Jerome C. Weinert

Principal & Director

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 Statues (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
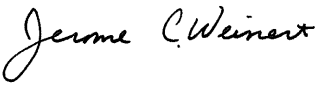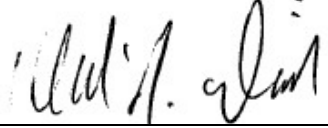**As of July 1, 2018**

Fair Market Value Appraisal

Appraisal Approach	Investor-owned Utility	Weight	Wtd Valuation Indications
Cost Approach			
Depreciated Replacement Cost New	$ 23,921,473		
Cost Approach Conclusion	23,921,473	50%	11,960,736
Income Approach			
	22,424,662		
Income Approach Conclusion	22,424,662	40%	8,969,865
Market Approach			
Market Approach Conclusion	22,911,987	10%	2,291,199
Appraisal Conclusion	$ 23,221,800	100%	23,221,800
Conclusion (cost approach)	$ 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	*[signature]*
Jerome C. Weinert, ASA, P.E., CDP Principal and Director	Michael J. Diedrich, ASA, P.E., CDP Certified General Appraiser Principal
[signature]	*[signature]*
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 Professions 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
Depreciation and Valuation
8555 West Forest Home Avenue Suite 201
Greenfield, Wisconsin 53228
Office: 414-529-5755
Cell: 414-698-8371
E-Mail: weinertj@auswest.net

AUS CONSULTANTS

TABLE OF CONTENTS

NARRATIVE REPORT

SUPPORTING EXHIBITS AND WORKPAPERS

      VALUATION SUMMARY (TAB)
             Valuation Summary
             Cost Approach Summary
             Income Approach Summary
             Market Approach Summary
      COST APPROACH (TAB)
             Cost Approach Summary
             Replacement Cost New
             Replacement Cost New Less Depreciation
             Depreciated Original Cost
             Cost Indices
             Depreciation & Obsolescence
      INCOME APPROACH (TAB)
             Income Approach Summary
             Discounted Cash Flow (DCF)
             Return on Rate Base and Equity
             Cost of Capital / Required Return
      MARKET APPROACH (TAB)
             Market Approach Summary
             Comparable Sales
             Value Line Investment Survey Water Industry Market Ratio Sales analysis
      COST OF CAPITAL / REQUIRED RETURN
      ENGINEER'S ASSESSMENT (TAB) –Borough of Steelton Water System Engineering Assessment and Original Cost, October 2018 – Herbert, Rowland & Grubic, Inc.
      STEELTON BOROUGH AUTHORITY'S FINANCIALS (TAB) – Steelton Borough Authority's Financials 2013-2017
      ASSET PURCHASE AGREEMENT (TAB) - ASSET PURCHASE AGREEMENT November 14, 2018
      STEELTON WATER UTILITY INSPECTION
      PAWC-AUS CONSULTANTS UVE CONTRACT

AUS CONSULTANTS

December 7, 2018

Pennsylvania-American Water Company
Hersey, Pennsylvania

AUS Consultants
Depreciation and Valuation
8555 West Forest Home Avenue
Suite 201
Greenfield, WI 53228
Telephone   414-529-5755
Fax   414-529-5750
E-Mail   weinertj@auswest.net

RE: Steelton Borough Authority's Water Utility Appraisal

Enclosed is the appraisal report for the Steelton Borough Authority's water utility system as of July 1, 2018 prepared 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 (PA CS) Statues Section 1329 "Valuation of acquired water and wastewater systems", collectively referred to as Act 12 of the 2016 Pennsylvania legislative session (Act 12). The intended users of this appraisal are Pennsylvania-American Water Company and the Pennsylvania Public Utility Commission.

Based on our appraisal, the Fair Market Value of the 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
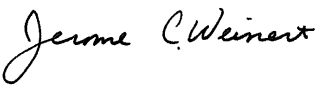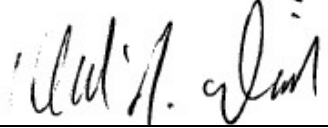**As of July 1, 2018**

Fair Market Value Appraisal

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

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	*[signature]*
Jerome C. Weinert, ASA, P.E., CDP Principal and Director	Michael J. Diedrich, ASA, P.E., CDP Certified General Appraiser Principal
[signature] C. Sheffer	*[signature]*
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 Professions in the Society of Depreciation Professionals

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:
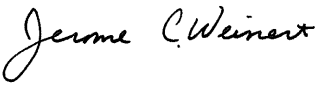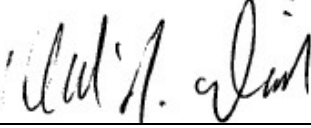
- The statements of fact contained in this report are true and correct.

- 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	*(signature)*
Jerome C. Weinert, ASA, P.E., CDP Principal and Director	Michael J. Diedrich, ASA, P.E., CDP Certified General Appraiser Principal
D. C. Sheffer (signature)	*(signature)*
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 Statues 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." <u>The Appraisal of Real Estate</u>, 14th 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]."[1]

> 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"[2]

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."[3]   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).

---

[1] The Appraisal of Real Estate, 14th Edition. pages 569-570
[2] Ibid, page 570
[3] 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) Account Number	(2) Description	(3a) Index Series	(3b) Table	(3c) Line Reference	(3d) Lookup	(3e) Reproduction to Replacement Cost Factor / AUS Input	(4a) Iowa Survivor / Retirement Curve	(4b) Normal Service Life / years	(5) Economic Obsolescence / years	(6a) Tax Depreciation Table	(6b) Life
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 Stuctures & Improvements		HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25
304.10 Stuctures & Improvements - Pumping		HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25
304.20 Stuctures & Improvements - Treatment		HW	W-1	15	HWW-115	1.000	R4.0	55	0%	MACRS	25
304.30 Stuctures & 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 - Ductle 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
344.00 Laboratory Equipment		HW	W-1	17	HWW-139	1.000	R3.0	55	0%	MACRS	25
344.10 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
364.00 Metering and Meter Installatons		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	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

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.

(0)		(2)	(3c)	(4)	(5a)	(5b)
				Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
Account	Account Description	Investment	Cost Translator			
		OC $s		RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's E	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
Total	**Total**	**19,739,906**	**2.626**	**51,836,769**	**1.000**	**51,836,769**

<u>Replacement Cost New</u> - 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."[4]

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."[5]

Economic, or external, obsolescence is defined as "a loss in value caused by factors outside a property"[6] 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:

---

[4] The Dictionary of Real Estate Appraisal, 4th Edition
[5] Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition. Page 67.
[6] The Appraisal of Real Estate, 13th 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)	(3)				(3e)	(4)		(5)	(6)	
		(3a)	(3b)	(3c)	(3d)		(4a)	(4b)		(6a)	(6b)
Account Number	Description	Costing Parameters				Reproduction to Replacement Cost Factor	Iowa Survivor / Retirement Curve	Normal Service Life	Economic Obsolescence	Tax Depreciation	
		Index Series	Table	Line Reference	Lookup	AUS Input		years	years	Table	Life
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 Stuctures & Improvements		HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25
304.10 Stuctures & Improvements - Pumping		HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25
304.20 Stuctures & Improvements - Treatment		HW	W-1	15	HWW-115	1.000	R4.0	55	0%	MACRS	25
304.30 Stuctures & 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 - Ductle 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
344.00 Laboratory Equipment		HW	W-1	17	HWW-139	1.000	R3.0	55	0%	MACRS	25
344.10 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
364.00 Metering and Meter Installatons		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	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 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
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)
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
Total		**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**

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%
Capitalization Rate: 5.54%

(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)$^{(Age)}$ 0.264
PW to Perpetuity = 1/Capitalization Rate   18.051
PW$_{(20and Beyond)}$ = PW to Perpetuity * PW Factor$_{(19.5)}$ 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:

Market Approach Summary

Comparable Sales	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Depreciated Original Cost (AUS Consultants) OCLD	14,433,434.76	1.7331	25,014,586
Replacement Cost New less Depreciation RCNLD	23,921,472.83	0.9578	22,911,987
Average			23,963,287
Use (RCNLD)			22,911,987

Financial Markets	Market Value per Share to Book Value per Share
Market to Book (equity)	2.91
Market to Book (equity and debt)	1.88
Use (equity and debt)	1.88

Market Conclusion	Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)		
Steelton Borough (Water) Authority	Steelton Borough (Water) Authority		
AUS Depreciated Original Cost	14,433,435	1.88	27,134,857

Market Value			Indicated Valus $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."[7]

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.

---

[7] Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition, pp. 96-97.

(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
Total		**23,921,473**	**0.00%**	**23,921,473**

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

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

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 Statues (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."* <u>The Appraisal of Real Estate</u>, 14th 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.

<u>Steelton Borough Authority's Water Utility Facilities, its Property and Operations</u>[8]

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. 19th Street, is owned by the Authority. The interconnect pumping station with Suez, located near the finished water storage tanks, is owned by Suez.

---

[8] 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

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

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 Statues (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."* <u>The Appraisal of Real Estate</u>, 14th 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]."[9]

> 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."[10]

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*

---

[9] The Appraisal of Real Estate, 13th Edition. Page 385
[10] 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."[11] 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:

---

[11] Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition. Page 59

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)	(3c)	(3d)	(3e)	(4a)	(4b)	(5)	(6a)	(6b)
		Costing Parameters				Reproduction to Replacement Cost Factor	Iowa Survivor / Retirement Curve	Normal Service Life	Economic Obsolescence	Tax Depreciation	
Account Number	Description	Index Series	Table	Line Reference	Lookup	AUS Input		years	years	Table	Life
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 Stuctures & Improvements		HW	W-1	8	HWW-18	1.000	**R4.0**	**45**	0%	MACRS	25
304.10	Stuctures & Improvements - Pumping	HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25
304.20	Stuctures & Improvements - Treatment	HW	W-1	15	HWW-115	1.000	R4.0	55	0%	MACRS	25
304.30	Stuctures & 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 - Ductle 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
344.00 Laboratory Equipment		HW	W-1	17	HWW-139	1.000	R3.0	55	0%	MACRS	25
344.10	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
364.00 Metering and Meter Installatons		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	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

AUS Consultants

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:

(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 to Replacement Cost New (COR)	Replacement Cost New (COR)
								OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
	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							
Steelton's E			Steelton's Engineers' Assessment Data				AUS Input		AUS Input	Cost Indices	Cost Indices	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	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	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	2,033	HWW-135	263	858	3.262	6,632	1.000	6,632
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	Fire Hydrant Assembly	13	Ea.	1986	1986	41,639	HWW-142	296	1021	3.449	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	585	2.836	362,305	1.000	362,305
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	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.

(0)		(2)	(3c)	(4)	(5a)	(5b)
					Reproduction Cost New to	
				Reproduction	Replacement	Replacement
			Cost	Cost New	Cost New	Cost New
Account	Account Description	Investment	Translator	(RCN)	(COR)	(COR)
		OC $s		RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Calculation	Calculation	Input	Calculation
		Steelton's Engineers' Assessment				
Steelton's E	Steelton's Engineers' Assessment Data	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
Total	**Total**	**19,739,906**	**2.626**	**51,836,769**	**1.000**	**51,836,769**

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."[12]

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."[13]

Economic, or external, obsolescence is defined as "A loss in value caused by factors outside a property"[14] 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:

---

[12] The Dictionary of Real Estate Appraisal, 4th Edition
[13] Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition. Page 67.
[14] The Appraisal of Real Estate, 13th 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)	(3)					(4)		(5)	(6)	
		(3a)	(3b)	(3c)	(3d)	(3e)	(4a)	(4b)		(6a)	(6b)
Account Number	Description	Costing Parameters				Reproduction to Replacement Cost Factor	Iowa Survivor / Retirement Curve	Normal Service Life	Economic Obsolescence	Tax Depreciation	
		Index Series	Table	Line Reference	Lookup	AUS Input		years	years	Table	Life
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 **Stuctures & Improvements**		HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25
304.10	Stuctures & Improvements - Pumping	HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25
304.20	Stuctures & Improvements - Treatment	HW	W-1	15	HWW-115	1.000	R4.0	55	0%	MACRS	25
304.30	Stuctures & 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 - Ductle 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
344.00 **Laboratory Equipment**		HW	W-1	17	HWW-139	1.000	R3.0	55	0%	MACRS	25
344.10	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
364.00 **Metering and Meter Installatons**		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	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)			
		Earliest Trend Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa 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
Account	Description															
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	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)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(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	38,586	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	44.846605%	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%	248,766	16,231,177	15,622,508	31,853,684
Subtotal Installation Years 1981-1990 [4]			32.00	2,230,458						30.49	62.49	48.774290%	1,087,890	71,374,664	68,011,646	139,386,308

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)			
		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
Account	Description									
		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
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)
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
Total		**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**

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: 7.06%
Capitalization Rate: 5.54%

(1) Period	(2) Age	(3) Revenues	(4) O&M Expenses	(5) Tax Depreciation	(6) Cash Flow from Operations (3)-(4)	(7) Taxable Income before State & Federal Taxes (6)-(5)	(8) State and Federal Taxes @ 28.89% (7) *28.89%	(9) Capital Expenditures	(10) Change in Working Capital	(11) Net Cash Flows (3)-(4)-(8)-(9)-(10)	(12) Period Present Worth Factor (PW)	(13) PW of Cashflow (11)*(12)	(14) Accumulated PW of Cashflows 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)$^{(Age)}$ 0.264
PW to Perpetuity = 1/Capitalization Rate 18.051
PW$_{(20and\ Beyond)}$ = PW to Perpetuity * PW Factor$_{(19.5)}$ 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	McKeesport Wastewater System	Limerick Wastewater System	East Bradford Wastewater Collection System	Sadsbury Wastewater Collection System	Exeter Wastewater System	Simple Average / Standard Deviation	Remove Outliers Simple Average / Standard Deviation	Weighted Average	Remove Outliers Weighted Average / Standard Deviation	Use
System Description											
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	29,500,000	159,000,000	75,100,000	5,000,000	9,250,000	96,000,000			373,850,000	368,850,000	
	8%	43%	20%	1%	2%	26%	100%				
Acquirer	Aqua-PA	PA-American	Aqua-PA	Aqua-PA	PA-American	PA-American					
Date											
Customers											
Original Cost											
Depreciated Original Cost (AUS Consultants) OCLD	18,567,728	101,915,080	46,153,867	5,383,591	6,128,876	40,057,634			218,206,776	212,823,185	
Purchase Price to OCLD	1.5888	1.5601	1.6272	0.9287	1.5092	2.3965	1.6018	1.7364	1.7133	1.7331	1.7331
Variance to Simple Mean	-0.013	-0.0417	0.0254	-0.6731	-0.0926	0.7947	0.4273	0.3323			
Variance to Wtd Mean	-0.1245	-0.1532	-0.0861	-0.7846	-0.2041	0.6832				0.1635	
Replacement Cost New less Depreciation RCNLD	30,615,410	160,301,491	86,086,756	9,236,581	8,517,587	99,589,819			394,347,644	385,111,063	
Purchase Price to RCNLD	0.9636	0.9919	0.8724	0.5413	1.086	0.964	0.9032	0.9756	0.948	0.9578	0.9578
Variance to Simple Mean	0.0604	0.0887	-0.0308	-0.3619	0.1828	0.0608	0.1735	0.0724			
Variance to Wtd Mean	0.0156	0.0439	-0.0756	-0.4067	0.138	0.016				0.0225	
Standard Deviation							0.19	0.0765			

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[1]

	Industry Averages	American & Aqua Averages	American States Water	American Water	Aqua America	California Water	Connecticut Water	Middlesex Water	SJW 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:

Market Approach Summary

Comparable Sales	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Depreciated Original Cost (AUS Consultants) OCLD	14,433,434.76	1.7331	25,014,586
Replacement Cost New less Depreciation RCNLD	23,921,472.83	0.9578	22,911,987
Average			23,963,287
Use (RCNLD)			22,911,987

Financial Markets	Market Value per Share to Book Value per Share
Market to Book (equity)	2.91
Market to Book (equity and debt)	1.88
Use (equity and debt)	1.88

Market Conclusion	Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)		
Steelton Borough (Water) Authority	Steelton Borough (Water) Authority		
AUS Depreciated Original Cost	14,433,435	1.88	27,134,857

Market Value			Indicated Valus $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."[15]

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:

---

[15] Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition, pp. 96-97.

(0)	(0.5)	(1)	(6)	(7)	(8)
Account	Description	Earliest Trend Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% 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
			1,087,890	**0.00%**	**1,087,890**

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

(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
Total		**23,921,473**	**0.00%**	**23,921,473**

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
Cost Approach			
Depreciated Replacement Cost New	$ 23,921,473		
Cost Approach Conclusion	23,921,473	50%	11,960,736
Income Approach	22,424,662		
Income Approach Conclusion	22,424,662	40%	8,969,865
Market Approach			
Market Approach Conclusion	22,911,987	10%	2,291,199
Appraisal Conclusion	$ 23,221,800	100%	23,221,800
Conclusion (cost approach)	$ 23,921,473		

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 city 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, 14th 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 20th 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
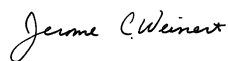
  Contained in Narrative Report.

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

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