of Debt

Embedded 4.90% wtd mean col 5

Rating (S&P)

A Input

Market Cost of Debt @ S&P Rating

4.58% Input

Use

4.58% Input

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Cost of Equity**

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Value Line Investment Surveys  
Water Industry  
As of Second Quarter 2018 (7-1-2018)

Company	Exchange	Tracker	Valueline No.	Valueline Issue	Beta	Dividend	Past 10 Yrs	Est'd 15-17 to 21-23	Revenues	Est'd 15-17 to 21-23	Cash Flows	Past 10 Yrs	Est'd 15-17 to 21-23	Earnings	Past 10 Yrs	Est'd 15-17 to 21-23	Dividends	Past 10 Yrs	Est'd 15-17 to 21-23	Book Value	Past 5 Yrs	Est'd 15-17 to 21-23	
American States Water	NYSE	AWR	1784	7/13/2018	0.8	1.9%	4.5%	1.5%	4.0%	6.5%	4.5%	6.0%	7.0%	9.0%	7.0%	6.0%	10.5%	7.0%	6.0%	8.0%	5.0%	4.5%	4.0%
American Water	NYSE	AWK	1785	7/13/2018	0.65	2.1%	3.0%	3.5%	4.0%	50.0%	6.0%	7.0%	7.5%	7.5%	7.5%	10.0%	8.5%	8.0%	10.0%	1.0%	4.0%	6.0%	6.0%
Aqua American	NYSE	WTR	1786	7/13/2018	0.75	2.5%	3.5%	2.0%	5.5%	7.0%	6.5%	6.0%	8.5%	8.5%	9.5%	7.5%	8.0%	8.0%	9.0%	6.5%	1.0%	7.5%	5.5%
California Water	NYSE	CWT	1787	7/13/2018	0.8	1.5%	4.0%	1.5%	2.5%	5.5%	3.5%	4.5%	4.0%	4.5%	4.0%	9.5%	2.0%	2.5%	7.5%	4.5%	5.0%	5.0%	3.0%
Connecticut Water	NDQ	CTWS	1788	7/13/2018	0.65	1.0%	3.5%	1.0%	6.5%	7.0%	8.0%	5.5%	8.5%	10.5%	10.5%	5.5%	3.5%	3.5%	2.5%	5.5%	6.5%	6.5%	3.5%
Consolidated Water Company	NDQ	CWCO	1789	7/13/2018	0.95	2.8%	5.0%	0.5%	16.5%	2.0%	0.5%	11.5%	-3.0%	-4.5%	22.0%	0.0%	0.0%	5.0%	5.0%	13.5%	5.0%	2.0%	4.5%
Middlesex Water	NDQ	MSEX	1790	7/13/2018	0.8	2.1%	2.5%	3.5%	3.0%	4.5%	7.0%	3.5%	7.0%	8.0%	8.0%	8.0%	2.0%	2.0%	4.5%	6.0%	3.5%	3.5%	4.0%
SIJ Corporation	NYSE	SIW	1791	7/13/2018	0.75	1.7%	5.0%	5.5%	4.0%	7.0%	11.0%	3.5%	8.0%	18.5%	18.5%	6.0%	5.0%	5.0%	8.5%	5.5%	8.0%	8.0%	3.0%
York Water	NDQ	YORW	1792	7/13/2018	0.8	2.0%	3.5%	3.5%	6.0%	6.0%	6.0%	7.5%	7.5%	5.5%	6.5%	9.0%	3.5%	3.5%	9.0%	5.0%	5.0%	3.5%	5.0%

Cost of Equity Capital Asset Pricing Model (CAPM)

Dividend	2.00%	mean Col 7
Growth	2.00% <td>2.00% </td>	2.00%
Revenues	3.83%	3.83%
Cash Flow	6.50%	5.89%
Earnings	5.75%	7.44%
Dividends	4.00%	4.83%
Book Value	5.00%	4.94%
Mean	5.02%	5.12%
Growth	5.50%	Input
Cost of Equity Dividend Growth Model	2.00%	Cost of Equity Capital Asset Pricing Model (CAPM)
Dividend Growth	5.50%	Risk Free Rate
Cost of Equity	7.50%	Risk Premium
		Beta

4.99% Input 10 year treasure per PA PUC  
0.77

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Capital Structure**

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Value Line Investment Surveys  
Water Industry  
As of Second Quarter 2018 (7-1-2018)

Company	Exchange	Ticker	Value Line No.	Value Line Issue	Total Debt	Market Debt		Long Term Interest		Proportion of Debt	Book Debt	Book Equity	Preferred Stock	% Preferred	Shares Outstanding	Price per Share	Market Equity	Portion Market Equity	Capitalization	Total Market Capital
						(\$/1/21)	(\$/1/21)	(\$/1/21)	(\$/1/21)											
American States Water	NYSE	AWR	1784	7/13/2018	380.4	15.46%	281.1	19.6	6.97%	35.0%	41.5%	58.5%	-	0.00%	36,733,416,000	58.12	2,134.9	84.54%	Mid Cap	2,525.3
American Water	NYSE	AWK	1785	7/13/2018	8,007.0	54.29%	6,405.0	320.0	5.00%	54.0%	56.5%	43.5%	7.0	0.03%	178,047,882,000	86.31	15,367.3	65.72%	Large Cap	23,381.3
Aqua American	NYSE	WTR	1786	7/13/2018	2,186.8	25.75%	2,063.1	83.0	4.02%	51.0%	51.0%	49.0%	-	0.00%	177,897,654,000	35.44	6,304.7	74.25%	Large Cap	8,491.5
California Water	NYSE	CWT	1787	7/13/2018	786.7	29.35%	515.7	36.0	6.98%	43.0%	43.0%	57.0%	-	0.00%	48,074,000,000	39.90	1,918.2	70.65%	Mid Cap	2,724.9
Connecticut Water	NDQ	CTWS	1788	7/13/2018	258.4	24.39%	252.2	9.0	3.57%	46.0%	46.5%	53.5%	0.8	0.08%	12,089,135,000	66.20	800.3	75.54%	Small Cap	1,059.5
Consolidated Water Company	NDQ	CWCO	1789	7/13/2018	0.3	0.16%	-	-	-	0.0%	0.0%	100.0%	-	0.00%	14,959,900,000	12.75	190.7	99.84%	Small Cap	191.0
Middlesex Water	NDQ	MSEX	1790	7/13/2018	174.6	20.07%	140.1	5.5	3.93%	38.0%	37.0%	62.5%	2.4	0.28%	16,359,840,000	42.37	693.1	79.66%	Small Cap	870.1
SIW Corporation	NYSE	SIW	1791	7/13/2018	431.2	23.85%	431.2	20.0	4.64%	48.0%	48.5%	51.5%	-	0.00%	20,585,136,000	66.89	1,376.9	76.15%	Mid Cap	1,806.1
York Water	NDQ	YORW	1792	7/13/2018	90.0	17.57%	78.0	5.3	6.79%	39.0%	35.5%	64.5%	-	0.00%	12,892,798,000	32.75	422.2	82.43%	Small Cap	512.2
<b>Total</b>					<b>12,335.4</b>	<b>29.69%</b>	<b>10,164.4</b>	<b>498.4</b>	<b>4.90%</b>	<b>39.0%</b>	<b>35.5%</b>	<b>64.5%</b>	<b>10.2</b>	<b>0.02%</b>	<b>12,892,798,000</b>	<b>32.75</b>	<b>29,208.5</b>	<b>70.29%</b>	<b>Small Cap</b>	<b>41,554.1</b>
Minimum						0.16%			3.57%	0.00%	0.00%	43.50%		0.00%				65.72%		
wtd Mean						29.69%			43.0%					0.02%				70.29%		
Mean						21.21%			5.24%					0.04%				78.75%		
Median						23.85%			4.82%					0.00%				76.15%		
Maximum						34.25%			6.98%					0.28%				99.84%		

Water Industry Capital Structure

Capital Structure	Proportion	Reference	Embedded	Proportion	Reference
Debt	wtd mean	col 7	39.33%	mean col 11	
Preferred	wtd mean	col 15	0.04%	mean col 15	
Equity	wtd mean	col 19	60.00%	mean col 13	
Total	100.00%		99.38%		
Use					
Debt	30% Input		40% Input		
Equity	70% Input		60% Input		
Total	100%		100%		

**Pennsylvania-American Water Company's  
Utility Valuation Experts' (UVE) Valuation of  
Steelton Borough (Water) Authority  
Dauphin County, Pennsylvania**

**Appraisal Work Papers  
As of July 2018**

**Cost of Capital / Required Return  
Income Tax Rate**

**AUS Consultants  
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Value Line Investment Surveys  
Water Industry  
As of Second Quarter 2018 (7-1-2018)

Company	Exchange	Ticker	Valueline No.	Valueline Issue	Tax Rate			
					2016	2017	2018	21-23
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	1784	7/13/2018	36.8%	36.0%	23.0%	23.0%
American Water	NYSE	AWK	1785	7/13/2018	39.2%	43.3%	21.0%	21.0%
Aqua American	NYSE	WTR	1786	7/13/2018	8.2%	6.6%	9.0%	10.0%
California Water	NYSE	CWT	1787	7/13/2018	35.5%	30.1%	21.0%	21.0%
Connecticut Water	NDQ	CTWS	1788	7/13/2018	9.9%	19.0%	21.0%	21.0%
Consolidated Water Company	NDQ	CWCO	1789	7/13/2018				
Middlesex Water	NDQ	MSEX	1790	7/13/2018	34.0%	32.7%	21.0%	21.0%
SIW Corporation	NYSE	SIW	1791	7/13/2018	38.8%	36.7%	21.0%	21.0%
York Water	NDQ	YORW	1792	7/13/2018	31.3%	25.9%	21.0%	21.0%
Minimum					8.20%	6.60%	9.00%	10.00%
wtd Mean								
Mean					29.21%	28.79%	19.75%	19.88%
Median					34.75%	31.40%	21.00%	21.00%
Maximum					39.20%	43.30%	23.00%	23.00%
Historical	34.00%	Median						
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				
Tax Rate	41.45%	Calculated	28.89%	Calculated				

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As of July 2018**

**Cost of Capital / Required Return  
2018 Stocks, Bonds, Bills, & Inflation  
Duff & Phelps**

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Source: Ibbotson S&P 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	Income Returns	Appreciation Returns	Total Returns	Total Returns	Total Returns	Income Returns	Appreciation Returns	Yields	Total Returns	Income Returns	Appreciation Returns	Yields	Total Returns	Total Returns	(A-1)-(A-7)
	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 *	Jan-Dec *
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	-0.1278	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	0.2478	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
Average	0.1186	0.0397	0.0785	0.1681	0.0637	0.0699	0.0499	0.0077	0.0504	0.0514	0.0441	0.0067	0.0437	0.0340	0.0297	0.0687
Median	0.1307	0.0383	0.1053	0.1832	0.0480	0.0388	0.0417	0.0083	0.0420	0.0336	0.0376	0.0032	0.0372	0.0297	0.0270	0.0797
High	0.6399	0.0877	0.4659	1.4287	0.4266	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	-0.1480	0.0194	-0.1825	0.0194	-0.0601	0.0058	-0.1114	0.0046	-0.0002	-0.1030	-0.4687

Last 5 year (60 months)

	Average	Median	High	Low
Average	0.1625	0.0224	0.1384	0.1625
Median	0.1369	0.0221	0.1139	0.1119
High	0.3239	0.0248	0.2960	0.4507
Low	0.0138	0.0210	-0.0073	-0.0360

\* Compound Annual Return

Source: Ibbotson S&P 1926-2018 Stock, Bonds, Bills, and Inflation Yearbook

Year	A-1 Large Company Stocks		A-2 Large Company Stocks		A-3 Large Company Stocks		A-4 Small Company Stocks		A-5 Long-Term Corporate Bonds		A-6 Long-Term Government Bonds		A-7 Long-Term Government Bonds		A-8 Long-Term Government Bonds		A-9 Long-Term Government Bonds		A-10 Intermediate-Term Government Bonds		A-11 Intermediate-Term Government Bonds		A-12 Intermediate-Term Government Bonds		A-13 Intermediate-Term Government Bonds		A-14 U.S. Treasury Bills		A-15 Inflation		A-16 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 *	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 *	Jan-Dec *						
1926	0.1162	0.0541	0.0572	0.0028	0.0737	0.0777	0.0373	0.0391	0.0354	0.0538	0.0378	0.0151	0.0361	0.0327	-0.0149	0.0789																					
1927	0.3749	0.0571	-0.3091	0.2210	0.0744	0.0893	0.0341	0.0540	0.0316	0.0452	0.0349	0.0096	0.0340	0.0312	-0.0208	0.3408																					
1928	0.4361	0.0481	-0.3788	0.3969	0.0284	0.0010	0.0322	-0.0312	0.0340	0.0322	0.0364	-0.0273	0.0401	0.0356	-0.0097	0.4039																					
1929	-0.0842	0.0388	-1.1191	-0.5136	0.0327	0.0342	0.0347	-0.0020	0.0340	-0.0601	0.0407	0.0177	0.0362	0.0475	0.0020	-0.1189																					
1930	-0.2490	0.0457	-1.2848	-0.3815	0.0798	0.0466	0.0332	0.0128	0.0330	0.0672	0.0330	0.0333	0.0291	0.0241	-0.0603	-0.2822																					
1931	-0.4334	0.0535	-1.4707	-0.4975	-0.0185	-0.0531	0.0333	-0.0846	0.0407	-0.0232	0.0316	-0.0540	0.0412	0.1017	-0.0952	-0.4667																					
1932	-0.0819	0.0616	-1.1515	-0.0539	0.1082	0.1684	0.0369	0.1294	0.0315	0.0810	0.0363	0.0502	0.0304	0.0096	-0.1030	-0.1188																					
1933	0.5399	0.0639	0.4659	1.4287	0.1038	-0.0007	0.0312	-0.0314	0.0336	0.0183	0.0283	-0.0099	0.0325	0.0030	0.5087																						
1934	-0.0144	0.0446	-0.0594	0.2422	0.1384	0.1003	0.0318	0.0676	0.0293	0.0900	0.0293	0.0183	0.0249	0.0016	0.0203	-0.0462																					
1935	0.4767	0.0495	0.4137	0.4019	0.0961	0.0498	0.0281	0.0214	0.0276	0.0701	0.0202	0.0494	0.0163	0.0017	0.0259	0.4486																					
1936	0.3392	0.0536	0.2792	0.6480	0.0674	0.0752	0.0277	0.0464	0.0255	0.0306	0.0144	0.0160	0.0129	0.0018	0.0121	0.3115																					
1937	-0.3503	0.0466	-0.3859	-0.5801	0.0275	0.0023	0.0266	-0.0248	0.0273	0.0156	0.0148	0.0005	0.0114	0.0003	0.0310	-0.3769																					
1938	0.3112	0.0483	0.2521	0.3280	0.0613	0.0553	0.0264	0.0283	0.0252	0.0623	0.0182	0.0437	0.0152	-0.0002	-0.0278	0.2848																					
1939	-0.0041	0.0469	-0.0545	0.0035	0.0397	0.0594	0.0240	0.0348	0.0226	0.0348	0.0131	0.0098	0.0098	0.0002	-0.0048	-0.0281																					
1940	-0.0978	0.0536	-0.1529	-0.0516	0.0339	0.0609	0.0223	0.0377	0.0194	0.0296	0.0090	0.0204	0.0057	0.0000	0.0096	-0.1201																					
1941	-0.1159	0.0671	-0.1786	-0.0900	0.0273	0.0093	0.0194	-0.0101	0.0204	0.0050	0.0067	-0.0017	0.0082	0.0006	0.0972	-0.1353																					
1942	0.0234	0.0679	0.1243	0.4451	0.0260	0.0322	0.0246	0.0074	0.0246	0.0194	0.0076	0.0117	0.0072	0.0027	0.0929	-0.0012																					
1943	0.2590	0.0624	0.1945	0.8837	0.0283	0.0208	0.0246	-0.0037	0.0248	0.0281	0.0156	0.0123	0.0145	0.0035	0.0316	0.2346																					
1944	0.1975	0.0548	0.1380	0.5372	0.0473	0.0281	0.0246	0.0032	0.0246	0.0180	0.0144	0.0095	0.0140	0.0033	0.0211	0.1729																					
1945	0.3611	0.0497	0.3072	0.7361	0.0408	0.1073	0.0234	0.0827	0.0234	0.0091	0.0119	0.0102	0.0103	0.0033	0.0225	0.3377																					
1946	-0.0807	0.0409	-0.1187	-0.1163	0.0172	-0.0010	0.0204	-0.0215	0.0212	0.0100	0.0108	-0.0008	0.0112	0.0035	0.1816	-0.1011																					
1947	0.0571	0.0549	0.0000	0.0092	-0.0234	-0.0262	0.0213	-0.0470	0.0243	0.0091	0.0121	-0.0030	0.0134	0.0050	0.0901	0.0938																					
1948	0.0550	0.0608	-0.0065	-0.0211	0.0414	0.0340	0.0240	0.0340	0.0237	0.0185	0.0156	0.0027	0.0151	0.0081	0.0310	0.0358																					
1949	0.1879	0.0750	0.1026	0.1975	0.0331	0.0645	0.0225	0.0415	0.0209	0.0232	0.0136	0.0095	0.0123	0.0110	-0.0180	0.1654																					
1950	0.3171	0.0877	0.2178	0.3875	0.0212	0.0006	0.0212	-0.0206	0.0224	0.0070	0.0139	-0.0069	0.0162	0.0120	0.0579	0.2959																					
1951	0.2402	0.0691	0.1646	0.0780	-0.0269	-0.0393	0.0238	-0.0627	0.0269	0.0036	0.0198	-0.0163	0.0217	0.0149	0.0587	0.2164																					
1952	0.1837	0.0593	0.1178	0.0303	0.0352	0.0116	0.0266	-0.0148	0.0279	0.0163	0.0219	-0.0057	0.0235	0.0166	0.0088	0.1571																					
1953	-0.0099	0.0546	-0.0662	-0.0649	0.0341	0.0364	0.0284	0.0067	0.0274	0.0223	0.0255	0.0061	0.0218	0.0182	0.0062	-0.0383																					
1954	0.5262	0.0621	0.4502	0.6058	0.0539	0.0719	0.0279	0.0279	0.0435	0.0272	0.0160	0.0108	0.0172	0.0086	0.0050	0.4983																					
1955	0.3156	0.0456	0.2640	0.2044	0.0048	-0.0129	0.0275	-0.0407	0.0295	-0.0065	0.0245	-0.0340	0.0280	0.0157	0.0037	0.2881																					
1956	0.0656	0.0383	0.0262	0.0428	-0.0681	-0.0559	0.0299	-0.0846	0.0345	-0.0042	0.0305	-0.0345	0.0363	0.0246	0.0286	0.0357																					
1957	-0.1078	0.0384	-1.1431	-0.1457	0.0871	0.0746	0.0344	0.0382	0.0345	0.0084	0.0359	0.0405	0.0284	0.0314	0.0302	-0.1422																					
1958	0.4336	0.0438	0.3806	0.6489	-0.0222	-0.0609	0.0327	-0.0923	0.0382	-0.0129	0.0293	-0.0417	0.0381	0.0154	0.0176	0.4009																					
1959	0.1196	0.0331	0.0848	0.1640	-0.0097	-0.0226	0.0401	-0.0520	0.0447	-0.0039	0.0418	-0.0456	0.0498	0.0295	0.0150	0.0795																					
1960	0.0047	0.0326	-0.0297	-0.0329	0.0507	0.1378	0.0426	0.0929	0.0380	0.0176	0.0415	0.0380	0.0415	0.0266	0.0148	-0.0379																					
1961	0.2689	0.0348	0.2313	0.3209	0.0482	0.0097	0.0383	-0.0288	0.0415	0.0185	0.0354	-0.0172	0.0384	0.0213	0.0067	0.2306																					
1962	-0.0873	0.0298	-0.1110	-0.1190	0.0795	0.0689	0.0400	0.0529	0.0395	0.0278	0.0373	0.0173	0.0350	0.0273	0.0122	-0.1273																					
1963	0.2280	0.0361	0.1889	0.2357	0.0219	0.0121	0.0389	-0.0270	0.0417	0.0164	0.0371	-0.0210	0.0404	0.0312	0.0165	0.1891																					



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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*.

the broad-based GDP deflator will advance by roughly 2.5% per year, on average. Long-term interest rates on AAA corporate bonds are projected to average just under 5% in the years 2021-2023. We expect the Federal Reserve to pursue moderately tighter 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 just under \$24,740 billion in the years 2021-2023, a level that is just over 27% above the 2017 total of \$19,392 billion.

**HYPOTHESIZED ECONOMIC ENVIRONMENT 3 TO 5 YEARS HENCE**

The hypothesized 2021-2023 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 war in progress at that time. Industrial production will be expanding by 2.0%-2.5% per year. Inflation will continue to be relatively modest. Prices as measured by

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	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018*	2019*	2021-23*
Gross Domestic Product (\$Bill.)	14480	14720	14418	14958	15518	16155	16692	17428	18121	18625	19392	20360	21456	24737
Real GDP (2009 Chained \$Bill.)	14877	14834	14418	14779	15021	15355	15612	15982	16397	16716	17097	17595	18113	19335
Total Consumption (\$Bill.)	10036	9989	9843	10036	10264	10413	10565	10868	11264	11572	11891	12199	12526	13411
Nonresidential Fixed Investment (\$Bill.)	1948	1934	1633	1674	1803	1964	2033	2173	2224	2211	2315	2460	2607	2932
Industrial Prod. (% Change, Annualized)	2.5	-3.4	-11.3	5.7	3.3	2.8	1.9	3.7	-2.7	-0.1	3.1	3.7	3.2	2.2
Housing Starts (Mill. Units)	1.34	0.90	0.55	0.59	0.61	0.78	0.93	1.00	1.11	1.18	1.21	1.33	1.39	1.40
Total Light Vehicle Sales (Mill. Units)	16.1	13.2	10.4	11.6	12.7	14.4	15.5	16.4	17.4	17.5	17.2	17.0	16.8	16.5
Personal Savings Rate (%)	3.0	5.0	6.1	5.6	5.7	7.6	4.8	4.8	6.1	4.9	3.4	3.1	3.5	3.8
National Unemployment Rate (%)	4.6	5.8	9.3	9.6	8.9	8.1	7.4	6.2	5.3	4.9	4.4	3.9	3.7	4.0
AAA Corp Bond Rate (%)	5.6	5.6	5.3	4.9	4.6	3.7	4.2	4.2	3.9	3.7	3.9	4.4	5.0	4.8
10-Year Treasury Note Rate (%)	4.6	3.7	3.3	3.2	2.8	1.8	2.4	2.5	2.2	1.9	2.3	3.1	3.5	3.5
3-Month Treasury Bill Rate (%)	4.4	1.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.9	2.0	2.8	3.0
<b>ANNUAL RATES OF CHANGE</b>														
Real GDP	1.8	-0.3	-2.8	2.5	1.6	2.2	1.7	2.4	2.6	1.9	2.3	2.9	2.9	2.0
GDP Deflator	2.7	1.9	0.8	1.2	2.0	1.8	1.6	1.8	1.1	1.5	1.9	2.1	2.6	2.5
Consumer Price Index	2.9	3.8	-0.3	1.6	3.1	2.1	1.5	1.6	0.5	1.8	2.1	2.8	2.6	2.5
<b>QUARTERLY ANNUALIZED RATES</b>		2017				2018				2019				
		1st	2nd	3rd	4th	1st*	2nd*	3rd*	4th*	1st*	2nd*	3rd*	4th*	
Gross Domestic Product (\$Bill.)	19057	19250	19504	19756	19967	20229	20491	20755	21023	21310	21601	21891		
Real GDP (2009 Chained \$Bill.)	16901	17031	17165	17289	17387	17523	17667	17798	17922	18055	18180	18297		
Total Consumption (\$Bill.)	11757	11853	11918	12035	12068	12158	12242	12327	12409	12489	12566	12641		
Nonresidential Fixed Investment (\$Bill.)	2264	2301	2328	2366	2401	2442	2478	2518	2555	2592	2624	2656		
Industrial Production (% Change, Annualized)	1.0	5.0	-1.5	7.8	4.5	3.5	3.3	3.5	3.5	3.3	3.0	2.8		
Housing Starts (Mill. Units)	1.24	1.17	1.17	1.26	1.32	1.32	1.34	1.35	1.36	1.38	1.40	1.40		
Total Light Vehicle Sales (Mill. Units)	17.1	16.8	17.1	17.7	17.2	16.9	16.9	16.9	16.9	16.8	16.8	16.7		

\*Estimated

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INDUSTRY TIMELINESS: 94 (of 97)

The Water Utility Industry carries one of the lowest Timeliness ranks of any industry under review by *Value Line*.

Prospects for higher short-term interest rates seem likely as the Federal Reserve once again raised the Fed Funds rate and indicated that more hikes are on the way. With yields on Treasury notes maturing by 2021 carrying a higher yield than that of most water utilities stocks, investors could be tempted to switch into fixed-income securities.

In general, the Tax Cuts and Jobs Act will not have a major impact on water utilities' bottom lines. All of the savings will be passed through to customers.

The fundamentals of the industry remain unchanged. Following years of low capital investments, most water utilities are spending heavily to modernized existing pipelines and other facilities.

Regulators continue to play a constructive, non-adversarial role in working with the utilities to improve the nation's water systems.

Short-Term Interest Rates Are Rising

The Federal Reserve increased the key federal funds rate by 25 basis points last month. Moreover, citing historically low unemployment, the Fed stated that it planned on increasing rates in a gradual manner through 2020. How does this impact water utilities? For starters, dividend paying stocks and fixed-income vehicles have always been in competition for income-oriented investors. Over the past decade, the extraordinary easy monetary policy (along with quantitative easing), had made dividend stocks much more appealing. This is no longer the case, however. The median yield on all dividend paying stocks in the *Value Line* universe is just about 2.0%. Individuals can now purchase an extremely secure three-month Treasury bill and get almost 2%, with as close to zero risk as possible. Moreover, should an investor be willing to extend slightly further out on the yield curve to one- or two-year Treasury notes, yields of 2.31% and 2.54% can be had. As the front end of the curve continues to rise over the next several years, utility stocks may continue to lose much of their former luster.

The Tax Cuts And Jobs Act

For most U.S.-based companies, the recent TCJA provided a nice boost to the bottom line. Water utilities were not among them, however. Knowing that regulatory commissions would mandate that the tax savings be passed on to customers, water companies simply set up reserve accounts. The surplus funds generated by the tax cut will go straight towards reducing ratepayers bills. Still, we would suggest that the TCJA is not a neutral event. That's because state regulatory commissions are given a little more flexibility when it comes to the next time a water utility in their state seeks rate relief. For example, even if a utility has a very sound reason for higher rates, but water users are already paying high prices, politicians will get push back from their constituents (i.e. voters) to keep their bills down. So, with the consumer benefiting from the tax cut, regulators will have a little more breathing room the next time a petition for higher rates is filed.

Industry Fundamentals Remain Unchanged

Following a period in which both water utilities and regulators allowed the condition of the nation's water infrastructure to deteriorate significantly, utilities have been playing catchup over the past decade or so. Thousands of miles of aging pipelines, as well as waste-water projects, are being replaced or refurbished. As a result, capital expenditures are relatively large for most members of this group. This also means that many of the balance sheets are only average, as they have had to rely upon the issuance of new debt to fund their construction projects.

Another trend that continues, (particularly for two of the biggest publicly traded water utilities, *American Water Works* and *Aqua American*) is consolidation. Larger companies are acquiring smaller water districts as a means of expanding the customer base. This strategy has proven profitable to date and we expect it possibly to accelerate. Indeed, there are over 50,000 small, inefficient water districts that could be combined to extract huge cost savings.

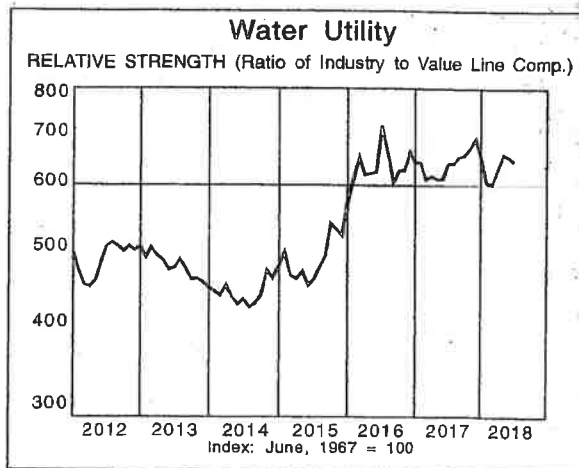
Regulation

Perhaps the best thing that water utilities have going for them is constructive regulation, as authorities realize that the nation's water systems are in a terrible state and much has to be done to fix the problem. Relations between regulators and utilities can sometimes be hostile as was the case in the electric utility industry in the 1980's and 1990's. Accounts should always keep a close eye on any change in this relationship as state commissions determine the rate of return that a regulated company can earn.

Conclusion

In general, water utility companies have done pretty well over the past few year. However, the premium that these stocks trade at is starting to seem expensive. While part of this will always be due to the scarcity value (there are only a handful of large-cap stocks in this group), the recent flattening of the front end of treasury yield curve could prove to provide investors with a better alternative.

James A. Flood



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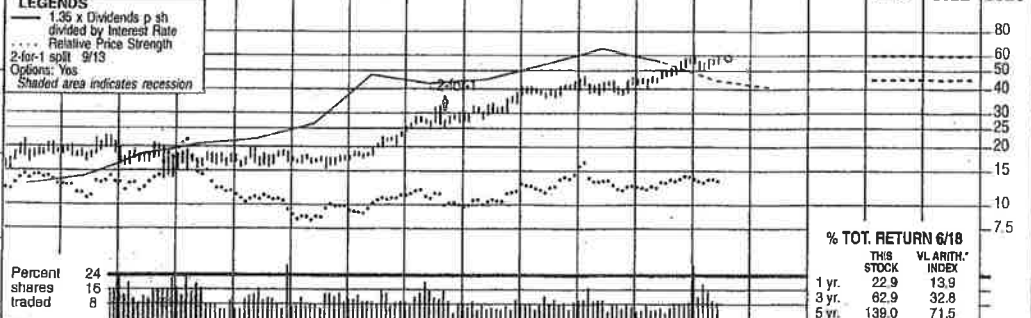


# AMER. STATES WATER NYSE-AWR

RECENT PRICE **58.12** P/E RATIO **33.2** (Trailing: 31.8 Median: 20.0) RELATIVE P/E RATIO **1.80** DIV'D YLD **1.9%** VALUE LINE **1784**

TIMELINESS <b>4</b> Lowered 5/18/18	High: 23.1	21.0	19.4	19.8	18.2	24.1	33.1	38.7	44.1	47.2	58.4	60.0	Target Price Range
SAFETY <b>2</b> Raised 7/20/12	Low: 16.8	13.5	14.9	15.6	15.3	17.0	24.0	27.0	35.8	37.3	41.1	50.1	2021 2022 2023

TECHNICAL **3** Lowered 7/6/18  
BETA .80 (1.00 = Market)



2021-23 PROJECTIONS

Price	Gain	Ann'l Total Return
High <b>60</b>	<b>(+5%)</b>	<b>3%</b>
Low <b>45</b>	<b>(-25%)</b>	<b>-3%</b>

Insider Decisions

S	O	N	D	J	F	M	A	M
to Buy	0	0	0	0	0	0	0	0
to Sell	3	2	4	0	1	0	4	1

Institutional Decisions

3Q2017	4Q2017	1Q2018
to Buy	104	104
to Sell	79	77
Hold	27880	24143

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	VALUE LINE PUB. LLC	21-23
6.89	6.99	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	12.65	12.45	Revenues per sh	15.35
1.27	1.04	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	3.05	3.25	"Cash Flow" per sh	4.00
.67	.39	.53	.66	.67	.81	.78	.81	1.11	1.12	1.41	1.61	1.57	1.60	1.62	1.88	1.75	1.90	Earnings per sh <sup>A</sup>	2.45
.44	.44	.44	.45	.46	.48	.51	.52	.55	.64	.76	.83	.87	.91	.91	.99	1.05	1.12	Div'd Decl'd per sh <sup>Ba</sup>	1.45
1.34	1.88	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	3.40	3.40	Cap'l Spending per sh	3.25
7.02	6.98	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	15.20	15.95	Book Value per sh <sup>D</sup>	17.35
30.38	30.42	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	36.80	37.00	Common Shs Outst'g <sup>C</sup>	37.50
18.3	31.9	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	25.7	25.7	Avg Ann'l P/E Ratio	22.0
1.00	1.82	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	1.34	1.29	Relative P/E Ratio	1.20
3.6%	3.5%	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%	2.0%	2.0%	Avg Ann'l Div'd Yield	2.8%

**CAPITAL STRUCTURE** as of 3/31/18  
Total Debt \$390.4 mill. Due in 5 Yrs \$100.7 mill.  
LT Debt \$281.1 mill. LT Interest \$19.6 mill. (35% of Cap'l)

**Leases, Uncapitalized:** Annual rentals \$2.3 mill.  
**Pension Assets-12/17** \$173.6 mill. Oblig. \$207.7 mill.

**Pfd Stock** None  
**Common Stock** 36,733,416 shs. as of 8/1/18

**MARKET CAP:** \$2.1 billion (Mid Cap)  
**CURRENT POSITION** 2016 2017 3/31/18 (\$MILL.)

Cash Assets	4	2	6.0
Accounts Receivable	20.0	26.1	19.2
Other	146.5	129.2	120.5
Current Assets	166.9	155.5	145.7
Accounts Payable	43.7	51.0	38.8
Debt Due	90.3	59.3	109.3
Other	43.9	46.4	48.4
Current Liab.	177.9	156.7	196.5

318.7	361.0	398.9	419.3	466.9	472.1	465.8	458.6	436.1	440.6	440	450	Revenues (\$mill)	575
26.8	29.5	41.4	42.0	54.1	62.7	61.1	60.5	59.7	69.4	68.0	74.0	Net Profit (\$mill)	92.0
37.8%	38.9%	43.2%	41.7%	39.9%	36.3%	38.4%	38.4%	36.8%	36.0%	23.0%	23.0%	Income Tax Rate	23.0%
6.9%	3.2%	5.8%	2.0%	2.5%	--	--	--	2.5%	--	Nil	1.0%	AFUDC % to Net Profit	1.0%
46.2%	45.9%	44.3%	45.4%	42.2%	39.8%	39.1%	41.1%	39.4%	38.0%	41.5%	42.0%	Long-Term Debt Ratio	46.0%
53.8%	54.1%	55.7%	54.6%	57.8%	60.2%	60.9%	58.9%	60.6%	62.0%	58.5%	58.0%	Common Equity Ratio	54.0%
577.0	665.0	677.4	749.1	787.0	818.4	832.6	791.5	815.3	854.9	1010	1125	Total Capital (\$mill)	1200
825.3	866.4	855.0	896.5	917.8	981.5	1003.5	1060.8	1150.9	1205.0	1250	1310	Net Plant (\$mill)	1495
6.4%	5.9%	7.6%	7.1%	8.3%	8.9%	8.8%	9.0%	8.6%	9.3%	8.8%	9.0%	Return on Total Cap'l	9.0%
8.6%	8.2%	11.0%	10.3%	11.9%	12.7%	12.0%	13.0%	12.1%	13.1%	12.0%	12.5%	Return on Shr. Equity	14.0%
8.6%	8.2%	11.0%	10.3%	11.9%	12.7%	12.0%	13.0%	12.1%	13.1%	12.0%	13.0%	Return on Com Equity	14.0%
3.1%	3.2%	5.8%	5.3%	6.8%	6.8%	5.7%	6.0%	5.3%	6.2%	5.5%	5.5%	Retained to Com Eq	6.0%
64%	61%	47%	49%	45%	47%	53%	54%	58%	52%	58%	58%	All Div'ds to Net Prof	69%

**BUSINESS:** American States Water Co. operates as a holding company. Through its principal subsidiary, Golden State Water Co., it supplies water to 258,949 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 24,274 customers in Big Bear Lake and San Bernardino Cnty. Provides water & wastewater services to U.S. military bases through its ASUS sub. Sold Chaparral City Wtr. of AZ. (6/11). Employes 758. BlackRock, Inc. owns 11.7% of out. shares; Vanguard, 9.5%; off. & dir. 1.5%. (4/18 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.

**A recent ruling is hurting American States Water's utility operations.** Earlier this year, California regulators made a decision on Golden States Water's petition for higher rates. Despite being granted a higher return on equity, the permitted return on rate base was lowered. This has had a more meaningful impact on the utility than was expected, and was the main reason for first-quarter results falling short of the consensus.

**We are lowering our near-term earnings estimates.** Management believes that the California authorities' decree will shave \$3.6 million off the top line and reduce share earnings \$0.07 this year. As a result, we have deducted \$0.10 a share from both our 2018 and 2019 earnings expectations.

**Nonregulated activities should do pretty well.** Through its ASUS subsidiary, American States provides water services to 11 U.S. Army bases. As more of these installations are privatized in the coming years, we think ASUS will win its fair share of competitive bids for these 50-year contracts. Responsible for 25% of first-quarter earnings, this percentage ought to

rise in the future. This is good news because profitability in this segment isn't capped, as is the case in the utility sector. **The equity's dividend yield is unattractive relative to its peer group.** Investors purchase water utility stocks for the income they generate. At the recent quote, AWR is yielding less than the Value Line median. Often with issues that have strong dividend growth potential, holders are willing to accept a lower current yield. However, we are now expecting the dividend to be raised only 6% at the next board meeting (being held in early August). Also, since our last report in April, the value of AWR has increased about 10%. By comparison, the S&P 500 Index is up approximately 2%. Moreover, considering that the Federal Reserve is expected to continue raising short-term interest rates into next year, we believe, one- and two-year U.S. Treasury notes may well draw greater interest from those seeking safe income. Thus, some investors may want to take profits now, as AWR is also rated to underperform the market averages in the year ahead.

James A. Flood July 13, 2018

**QUARTERLY REVENUES (\$ mill.)**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	100.9	114.6	133.0	110.1	458.6
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	114.3	126	105	440
2019	97.0	118	128	107	450

**EARNINGS PER SHARE<sup>A</sup>**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.32	.41	.56	.31	1.60
2016	.28	.45	.59	.30	1.62
2017	.34	.62	.57	.35	1.88
2018	.20	.50	.60	.40	1.75
2019	.30	.55	.63	.42	1.90

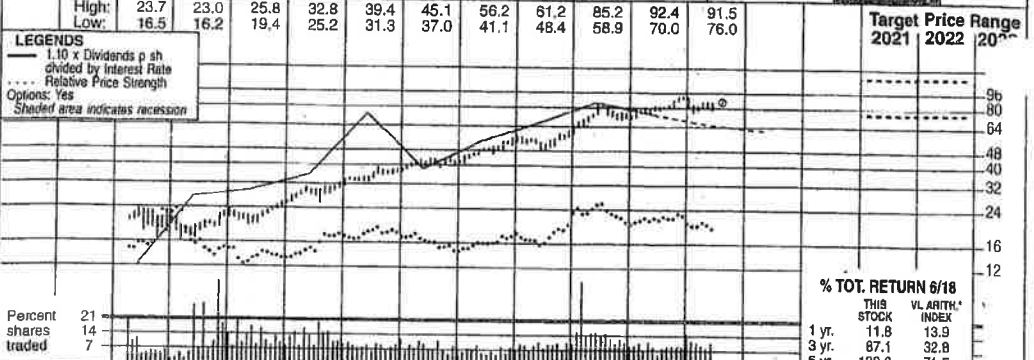
**QUARTERLY DIVIDENDS PAID<sup>Ba</sup>**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.2025	.2025	.213	.213	.83
2015	.213	.213	.224	.224	.87
2016	.224	.224	.224	.242	.91
2017	.242	.242	.255	.255	.99
2018	.255	.255			

(A) Primary earnings. Excludes nonrecurring gains/losses: '04, 7c; '05, 13c; '06, 3c; '06, (14c); '10, (23c); '11, 10c. Next earnings report due early August.  
(B) Dividends historically paid in early March, June, September, and December. <sup>a</sup> Div'd reinvestment plan available.  
(C) In millions, adjusted for split.  
(D) Includes intangibles. As of 12/31/17; \$7.9 million/\$0.22 a share.

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**TIMELINESS 3** Lowered 5/11/18  
**SAFETY 3** New 7/25/08  
**TECHNICAL 3** Lowered 7/6/18  
**BETA 65** (1.00 = Market)



**2021-23 PROJECTIONS**

Price	Gain	Ann'l Total Return
High 115	(+35%)	10%
Low 75	(-15%)	Nil

**Insider Decisions**

	S	O	N	D	J	F	M	A	M
To Buy	0	0	0	0	0	0	0	0	0
To Sell	0	0	0	0	0	0	0	0	0

**Institutional Decisions**

	3Q2017	4Q2017	1Q2018
To Buy	262	265	262
To Sell	292	237	937
Hld's (000)	160782	153130	150336

Percent shares traded: 21% (3Q2017), 14% (4Q2017), 7% (1Q2018)

Year	2002	2003	2004	2005	2006	2007	2008#	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Revenue	13.08	13.84	14.61	13.98	15.49	15.18	16.25	16.28	16.78	17.72	18.54	18.81	19.20	20.00	20.00	20.00	20.00	20.00
Cash Flow	0.65	0.47	0.87	1.10	1.25	1.53	1.72	2.11	2.06	2.39	2.64	2.38	3.30	3.70	3.50	3.50	3.50	3.50
Earnings	0.40	0.82	0.86	0.90	1.21	1.21	1.84	1.21	1.21	1.33	1.47	1.62	1.78	1.95	1.95	1.95	1.95	1.95
Capex	4.31	4.74	6.31	4.50	4.38	5.27	5.25	5.50	5.33	6.51	7.36	8.04	9.60	9.60	9.60	9.60	9.60	9.60
Book Value	23.86	28.39	25.64	22.91	23.59	24.11	26.11	26.52	27.39	28.25	29.24	30.13	31.75	33.90	33.90	33.90	33.90	33.90
Common Shs Outst'g	160.00	160.00	160.00	174.63	175.00	175.66	176.99	178.25	179.46	178.28	178.44	178.44	179.00	180.00	180.00	180.00	180.00	180.00
Avg Ann'l P/E Ratio	18.9	15.6	14.6	16.8	16.7	19.9	20.0	20.5	27.7	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8
Relative P/E Ratio	1.14	1.04	0.93	1.05	1.06	1.12	1.05	1.03	1.45	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Avg Ann'l Div'd Yield	1.9%	4.2%	3.8%	3.1%	3.4%	2.0%	2.5%	2.5%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

Year	2002	2003	2004	2005	2006	2007	2008#	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Debt	2306.9	2440.7	2710.7	2666.2	2876.9	2901.9	3011.3	3159.0	3302.0	3357.0	3440	3600	3600	3600	3600	3600	3600	3600
LT Debt	187.2	209.9	267.8	304.9	374.3	368.3	429.8	476.0	468.0	426.0	590	630	630	630	630	630	630	630
LT Debt % of Cap'l	37.4%	37.9%	40.4%	39.5%	40.7%	39.1%	39.4%	39.1%	38.2%	43.3%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%
Leases, Un capitalized	53.1%	56.9%	56.8%	55.7%	53.9%	52.4%	52.4%	53.7%	52.4%	54.7%	58.5%	57.5%	57.5%	57.5%	57.5%	57.5%	57.5%	57.5%
Pension Assets	48.9%	43.1%	43.2%	44.2%	46.1%	47.6%	47.4%	46.2%	47.5%	45.3%	43.5%	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%
Pfd Stock	8750.2	9289.0	9561.3	9580.3	9635.5	9940.7	10364	10911	10967	11875	13085	14400	14400	14400	14400	14400	14400	14400
Common Stock	9991.8	10524	11059	11021	11739	12391	12900	13933	14992	16246	17400	18800	18800	18800	18800	18800	18800	18800
Return on Total Cap'l	3.7%	3.8%	4.4%	4.8%	5.4%	5.1%	5.5%	5.7%	5.6%	4.9%	5.0%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%
Return on Shr. Equity	4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	7.9%	10.0%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%
Return on Com Equity	3.0%	1.8%	2.8%	3.5%	3.6%	4.7%	4.3%	4.7%	4.0%	2.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Retained to Com Eq	34%	65%	56%	52%	57%	40%	50%	50%	56%	68%	55%	56%	56%	56%	56%	56%	56%	56%

**CAPITAL STRUCTURE as of 3/31/18**  
 Total Debt \$807.0 mil. Due in 5 Yrs \$2192.0 mil.  
 LT Debt \$640.3 mil. LT Interest \$320.0 mil. (54% of Cap'l)

**Leases, Un capitalized:** Annual rentals \$15.0 mil.  
**Pension Assets 12/16:** \$1649.0 mil. Oblig. \$2034.0 mil.  
**Pfd Stock \$7.0 mil.** Pfd Div'd \$ .4 mil

**Common Stock 178,047,882 shs.** as of 4/26/18

**MARKET CAP: \$15.4 billion (Large Cap)**

Year	2002	2003	2004	2005	2006	2007	2008#	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Revenue	13.08	13.84	14.61	13.98	15.49	15.18	16.25	16.28	16.78	17.72	18.54	18.81	19.20	20.00	20.00	20.00	20.00	20.00
Cash Flow	0.65	0.47	0.87	1.10	1.25	1.53	1.72	2.11	2.06	2.39	2.64	2.38	3.30	3.70	3.50	3.50	3.50	3.50
Earnings	0.40	0.82	0.86	0.90	1.21	1.21	1.84	1.21	1.21	1.33	1.47	1.62	1.78	1.95	1.95	1.95	1.95	1.95
Capex	4.31	4.74	6.31	4.50	4.38	5.27	5.25	5.50	5.33	6.51	7.36	8.04	9.60	9.60	9.60	9.60	9.60	9.60
Book Value	23.86	28.39	25.64	22.91	23.59	24.11	26.11	26.52	27.39	28.25	29.24	30.13	31.75	33.90	33.90	33.90	33.90	33.90
Common Shs Outst'g	160.00	160.00	160.00	174.63	175.00	175.66	176.99	178.25	179.46	178.28	178.44	178.44	179.00	180.00	180.00	180.00	180.00	180.00
Avg Ann'l P/E Ratio	18.9	15.6	14.6	16.8	16.7	19.9	20.0	20.5	27.7	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8
Relative P/E Ratio	1.14	1.04	0.93	1.05	1.06	1.12	1.05	1.03	1.45	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Avg Ann'l Div'd Yield	1.9%	4.2%	3.8%	3.1%	3.4%	2.0%	2.5%	2.5%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

**CURRENT POSITION**

Year	2016	2017	3/31/18
Cash Assets	75.0	82.0	81.0
Accts Receivable	269.0	272.0	273.0
Other	440.0	366.0	375.0
Current Assets	784.0	720.0	729.0
Accts Payable	154.0	195.0	133.0
Debt Due	1423.0	1227.0	1604.0
Other	815.0	903.0	802.0
Current Liab.	2392.0	2325.0	2539.0

**BUSINESS:** American Water Works Company, Inc. is the largest investor-owned water and wastewater utility in the U.S., providing services to over 15 million people in 46 states and Canada. (Regulated presence in 16 states.) Nonregulated business assists municipalities and military bases with the maintenance and upkeep as well. Regulated operations made up 88% of 2017 revenues.

New Jersey is its largest market accounting for 25% of regulated revenues. Has 6,900 employees. The Vanguard Gp, owns 10.4% of outstanding shares; BlackRock, Inc., 7.4%; officers & directors, less than 1.0%. (3/18 Proxy). President & CEO: Susan N. Story. Chair: George MacKenzie. Address: 1025 Laurel Oak Road, Voorhees, NJ 08043. Tel.: 856-346-8200. Internet: www.amwater.com.

**ANNUAL RATES**

Rate	Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17
Revenues	3.0%	3.5%	4.0%
"Cash Flow"	50.0%	6.0%	7.0%
Earnings	--	7.5%	10.0%
Dividends	--	8.5%	10.0%
Book Value	1.0%	4.0%	6.0%

**American Water Works has hiked the quarterly dividend by a generous amount.** Since our last report in April, the board raised the payout by \$0.04 a share to \$0.455 a share. This was at the higher end of the 7%-10% target range. The growth rate was also well above the industry average.

**QUARTERLY REVENUES (\$ mil.)**

Year	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	698.0	782.0	896.0	783.0	3159.0
2016	743.0	827.0	930.0	802.0	3302.0
2017	756.0	844.0	936.0	821.0	3357.0
2018	761.0	859	975	845	3440
2019	780	890	1050	880	3600

**The method of the company's success is not a mystery.** American Water has been following a simple formula for some time now. By continually purchasing smaller water districts, it can meaningfully reduce operating expenses due to economies of scale. Making this easier is the current state of the water sector in the U.S. Most districts are small and municipally run. Many local governments do not have the financial wherewithal to maintain and replace aging pipelines and waste facilities. In addition, because of the many redundancies in the water operations, American Water can really cut costs and raise operating margins.

**EARNINGS PER SHARE A**

Year	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.44	.68	.96	.56	2.64
2016	.46	.77	.83	.57	2.62
2017	.52	.73	1.12	.01	2.38
2018	.59	.81	1.20	.70	3.30
2019	.60	.89	1.27	.75	3.50

**Bottom-line prospects are good for both this year and next.** The company's operating strategy (with a few exceptions mostly resulting from unusual expenses), has enabled the utility to be more profitable than the rest of the group. This year, we expect share net to recover to \$3.30 and rise another 6% in 2019, to \$3.50. The capital budget remains large. The utility will most likely spend \$1.7 billion annually through early next decade on improving its water assets. External debt will likely aid in funding a decent portion of the expenditures. Still, the company's balance sheet should not deteriorate much. Certain investors may find these shares of interest. True, the equity is only expected to keep pace with the market in the year ahead. But, that's not too bad considering the Water Utility Industry ranks among the lowest of all the groups followed by Value Line. Also, investors often have to forfeit a substantial amount of current income when purchasing a stock with healthy dividend growth prospects. In this case, AWK's yield is close to the industry norm. And though total return potential out to 2021-2023 is subpar, that's the case for the entire group. Thus, AWK is a viable option for those investors who must have exposure to the water sector.

**QUARTERLY DIVIDENDS PAID B**

Year	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.28	.31	.31	.31	1.21
2015	.31	.34	.34	.34	1.33
2016	.34	.375	.375	.375	1.47
2017	.375	.415	.415	.415	1.62
2018	.415	.455			

**James A. Flood** July 13, 2018

(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, except for (\$0.65) loss in '17 due to change in tax law. Next earnings report due mid-August. Quarterly earnings do not sum in '16 due to rounding. (B) Dividends paid in March, June, September, and December. (C) Div. reinvestment available. (D) In millions. (E) Pro forma numbers for '06 & '07.

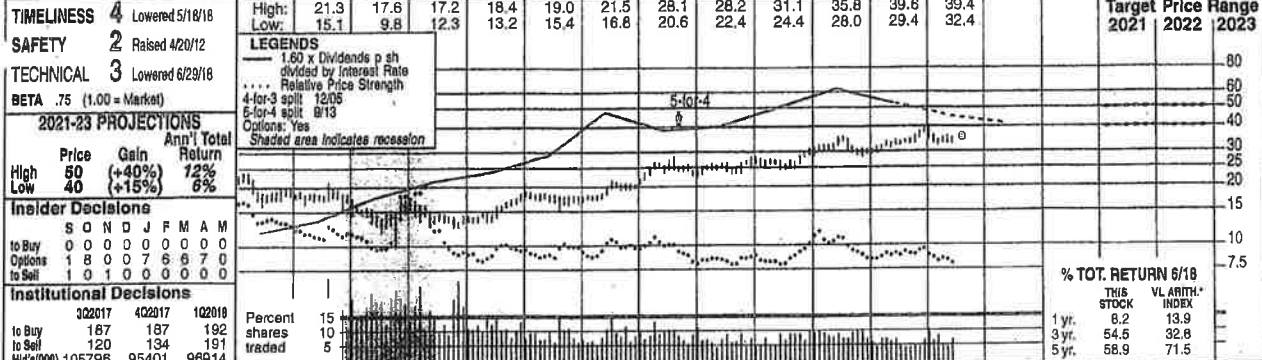
**Company's Financial Strength**  
 Stock Price Stability B+  
 Price Growth Persistence 100  
 Earnings Predictability 85  
 90

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# AQUA AMERICA NYSE-WTR

RECENT PRICE **35.44** P/E RATIO **25.3** (Trailing: 26.1 Median: 22.0) RELATIVE P/E RATIO **1.37** DIV YLD **2.5%** VALUE LINE **1786**



2021-23 PROJECTIONS

Year	Price	Gain	Ann'l Total Return
2021	50	+40%	12%
2022	40	+15%	6%

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenues per sh	2.28	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	4.82	4.58	4.75	5.00	5.00	5.00	5.00	5.00
"Cash Flow" per sh	.76	.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	2.20	2.40	2.40	2.40	2.40	2.40
Earnings per sh	.43	.46	.51	.57	.56	.57	.58	.62	.72	.83	.87	1.16	1.20	1.14	1.32	1.35	1.40	1.50	1.50	1.50	1.50	1.50
Div'd Decl'd per sh	.26	.28	.29	.32	.35	.38	.41	.44	.47	.50	.54	.58	.63	.69	.74	.79	.85	.91	.91	.91	.91	.91
Cap'l Spending per sh	.96	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	2.65	2.65	2.65	2.65	2.65	2.65
Book Value per sh	3.49	4.27	4.71	5.04	5.57	5.85	6.26	6.60	6.81	7.21	7.90	8.63	9.27	9.78	10.43	11.02	11.00	12.00	12.00	12.00	12.00	12.00
Common Shs Outst'g	141.49	154.31	158.97	161.21	165.41	166.75	169.21	170.81	172.46	173.80	175.43	177.93	178.59	176.54	177.39	177.71	178.25	178.75	178.75	178.75	178.75	178.75
Avg Ann'l P/E Ratio	23.6	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	23.9	24.7	23.9	24.7	23.9	24.7
Relative P/E Ratio	1.29	1.40	1.33	1.69	1.87	1.70	1.50	1.54	1.34	1.34	1.39	1.19	1.09	1.18	1.25	1.24	1.25	1.24	1.25	1.24	1.25	1.24
Avg Ann'l Div'd Yield	2.5%	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%	2.3%	2.4%	2.3%	2.4%	2.3%	2.4%

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenues (\$mil)	627.0	670.5	726.1	712.0	757.8	768.6	779.9	814.2	819.9	809.5	850	890	890	890	890	890	890	890	890	890	890	890
Net Profit (\$mil)	97.9	104.4	124.0	144.8	153.1	205.0	213.9	201.8	234.2	239.7	250	270	270	270	270	270	270	270	270	270	270	270
Income Tax Rate	39.7%	39.4%	39.2%	32.9%	32.9%	39.0%	10.0%	10.5%	6.9%	8.2%	6.6%	9.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
AFUDC % to Net Profit	1.1%	2.4%	3.1%	3.8%	6.3%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Capital (\$mil)	2306.6	2495.5	2706.2	2646.8	2929.7	3003.6	3216.0	3469.5	3587.7	3965.4	4250	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
Net Plant (\$mil)	2997.4	3227.3	3469.3	3612.9	3936.2	4167.3	4402.0	4688.9	5001.6	5399.9	5775	6070	6070	6070	6070	6070	6070	6070	6070	6070	6070	6070
Return on Total Cap'l	5.7%	5.6%	5.9%	6.9%	6.6%	8.0%	7.8%	6.9%	7.6%	7.1%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
Return on Shr. Equity	9.3%	9.4%	10.6%	11.6%	11.0%	13.4%	12.9%	11.7%	12.7%	12.2%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Return on Com Equity	9.3%	9.4%	10.6%	11.6%	11.0%	13.4%	12.9%	11.7%	12.7%	12.2%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Retained to Com Eq	2.8%	2.7%	3.7%	4.6%	4.3%	6.7%	6.1%	4.7%	5.6%	5.1%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
All Div'ds to Net Prof	70%	72%	65%	60%	61%	50%	52%	60%	56%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
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AFUDC % to Net Profit	1.1%	2.4%	3.1%	3.8%	6.3%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenues (\$mil)	627.0	670.5	726.1	712.0	757.8	768.6	779.9	814.2	819.9	809.5	850	890	890	890	890	890	890	890	890	890	890	890
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Income Tax Rate	39.7%	39.4%	39.2%	32.9%	32.9%	39.0%	10.0%	10.5%	6.9%	8.2%	6.6%	9.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
AFUDC % to Net Profit	1.1%	2.4%	3.1%	3.8%	6.3%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%

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Income Tax Rate	39.7%	39.4%	39.2%	32.9%	32.9%	39.0%	10.0%	10.5%	6.9%	8.2%	6.6%	9.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
AFUDC % to Net Profit	1.1%	2.4%	3.1%	3.8%	6.3%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
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AFUDC % to Net Profit	1.1%	2.4%	3.1%	3.8%	6.3%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
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Income Tax Rate	39.7%	39.4%	39.2%	32.9%	32.9%	39.0%	10.0%	10.5%	6.9%	8.2%	6.6%	9.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
AFUDC % to Net Profit	1.1%	2.4%	3.1%	3.8%	6.3%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	20
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# CALIFORNIA WATER NYSE:CWT

RECENT PRICE **39.90** P/E RATIO **27.5** (Trailing: 30.0 Median: 20.0) RELATIVE P/E RATIO **1.49** DIV'D YLD **1.9%** VALUE LINE **1787**

TIMELINESS <b>4</b> Lowered 3/9/18	High: 22.7 23.3 24.1 19.8 19.4 19.3 23.4 26.4 26.0 36.8 46.2 45.8	Low: 17.1 13.8 16.7 16.9 16.7 16.8 16.4 20.3 19.5 22.5 32.4 35.3	Target Price Range 2021 2022 2023
SAFETY <b>3</b> Lowered 7/27/07	LEGENDS 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		
TECHNICAL <b>3</b> Lowered 6/29/16	2021-23 PROJECTIONS Ann'l Total Price Gain Return High 50 (+25%) 8% Low 35 (-10%) -1%		
BETA .80 (1.00 = Market)	Insider Decisions S O N D J F M A M to Buy 1 1 1 1 1 1 1 1 0 Options 0 0 1 0 0 0 19 0 0 to Sell 1 0 0 0 0 2 0 0 0		
	Institutional Decisions 3Q2017 4Q2017 1Q2018 to Buy 80 74 114 to Sell 71 70 85 Net Buy 9 4 29		
	Percent shares traded 18 6		
	% TOT. RETURN 6/18 THIS STOCK VL ARITH INDEX 1 yr. 7.8 13.9 3 yr. 82.5 32.8 5 yr. 126.2 71.5		

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	© VALUE LINE PUB. LLC	21-23
8.67	8.18	8.59	8.72	8.10	8.88	9.90	10.82	11.05	12.00	13.34	12.23	12.60	12.29	12.70	13.89	14.10	14.40	Revenues per sh	15.20
1.32	1.26	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	2.80	3.00	"Cash Flow" per sh	3.30
.63	.61	.73	.74	.67	.75	.95	.98	.91	.86	1.02	1.02	1.19	.94	1.01	1.40	1.45	1.65	Earnings per sh A	1.90
.56	.56	.57	.57	.58	.58	.59	.59	.60	.82	.83	.64	.65	.67	.69	.72	.75	.78	Div'd Decl'd per sh B	1.02
2.91	2.19	1.87	2.01	2.14	1.84	2.41	2.66	2.97	2.89	3.04	2.58	2.76	3.69	4.77	5.40	4.75	3.95	Cap'l Spending per sh	3.65
8.56	7.22	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	14.45	15.00	Book Value per sh C	16.70
30.36	33.86	36.73	36.78	41.31	41.33	41.45	41.53	41.67	41.82	41.98	47.74	47.81	47.88	47.97	48.01	48.50	49.00	Common Shs Outst'g D	50.00
19.8	22.1	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	26.9	26.9	Bold figures are Value Line estimates	23.0
1.08	1.26	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	1.34	1.34	1.34	Avg Ann'l P/E Ratio	1.25
4.5%	4.2%	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%	1.9%	1.9%	Avg Ann'l Div'd Yield	2.4%

<b>CAPITAL STRUCTURE as of 3/31/18</b>	410.3	449.4	460.4	501.8	560.0	584.1	597.5	588.4	609.4	666.9	685	705	705	705	705	705	705	Revenues (\$mill) E	760
Total Debt \$796.7 mill. Due in 5 Yrs \$281.0 mill.	39.8	40.8	37.7	36.1	42.6	47.3	56.7	45.0	48.7	67.2	80.0	80.0	80.0	80.0	80.0	80.0	80.0	Net Profit (\$mill)	95.0
LT Debt \$515.7 mill. LT interest \$36.0 mill. (43% of Cap'l)	37.7%	40.3%	39.5%	40.5%	37.5%	30.3%	33.0%	36.0%	35.5%	30.1%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	Income Tax Rate	21.0%
	8.6%	7.6%	4.2%	7.6%	8.0%	4.3%	2.7%	4.3%	6.1%	3.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	AFUDC % to Net Profit	5.0%

<b>Pension Assets-12/17</b> \$460.9 mill.	41.6%	47.1%	52.4%	51.7%	47.8%	41.6%	40.1%	44.4%	44.6%	42.7%	43.0%	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%	Long-Term Debt Ratio	42.0%
<b>Pfd Stock</b> None	58.4%	52.9%	47.6%	48.3%	52.2%	58.4%	59.9%	55.6%	55.4%	57.3%	57.0%	57.5%	57.5%	57.5%	57.5%	57.5%	57.5%	Common Equity Ratio	58.0%
<b>Common Stock</b> 48,074,000 shs.	690.4	794.9	914.7	931.5	908.2	1024.9	1045.9	1154.4	1191.2	1209.3	1240	1280	1280	1280	1280	1280	1280	Total Capital (\$mill)	1435
	1112.4	1198.1	1294.3	1361.1	1457.1	1515.8	1590.4	1701.8	1859.3	2048.0	2075	2100	2100	2100	2100	2100	2100	Net Plant (\$mill)	2200

<b>MARKET CAP: \$1.9 billion (Mid Cap)</b>	7.1%	6.5%	5.5%	5.5%	6.3%	6.0%	6.3%	5.2%	5.5%	7.1%	7.0%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	Return on Total Cap'l	7.5%
<b>CURRENT POSITION</b> 2016 2017 3/31/18 (\$MILL.)	9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.1%	7.0%	7.4%	9.7%	10.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	Return on Shr. Equity	11.5%
Cash Assets 25.5 94.8 34.7	9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.1%	7.0%	7.4%	9.7%	10.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	Return on Com Equity	11.5%
Other 116.6 133.1 131.1	3.8%	3.6%	3.0%	2.3%	3.4%	3.4%	4.1%	2.0%	2.4%	4.7%	5.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	Returned to Com Eq	5.5%
Current Assets 142.1 227.9 165.8	61%	60%	66%	71%	62%	56%	55%	71%	68%	51%	52%	47%	47%	47%	47%	47%	47%	All Div'ds to Net Prof	54
Accts Payable 77.8 94.0 73.6	<b>BUSINESS:</b> California Water Service Group provides regulated and nonregulated water service to 484,900 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. Acquired Rio Grande Corp., West Hawaii Utilities (9/08). Revenue breakdown, '17: residential, 72%; business, 19%; industrial, 4%; public authorities, 4%; other 1%. Off. and dir. own 1% of common stock (4/18 proxy). Has 1,163 employees. Pres. and CEO: Martin A. Kropelnicki Inc.: DE. Addr.: 1720 North First St., San Jose, CA 95112-4698. Tel.: 408-367-8200. Internet: www.calwatergroup.com.																		

<b>ANNUAL RATES</b> Past 10 Yrs. Past 5 Yrs. Est'd '15-'17 to '21-'23	4.0%	1.5%	2.5%	4.5%	3.5%	4.5%	4.5%	4.0%	9.5%	2.0%	2.5%	6.5%	4.5%	5.0%	3.0%
Revenues	4.0%	1.5%	2.5%	4.5%	3.5%	4.5%	4.5%	4.0%	9.5%	2.0%	2.5%	6.5%	4.5%	5.0%	3.0%
"Cash Flow"	4.5%	3.5%	4.5%	4.5%	3.5%	4.5%	4.5%	4.0%	9.5%	2.0%	2.5%	6.5%	4.5%	5.0%	3.0%
Earnings	4.5%	3.5%	4.5%	4.5%	3.5%	4.5%	4.5%	4.0%	9.5%	2.0%	2.5%	6.5%	4.5%	5.0%	3.0%
Dividends	2.0%	2.5%	6.5%	4.5%	5.0%	3.0%	4.5%	5.0%	3.0%	4.5%	5.0%	3.0%	4.5%	5.0%	3.0%
Book Value	4.5%	5.0%	3.0%	4.5%	5.0%	3.0%	4.5%	5.0%	3.0%	4.5%	5.0%	3.0%	4.5%	5.0%	3.0%

<b>QUARTERLY REVENUES (\$ mill.)</b>	Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	122.0	144.4	183.5	138.5	588.4	588.4
2016	121.7	152.4	184.3	151.0	609.4	609.4
2017	122.1	171.1	211.7	162.0	666.9	666.9
2018	132.2	173	215	164.8	685	685
2019	135	180	220	170	705	705

<b>EARNINGS PER SHARE A</b>	Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.03	.21	.52	.18	.94	.94
2016	.02	.24	.48	.31	1.01	1.01
2017	.02	.39	.70	.29	1.40	1.40
2018	.05	.42	.73	.35	1.45	1.45
2019	.11	.45	.74	.35	1.65	1.65

<b>QUARTERLY DIVIDENDS PAID B</b>	Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.1625	.1625	.1625	.1625	.65	.65
2015	.1675	.1675	.1675	.1675	.67	.67
2016	.1725	.1725	.1725	.1725	.69	.69
2017	.18	.18	.18	.18	.72	.72
2018	.1875	.1875	.1875	.1875	.75	.75

**California Water Service Group's profits should rebound in the second quarter.** The regulated and nonregulated water provider posted a net loss of \$0.05 in the March interim. Several factors, including higher wages and benefit costs, general operating expenses (water production), as well as an unforeseen water main break in the San Francisco area weighed on results. Nevertheless, we expect that earnings recovered nicely in the recently ended second quarter, to \$0.42 a share. That said, the miss has spurred us to shave a dime from our current-year bottom-line estimate, to \$1.45 a share.

**Revenues are still on track to rise.** Indeed, recent rate increases for customers and recoverable production costs played a role in the first quarter's 8% year-over-year advance. This was able to offset a \$1.2 million revenue reduction associated with cost of capital adjustment. On balance, our call for modest top-line improvement in this year and next remains unaltered.

**The company made an attempt to acquire SJW Group.** Subsequent to the merger announcement of SJW Group and Connecticut Water, CWT stepped in with an unsolicited all-cash tender offer for the former, worth \$68.25 a share. However, the bid was immediately rejected, despite the lofty premium at the time of the proposal. Connecticut Water's go-shop period has come to an end, and both sides have reiterated their desires for a deal, thus shutting the door on California's efforts. Looking forward, we do not think there is any acquisition activity on the horizon. But abundant capital investments are likely on tap over the long haul. California ought to stick to its plan to heavily invest in its aging infrastructure. Old water mains and pipes, as well as inefficient treatment plants, need to be brought up to speed. This should help reduce operating costs and prevent future uninsured losses from water main breaks.

**This equity lacks investment appeal at this juncture.** CWT shares are pegged to underperform the year-ahead broader market (Timeliness: 4). Moreover, total return potential over the three- to five-year stretch is nothing to write home about at the recent quotation.

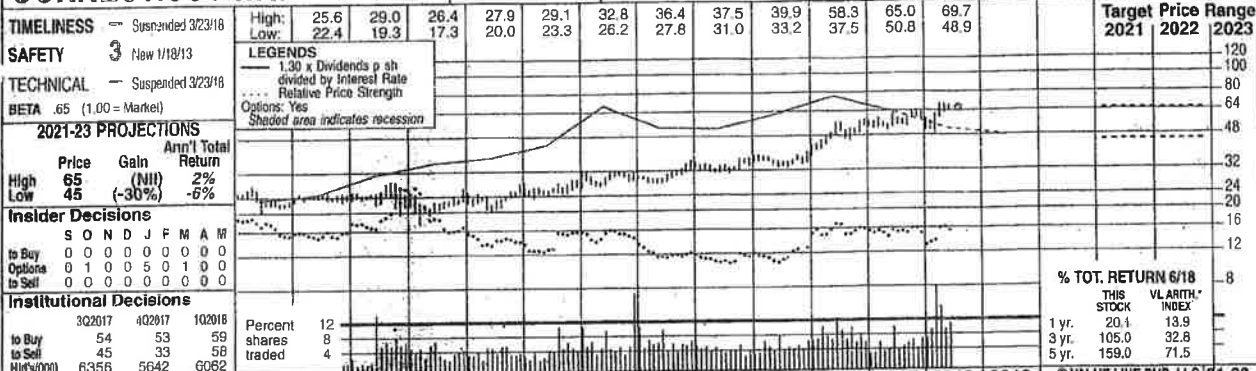
Nicholas P. Patrikis July 13, 2018

(A) Basic EPS. Excl. nonrecurring gain (loss): '02, 4¢; '11, 4¢. Next earnings report due late August.	May, Aug., and Nov. = Div'd reinvestment plan available.	(D) In millions, adjusted for splits.	Company's Financial Strength	B++
(B) Dividends historically paid in late Feb.,	(C) Incl. intangible assets. In '17: \$24.8 mill., \$0.52/sh.	(E) Excludes non-reg. rev.	Stock's Price Stability	75
			Price Growth Persistence	35
			Earnings Predictability	65

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# CONNECTICUT WATER NDQ-CTWS

RECENT PRICE **66.20** P/E RATIO **35.8** (Trailing: 39.6, Median: 20.0) RELATIVE P/E RATIO **1.95** DIV YLD **1.9%** VALUE LINE **1788**



Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenues per sh	5.77	5.91	6.04	5.81	5.68	7.05	7.24	6.93	7.66	7.93	9.47	8.29	8.45	8.58	8.77	8.87	9.45	9.95	9.95	9.95	12.00	12.00
"Cash Flow" per sh	1.78	1.89	1.91	1.62	1.52	1.90	1.95	1.93	2.04	2.11	2.64	2.63	2.97	3.18	3.31	3.39	3.35	3.85	3.85	3.85	4.50	4.50
Earnings per sh <sup>A</sup>	1.12	1.15	1.16	.88	.81	1.05	1.11	1.19	1.13	1.13	1.53	1.66	1.92	2.04	2.08	2.13	1.85	2.40	2.40	2.40	2.90	2.90
Div'd Decl'd per sh <sup>B</sup>	.81	.83	.84	.85	.86	.87	.88	.90	.92	.94	.96	.98	1.01	1.05	1.12	1.18	1.24	1.30	1.30	1.30	1.52	1.52
Cap'l Spending per sh	1.98	1.49	1.58	1.96	1.96	2.24	2.44	3.28	3.06	2.61	2.79	3.02	4.11	4.29	5.93	4.39	4.45	4.00	4.00	4.00	3.35	3.35
Book Value per sh <sup>D</sup>	10.06	10.46	10.94	11.52	11.60	11.95	12.23	12.67	13.05	13.50	20.95	17.92	18.83	20.01	20.98	24.34	24.70	25.70	25.70	25.70	26.80	26.80
Common Shs Outst'g <sup>C</sup>	7.94	7.97	8.04	8.17	8.27	8.38	8.46	8.57	8.58	8.76	8.85	11.04	11.12	11.19	11.25	12.07	12.15	12.25	12.25	12.25	12.50	12.50
Avg Ann'l P/E Ratio	24.3	23.5	22.9	28.6	29.0	23.0	22.2	18.4	20.7	23.0	19.4	18.4	17.5	17.6	23.3	26.5	26.5	26.5	26.5	26.5	19.0	19.0
Relative P/E Ratio	1.33	1.34	1.21	1.52	1.57	1.22	1.34	1.23	1.32	1.44	1.23	1.03	.92	.89	1.22	1.33	1.33	1.33	1.33	1.33	1.05	1.05
Avg Ann'l Div'd Yield	3.0%	3.0%	3.1%	3.4%	3.6%	3.6%	3.6%	4.1%	3.9%	3.6%	3.2%	3.2%	3.0%	2.9%	2.3%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenues (\$mill)	61.3	59.4	66.4	68.4	83.8	91.5	94.0	96.0	98.7	107.1	115	122	122	122	122	122	122	122	122	122	122	122
Net Profit (\$mill)	9.4	10.2	8.8	9.9	13.6	18.3	21.3	22.8	23.4	25.1	25.1	22.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5
Income Tax Rate	27.2%	19.5%	35.2%	41.3%	32.0%	28.0%	14.4%	3.5%	9.9%	19.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%
AFUDC % to Net Profit	1.7%	--	--	--	1.7%	2.0%	2.4%	2.3%	5.1%	3.1%	3.0%	3.0%	46.5%	45.5%	45.5%	45.5%	45.5%	45.5%	45.5%	45.5%	45.5%	45.5%
Long-Term Debt Ratio	46.9%	50.6%	49.5%	53.2%	49.0%	46.9%	45.7%	44.1%	45.4%	46.3%	46.5%	45.5%	45.5%	45.5%	45.5%	45.5%	45.5%	45.5%	45.5%	45.5%	45.5%	45.5%
Common Equity Ratio	52.7%	49.1%	50.2%	46.5%	50.8%	52.9%	54.1%	55.7%	54.4%	53.6%	53.5%	54.5%	54.5%	54.5%	54.5%	54.5%	54.5%	54.5%	54.5%	54.5%	54.5%	54.5%
Total Capital (\$mill)	196.5	221.3	225.6	254.2	364.6	373.6	386.8	402.4	433.8	547.8	560	580	580	580	580	580	580	580	580	580	580	580
Net Plant (\$mill)	302.3	325.2	344.2	362.4	447.9	471.9	506.9	546.3	601.4	697.7	700	715	715	715	715	715	715	715	715	715	715	715
Return on Total Cap'l	5.9%	5.5%	5.4%	4.9%	4.8%	5.9%	6.4%	6.5%	6.3%	5.4%	4.5%	6.0%	6.5%	6.3%	5.4%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Return on Shr. Equity	9.0%	9.3%	8.6%	8.3%	7.3%	9.2%	10.1%	10.1%	9.9%	8.5%	7.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%
Return on Com Equity	9.1%	9.4%	8.7%	8.3%	7.3%	9.2%	10.2%	10.2%	10.1%	9.9%	8.3%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%
Retained to Com Eq	1.9%	2.3%	1.6%	1.4%	2.8%	3.8%	4.8%	4.9%	4.6%	3.5%	2.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
All Div'ds to Net Prof	79%	76%	81%	83%	82%	59%	53%	52%	54%	55%	67%	54%	54%	54%	54%	54%	54%	54%	54%	54%	54%	54%

**CAPITAL STRUCTURE as of 3/31/18**  
 Total Debt \$258.4 mill. Due in 5 Yrs \$6.2 mill.  
 LT Debt \$252.2 mill. LT Interest \$9.0 mill. (46% of Cap'l)  
**Leases, Uncapitalized:** Annual rentals \$3 mill.  
**Pension Assets-12/17** \$73.1 mill. Oblig. \$88.6 mill.  
**Pfd Stock** \$0.8 mill. Pfd Divd NMF  
**Common Stock** 12,089,125 shs.

**MARKET CAP: \$800 million (Small Cap)**

Year	2016	2017	3/31/18
CURRENT POSITION (\$MILL)			
Cash Assets	1.6	3.6	4.0
Accounts Receivable	13.0	15.0	12.8
Other	14.8	17.1	19.4
Current Assets	29.4	35.7	36.2
Accts Payable	13.1	11.3	6.9
Debt Due	4.9	6.2	6.2
Other	37.1	24.0	34.0
Current Liab.	55.1	41.5	47.1

**ANNUAL RATES of change (per sh)**

Year	Past 10 Yrs	Past 5 Yrs	Est'd '15-'17
Revenues	3.5%	1.0%	6.5%
"Cash Flow"	7.0%	8.0%	5.5%
Earnings	8.5%	10.5%	5.5%
Dividends	2.5%	3.5%	5.5%
Book Value	6.5%	6.5%	3.5%

**QUARTERLY REVENUES (\$ mill.)**

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	20.0	26.6	28.4	21.0	96.0
2016	21.6	26.1	29.5	21.5	98.7
2017	22.5	27.9	31.8	24.9	107.1
2018	24.9	30.0	33.5	26.6	115
2019	27.0	32.0	35.0	28.0	122

**EARNINGS PER SHARE<sup>A</sup>**

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.28	.77	.79	.20	2.04
2016	.28	.89	.84	.07	2.08
2017	.36	.73	.90	.14	2.13
2018	d.10	.77	.93	.25	1.85
2019	.38	.80	.95	.27	2.40

**QUARTERLY DIVIDENDS PAID<sup>B</sup>**

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.2475	.2475	.2575	.2575	1.01
2015	.2575	.2575	.2675	.2675	1.05
2016	.2675	.2825	.2825	.2825	1.12
2017	.2825	.2975	.2975	.2975	1.18
2018	.2975	.3125			

**BUSINESS:** Connecticut Water Service, Inc. is a non-operating holding company, whose income is derived from earnings of its wholly-owned subsidiary companies (regulated water utilities). In 2017, 85% of net income was derived from these activities. Provides water services to 450,000 people in 80 municipalities throughout Connecticut and Maine. Acquired The Maine Water Company, January, 2012; Biddeford and Saco Water, December, 2012; Heritage Village, February, 2017, Inc. Conn. Has 294 employees. Chairman/President/Chief Executive Officer: Eric W. Thornburg. Officers and directors own 1.2% of the common stock; BlackRock, Inc., 7.0% (4/18 proxy). Address: 93 West Main Street, Clinton, CT 06413. Telephone: (860) 669-8636. Internet: www.ctwater.com.

**Connecticut Water's all-stock merger with SJW Group, announced early this year, appears to be back on track.** There has been a bit of noise surrounding the transaction, specifically an amended 45-day go-shop provision in which Connecticut could have solicited offers from other parties. This period has since ended, and no proposals of interest have been officially received. However, prior to the above-mentioned go-shop process, news broke that California Water Service made a sizable cash offer for SJW Group (\$68.25 per share), which subsequently sent SJW stock markedly higher. On a similar note, Eversource Energy attempted to enter the race with a bid (which was promptly rejected) for Connecticut Water. To reiterate the deal points, CTWS shareholders would receive 1.1375 shares of SJW Group common stock (merger is currently valued at \$77.20) for each share of CTWS stock held. Overall, the board of directors from both entities are now fully behind the merger, and are presently moving forward to secure shareholder and regulatory approval. The transaction is expected to close by the end of 2018.

**The deal with SJW ought to create significant value on several fronts.** The combined company would be the third-largest investor-owned water utility in the U.S., spanning Connecticut, Texas, Maine, and California. Indeed, the total geographic customer base would expand noticeably, with operational efficiency and customer service likely to improve from scale. Moreover, capital investments are poised to continue over the long haul, as both companies already have strategic plans in motion to boost spending on water mains, treatment plants, and other aging infrastructure. Connecticut is on track to spend nearly \$70 million this year on upgrades. **At the recent quotation, there is still some near-term upside to Connecticut Water's stock price.** This issue is unranked for Timeliness due to the pending merger but, based on SJW's recent price, shares of CTWS are trading at roughly a 15% discount to the deal's valuation. We think it would be wise for investors, both short and long term, to hold on to their shares, for now. *Nicholas P. Patrikis July 13, 2018*

(A) Diluted earnings. Next earnings report due late August.	vestment plan available.	Company's Financial Strength	B+
(B) Dividends historically paid in mid-March, June, September, and December. <sup>a</sup> Div'd rein-	(C) In millions	Stock's Price Stability	85
(D) Includes intangibles. In 2017: \$67.0 million/\$5.55 a share.		Price Growth Persistence	50
		Earnings Predictability	85

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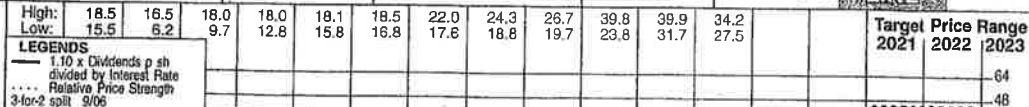




# YORK WATER

NDG-YORV RECENT PRICE **32.75** P/E RATIO **31.2** (Trailing: 32.4 Median: 24.0) RELATIVE P/E RATIO **1.70** DIV'D YLD **2.0%** VALUE LINE **1792**

**TIMELINESS** 5 Lowered 6/8/16  
**SAFETY** 3 Lowered 7/17/15  
**TECHNICAL** 4 Lowered 8/29/18  
 BETA .80 (1.00 = Market)



**2021-23 PROJECTIONS**

Price	Gain	Ann'l Total Return
High 45	(+35%)	10%
Low 30	(-10%)	7%

**Insider Decisions**

	S	O	N	D	J	F	M	A	M
To Buy	213	2	215	2	214	2			
Options	0	0	0	0	0	0	0	0	15
To Sell	0	0	0	0	0	0	0	0	0

**Institutional Decisions**

	3Q2017	4Q2017	1Q2018
To Buy	40	29	38
To Sell	30	35	40
Hold's(000)	5125	4588	4449

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
2.05	2.17	2.18	2.58	2.56	2.79	2.89	2.95	3.07	3.18	3.21	3.27	3.58	3.68	3.70	3.77	<b>3.85</b>	<b>4.00</b>				
.57	.65	.65	.79	.77	.86	.88	.95	1.07	1.09	1.12	1.19	1.36	1.45	1.42	1.53	<b>1.65</b>	<b>1.75</b>				
.40	.47	.49	.56	.58	.57	.64	.71	.71	.72	.75	.89	.97	.92	1.01	<b>1.05</b>	<b>1.15</b>					
.35	.37	.39	.42	.45	.48	.49	.51	.52	.53	.54	.55	.57	.60	.63	.65	<b>.70</b>	<b>.75</b>				
.66	1.07	2.50	1.69	1.85	1.69	2.17	1.18	.83	.74	.94	.76	1.10	1.11	1.03	1.95	<b>1.50</b>	<b>1.25</b>				
3.90	4.06	4.65	4.85	5.84	5.97	6.14	6.92	7.19	7.45	7.73	7.98	8.15	8.51	8.88	9.28	<b>9.35</b>	<b>10.55</b>				
9.55	9.63	10.33	10.40	11.20	11.27	11.37	12.56	12.69	12.79	12.92	12.98	12.83	12.81	12.85	12.87	<b>12.80</b>	<b>12.75</b>				
26.9	24.5	25.7	26.3	31.2	30.3	24.6	21.9	20.7	23.9	24.4	26.3	23.1	23.5	32.8	34.6						
1.47	1.40	1.36	1.40	1.68	1.61	1.48	1.46	1.32	1.50	1.55	1.48	1.22	1.18	1.72	1.72						
3.3%	3.2%	3.1%	2.9%	2.5%	2.8%	3.5%	3.6%	3.5%	3.1%	3.1%	2.8%	2.8%	2.6%	2.1%	1.9%						

**CAPITAL STRUCTURE as of 3/31/18**  
 Total Debt \$90.0 mill. Due in 5 Yrs \$42.5 mill.  
 LT Debt \$78.0 mill. LT Interest \$5.3 mill.

**Pension Assets** 12/17 \$41.4 mill.  
 Oblig. \$44.6 mill.

**Pfd Stock** None  
**Common Stock** 12,992,798 shs.

**MARKET CAP: \$425 million (Small Cap)**

**CURRENT POSITION (\$MILL.)**

	2016	2017	3/31/18
Cash Assets	4.2	--	--
Accounts Receivable	4.3	4.5	4.2
Inventory (Avg. Cost)	7	.9	.9
Other	3.4	3.2	3.3
Current Assets	12.6	8.6	8.4
Accts Payable	3.7	3.1	3.2
Debt Due	--	--	12.0
Other	4.5	6.0	5.6
Current Liab.	8.2	9.1	20.8

**ANNUAL RATES**

	Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17 to '21-'23
Revenues	3.5%	3.5%	6.0%
"Cash Flow"	6.0%	6.0%	7.5%
Earnings	5.5%	6.5%	9.0%
Dividends	3.5%	3.5%	8.0%
Book Value	5.0%	3.5%	5.0%

**QUARTERLY REVENUES (\$ mill.)**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	11.2	11.9	12.4	11.6	47.1
2016	11.3	11.8	12.6	11.9	47.6
2017	11.3	12.3	12.7	12.3	48.6
2018	11.6	12.5	12.9	12.5	49.5
2019	12.0	12.8	13.3	12.9	51.0

**EARNINGS PER SHARE A**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.20	.22	.28	.27	.97
2016	.19	.23	.27	.23	.92
2017	.20	.23	.31	.27	1.01
2018	.20	.25	.32	.28	1.05
2019	.24	.27	.33	.31	1.15

**QUARTERLY DIVIDENDS PAID B**

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.1431	.1431	.1431	.1431	.572
2015	.1495	.1495	.1495	.1555	.604
2016	.1555	.1555	.1555	.1602	.627
2017	.1602	.1602	.1602	.1666	.647
2018	.1666	.1666			

**BUSINESS:** The York Water Company is the oldest investor-owned regulated water utility in the United States. It has operated continuously since 1816. As of December 31, 2017, the company's average daily availability was 35.4 million gallons and its service territory had an estimated population of 198,000. Has more than 69,000 customers. Residential customers accounted for 64% of 2017 revenues;

**York Water's first-quarter bottom line was unchanged compared to the previous-year figure.** The regulated utility posted earnings of \$0.20 a share for the March period, missing our mark by \$0.02. Nevertheless, we are retaining our current-year profit forecast of \$1.05 per share, as we think a lower effective tax rate, combined with higher asset improvement deductions, should help offset rising expenses in the back half of 2018. Meantime, first-quarter revenues of \$11.6 million were fractionally above our call, though the beat was not significant enough to spur an upward revision. As we expected, the company has inquired about a rate increase. In May, York asked the Pennsylvania Public Utility Commission for more than \$6 million (annual revenues) in customer rate hikes to recover replacement costs associated with water pipeline improvements, other infrastructure upgrades, as well as personnel and operational cost increases. York hopes to recover expenses incurred since its last rate case filing in 2013, and help balance future capital investments. A time frame for the decision has not yet been es-

ablished. Commercial and industrial (28%); other (8%). It also provides sewer billing services. Incorporated: PA. York had 102 full-time employees at 12/31/17. President/CEO: Jeffrey R. Hines. Officers/directors own 1.1% of the common stock (3/18 proxy). Address: 130 East Market Street, York, Pennsylvania 17401. Telephone: (717) 845-3601. Internet: www.yorkwater.com.

**Capital spending ought to continue through 2018 and beyond.** Year to date, York Water has invested only about \$3.0 million, specifically to complete a raw water pumping station and some modest infrastructure upgrades. An additional \$20 million is likely to be spent by year's end. Going forward, we expect further infrastructure upgrades and improvements to its waste water treatment plants. This spending is necessary not only as a response to its aging pipes and delivery methods, but also to handle its expanding customer base. This equity lacks investment appeal at this juncture. Shares of York Water have been lowered two spots on our Timeliness ranking scale, to 5 (Lowest). Thus, short-term accounts should turn the page. Similarly, those with a buy-and-hold mantra should take a pass, as the shares offer limited price upside 3- to 5-years out. Lastly, as a stand-alone dividend play (2.0% current yield), we think investors can find more-attractive options elsewhere.

Nicholas P. Patrikis July 13, 2018

(A) Diluted earnings. Next earnings report due late August. (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	60
Price Growth Persistence	55
Earnings Predictability	90

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