

**Application of Pennsylvania-American Water Company for Acquisition of Assets of
The Municipal Authority of the City of McKeesport
66 Pa. C.S. §1329
Application Filing Checklist – Water/Wastewater
Docket No. A-2017-_____**

5. Provide copies of two appraisals performed by separate utility valuation experts establishing the system's fair market value.

RESPONSE: See enclosed copies of two appraisals establishing the System's fair market value performed by Jerome C. Weinert, P.E., Principal and Director for AUS Consultants, Inc. on behalf of Pennsylvania-American Water Company and by Adrienne M. Vicari, P.E., Financial Services Practice Area Leader, for Herbert, Rowland, and Grubic, Inc., on behalf of The Municipal Authority of the City of McKeesport.

**The City of McKeesport, Pennsylvania
And
The Municipal Authority of the City of McKeesport**

**Fair Market Value Appraisal
Report
&
Work Papers**

As of September 2016

AUS Consultants
Depreciation and Valuation Group
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May 17, 2017

Pennsylvania-American Water Company
852 Wesley Drive
Mechanicsburg, PA 17055-4475

RE: McKeesport Wastewater Utility Appraisal Update 5-16-2017

AUS Consultants prepared an appraisal of the wastewater system of the Municipal Authority of the City of McKeesport ("MACM") as of September 2016 based on an Asset Purchase Agreement (dated September 9, 2016) for a purchase price of \$156,000,000 and provided an appraisal report dated April 10, 2017. Subsequently, on May 15, 2017, we were informed that Pennsylvania-American Water Company and the City of McKeesport had renegotiated the purchase price in a "First Amendment to the Asset Purchase Agreement ("APA") dated May 15, 2017" to \$162,000,000 as of May 15, 2017. Since nearly eight months has passed since the "as of date" of our original appraisal, we undertook additional appraisal investigations intended to determine if we needed to revise our original appraisal conclusions. Our original appraisal considered the cost, income, and market approaches to value; with the inputs to the appraisal process being defined by MACM's wastewater operation: its plant and equipment and historical financial performance. The following table details the preliminary results of the above described appraisal scenarios:

**Pennsylvania-American Water Company
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
AS of September 2016**

Fair Market Value Appraisal

		Value Conclusion	Weight	Wtd Value
Cost Approach				
Cost New less Depreciation	\$	156,524,909		
Original Cost less Depreciation	\$	80,085,602		
Cost Approach Conclusion		156,524,909	50%	78,262,455
Income Approach		160,457,682	40%	64,183,073
Market Approach		151,870,173	10%	15,187,017
Appraisal Conclusion	\$	157,600,000		157,632,545

We understand the purpose of this valuation is to determine the value that could be realized from the sale of the wastewater system assets. Our appraisal as an investor-owned utility as a purchaser assumed that the purchaser would be successful in establishing the purchase price, assumed to be the appraised value, as rate-base for regulatory purposes under Section 1329 of the Public Utility Code of Pennsylvania. Based on these considerations our appraisal conclusion was \$157,600,000.

Given that the passage of nearly eight months since our original appraisal date might potentially effect each of the three approaches, each of the approaches were reviewed.

Cost Approach - I reviewed the cost trends used in the development of the replacement cost new in order to arrive at the extent of the construction inflation. I found that the construction costs experienced a 2% (2.04%) each six-month period from July to January over the period 2013 through 2016. Based on that evidence I adjusted the replacement cost new by 2% from \$323,139,630 to 330,964,950; the average condition of the property is 48.26% resulting in a

replacement cost new less depreciation of \$160,301,491 which is the revised Cost Approach indicator of value.

Income Approach - I also reviewed the inputs to the Income Approach and found additional information related to the inflation provision in the cost of capital. No other adjustment were necessary. When this additional information was incorporated into the discounted cash flow the revised Income Approach indicator was determined to be \$162,455,017, detailed as follows:

**Pennsylvania-American Water Company
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
As of September 2016
Discounted Cash Flow Analysis**

Discount Rate: 7.00%
Capitalization Rate: 3.76%

Period	Age	Income from Operations	Non Cash Expense (depreciation)	Capital Expenditures	Change in Working Capital	Net Cash Flows	Period Present Worth Factor (PW)	PW of Cashflow	Accumulated PW of Cashflows
1	0.5	(215,714)	3,451,139	1,322,243	(79,751)	1,833,431	0.967	1,772,928	1,772,928
2	1.5	829,236	3,490,323	1,337,205	1,145,667	4,128,021	0.903	3,727,603	5,500,531
3	2.5	704,924	3,529,958	1,352,338	(5,518)	2,877,026	0.844	2,428,210	7,928,741
4	3.5	572,460	3,570,047	1,367,644	(5,927)	2,768,936	0.789	2,184,691	10,113,432
5	4.5	2,753,936	3,610,599	1,383,126	520,214	5,501,623	0.738	4,060,198	14,173,630
6	5.5	2,924,371	3,651,616	1,398,785	12,295	5,189,497	0.689	3,575,563	17,749,193
7	6.5	2,971,836	3,693,103	1,414,624	12,272	5,262,587	0.644	3,389,106	21,138,299
8	7.5	4,359,854	3,735,069	1,430,645	313,829	6,978,107	0.602	4,200,820	25,339,119
9	8.5	4,422,571	3,777,517	1,446,848	17,043	6,770,283	0.563	3,811,669	29,150,788
10	9.5	5,880,304	3,820,454	1,463,237	330,734	8,568,255	0.526	4,506,902	33,657,690
11	10.5	5,960,477	3,863,884	1,479,814	22,144	8,366,691	0.491	4,108,045	37,765,735
12	11.5	6,038,753	3,907,814	1,496,582	22,260	8,472,245	0.459	3,888,760	41,654,495
13	12.5	6,115,245	3,952,249	1,513,542	22,374	8,576,326	0.429	3,679,244	45,333,739
14	13.5	6,190,048	3,997,195	1,530,697	22,484	8,679,030	0.401	3,480,291	48,814,030
15	14.5	7,925,137	4,042,660	1,548,047	395,570	10,815,320	0.375	4,055,745	52,869,775
16	15.5	8,023,379	4,088,646	1,565,598	28,666	10,575,093	0.350	3,701,283	56,571,058
17	16.5	8,120,558	4,135,164	1,583,349	28,864	10,701,237	0.327	3,499,304	60,070,362
18	17.5	8,216,725	4,182,215	1,601,304	29,061	10,826,697	0.306	3,312,969	63,383,331
19	18.5	8,311,916	4,229,809	1,619,465	29,256	10,951,516	0.286	3,132,134	66,515,465
20 and beyond	19.5	10,382,413	4,277,951	1,637,836	472,978	13,495,506	7.109	95,939,552	162,455,017
Age					19.5				
PW(Age) = 1/(1+Discount Rate) ^(Age)					0.267				
PW to Perpetuity = 1/Capitalization Rate					26.596				
PW _(20and Beyond) = PW to Perpetuity * PW Factor _(19.5)					7.109				

Market Approach - Finally I reviewed the Market Approach and incorporated the revised purchase price in to that analysis which resulted in a Market Approach indicator of \$162,108,612, detailed as follows:

**Pennsylvania-American Water Company
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
As of September 2016**

Market Approach Summary

	Purchase Price to Depreciated Original Cost (Book Value)	Purchase Price to Depreciated Original Cost (Financials Book Value)
Comparable Sales		
New Garden	1.59	1.64
McKeesport	1.50	1.90
Minimum	1.50	
Mean	1.66	
Median	1.62	
Maximum	1.90	
Financial Markets		Market Value per Share to Book Value per Share
Market to Book (equity)	2.49	Mean
Market to Book (equity and debt)	1.78	Mean
Minimum	1.50	
Mean	1.75	
Median	1.64	
Maximum	2.49	
Market Conclusion		Value to Depreciated Original Cost (Book Value)
Use		1.90 Mean
McKeesport Assets	85,320,322	
Market to Book Ratio	1.90	
Market Value	162,108,612	
Use	162,108,612	

Value Conclusion

Considering all three approaches to value, the results are summarized as follows:

**Pennsylvania-American Water Company
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
As of May 15, 2017**

Fair Market Value Appraisal

	Value Conclusion	Weight	Wtd Value
Cost Approach			
Cost New less Depreciation	\$ 160,301,491		
Original Cost less Depreciation	\$ 80,085,602		
Cost Approach Conclusion	160,301,491	50%	80,150,746
Income Approach	162,455,017	40%	64,982,007
Market Approach	162,108,612	10%	16,210,861
Appraisal Conclusion	\$ 161,343,000		161,343,614

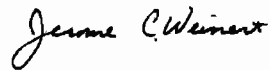
Based on my initial appraisal and the above described adjustments to that appraisal I conclude a fair market value of \$161,343,000.

Respectfully submitted,

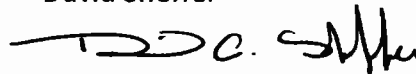
AUS Consultants

BY:

Jerome C. Weinert



David Sheffer



Elizabeth A. Weinert



APPRAISAL CERTIFICATION

McKeesport, Pennsylvania

Wastewater System

Fair Market Value Report

As of May 15, 2017

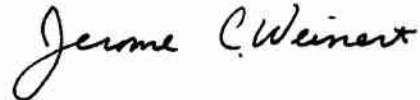
AUS Consultants, Depreciation & Valuation, certifies that, to the best of its knowledge and belief:

- 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.
- Neither AUS Consultants, Depreciation & Valuation, nor its professional staff has no present or prospective interest in the property that is the subject of this report, and has no personal interest with respect to the parties involved.
- Neither AUS Consultants, Depreciation & Valuation, nor its professional staff has any bias with respect to the property that is the subject of this report or to the parties involved.
- Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
- Our analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice 2016-2017 Edition.
- The signers of this report have made personal inspections of the above ground 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.
- No individuals provided significant professional assistance to the persons signing this report.

AUS Consultants, Depreciation & Valuation

By:



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

Principal and Director

AUS Consultants

AUS Consultants' Professional Staff

Jerome C. Weinert, Professional Engineer (PE), Accredited Senior Appraiser (ASA), Certified Depreciation Professional (CDP)

- 45 years in Appraisal and Depreciation Consulting
- BS in Mechanical Engineering – Milwaukee School of Engineering (1972)
- Masters in Business Administration – Marquette University (1988)
- Testimony Experience:
Regulatory (Depreciation and Rate Base)
Courtroom (Valuations – ad valorem taxation and eminent domain and rate of return)

Michael J. Diedrich, PE, ASA, CDP

- 34 years in Appraisal and Depreciation Consulting
- BS in Architectural Engineering Technology – Milwaukee School of Engineering (1981)
- Masters in Business Administration – Marquette University (1991)
- Testimony Experience:
Courtroom (Valuations ad valorem taxation and eminent domain)

David Weiler

- 32 years in Valuations of Business Enterprises, Closely-held common Stock, Cost of Capital Studies and Valuations of Intangible Property
- Bachelor of Science in Finance-Drexel University (1978)

David A. Sheffer

- 35 years in Regulatory Consulting (Depreciation, Rate Base, Cost of Service, Valuations and Original Cost Studies)

Elizabeth A Weinert

- 15 years in Appraisal and Depreciation Consulting
- BS in Mechanical Engineering – Milwaukee School of Engineering (2001)
- Masters in Aeronautical Engineering – University of Alabama (2015)

Jerome C. Weinert

Principal & Director

AUS Consultants

Depreciation and Valuation

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April 10, 2017

Mr. Andrew L. Swope
Vice President, General Counsel
Pennsylvania-American Water Company
800 West Hersheypark Drive
Hersey, PA 17033

RE: The Municipal Authority of the City of McKeesport Wastewater Utility Appraisal

Enclosed is the appraisal report for The Municipal Authority of the City of McKeesport's wastewater utility system as of September 2016 prepared for Pennsylvania-American Water Company. The report was prepared based on the 2016-2017 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes Paragraph 1329 "Valuation of acquired water and wastewater systems", collectively referred to as Act 12. The intended users of this appraisal are Pennsylvania-American Water Company, The Municipal Authority of the City of McKeesport, Pennsylvania, and the Pennsylvania Public Utility Commission.

Based on our appraisal the Fair Market Value of The Municipal Authority of the City of McKeesport's wastewater system property, plant, and equipment operating as Pennsylvania rate regulated wastewater utility is \$157,600,000 determined based on the cost, income, and market approaches to value, as detailed in the following table:

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
AS of September 2016

Fair Market Value Appraisal

		Value Conclusion	Weight	Wtd Value
Cost Approach				
Cost New less Depreciation	\$	156,524,909		
Original Cost less Depreciation	\$	80,085,602		
Cost Approach Conclusion		156,524,909	50%	78,262,455
Income Approach		160,457,682	40%	64,183,073
Market Approach		151,870,173	10%	15,187,017
Appraisal Conclusion	\$	157,600,000		157,632,545

As the purpose of this appraisal was to full fill the requirements of Act 12 in the establishment of value for rate making of McKeesport's wastewater utility's property, plant and equipment the cost approach conclusion of \$157,600,000 is consistent with the purpose of the appraisal. This cost approach conclusion is detailed in the Cost Approach of this report. 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.

Respectfully Submitted,



Jerome C. Weinert, ASA, P.E., CDP
Principal and Director
AUS Consultants

AUS CONSULTANTS



David A. Sheffer
Principal
AUS Consultants

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 (E-15552)

CDP: Certified Depreciation Professionals in the Society of Depreciation Professionals

Enclosures

AUS CONSULTANTS

**The City of McKeesport, Pennsylvania
and
The Municipal Authority of the City of McKeesport's Wastewater
Utility**

**Fair Market Value Appraisal Report
As of September 2016
for
Pennsylvania American Water Company**

**AUS Consultants
Depreciation and Depreciation
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Greenfield, Wisconsin 53228
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AUS CONSULTANTS

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November 8, 2016

Pennsylvania American Water Company
Hersey, Pennsylvania

AUS Consultants

Depreciation and Valuation

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RE: The Municipal Authority of the City of McKeesport Wastewater Utility Appraisal

Enclosed is the appraisal report for The Municipal Authority of the City of McKeesport, PA's wastewater utility system as of September 2016 prepared for our client Pennsylvania American Water Company. The report was prepared based on the 2016-2017 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes Paragraph 1329 "Valuation of acquired water and wastewater systems", collectively referred to as Act 12. The intended users of this appraisal are Pennsylvania American Water Company, The City of McKeesport, Pennsylvania, The Municipal Authority of the City of McKeesport, and the Pennsylvania Public Utility Commission.

Based on our appraisal the Fair Market Value of the McKeesport Municipal Authority's wastewater utility's property, plant, and equipment operating as Pennsylvania rate regulated wastewater utility is \$157,600,000 determined based on the cost, income, and market approaches to value, as detailed in the following table:

AUS CONSULTANTS

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
AS of September 2016

Fair Market Value Appraisal

		Value Conclusion	Weight	Wtd Value
Cost Approach				
Cost New less Depreciation	\$	156,524,909		
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Cost Approach Conclusion		156,524,909	50%	78,262,455
Income Approach		160,457,682	40%	64,183,073
Market Approach		151,870,173	10%	15,187,017
Appraisal Conclusion	\$	157,600,000		157,632,545

As the purpose of this appraisal was to full fill the requirements of Act 12 in the establishment of value for rate making of McKeesport's property, plant and equipment the cost approach conclusion of \$157,600,000 is consistent with the purpose of the appraisal. This cost approach conclusion is detailed in the Cost Approach of this report. 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.

Respectfully Submitted,

Jerome C. Weinert

AUS CONSULTANTS

Jerome C. Weinert, ASA, P.E., CDP
Principal and Director
AUS Consultants



David A. Sheffer
Principal
AUS Consultants

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 (E-15552)
CDP: Certified Depreciation Professions in the Society of Depreciation Professionals

AUS CONSULTANTS

APPRAISAL CERTIFICATION
for the Fair Market Appraisal of
The Municipal (wastewater) Authority of the City of McKeesport, Pennsylvania
As of September 2016
Prepared for
Pennsylvania-American Water Company

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

- The statements of fact contained in this report are true and correct.
- Over the last three years, AUS Consultants has appraised these properties.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, opinions, and conclusions.
- Neither AUS Consultants, Depreciation & Valuation, nor its professional staff has no present or prospective interest in the property that is the subject of this report, and has no personal interest with respect to the parties involved.
- Neither AUS Consultants, Depreciation & Valuation, nor its professional staff has any bias with respect to the property that is the subject of this report or to the parties involved.
- Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
- Our analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice 2016-2017 Edition.
- The signers 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 City of McKeesport, Pennsylvania and KHL Engineer's Assessment report which was the inventory starting point of the Cost Approach.

AUS Consultants, Depreciation & Valuation
By:



Jerome C. Weinert, ASA, P.E., CDP
Principal and Director
AUS Consultants



David A. Sheffer
Principal
AUS Consultants



Elizabeth A. Weinert
Associate
AUS Consultants

February, 2017

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 Municipal (wastewater) Authority of the City of McKeesport Pennsylvania for our client Pennsylvania-American Water Company. The report was prepared based on the 2016-2017 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes Paragraph 1329: "Valuation of acquired water and wastewater systems", collectively referred to as Act 12 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, The City of McKeesport, Pennsylvania, The Municipal Authority of the City of McKeesport, and the Pennsylvania Public Utility Commission (PUC).

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

"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress." The Appraisal of Real Estate, 13th Edition, page 23.

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

Cost Approach - The philosophy in the cost approach to value is that the maximum value of a property 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].”¹

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.”²

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

The trended original cost method was utilized in preparing the reproduction cost new. “Trending is a method of estimating a property’s reproduction cost new in which an *index* or *trend factor* is applied to the property’s *historical cost* to convert the known cost into an indication of current cost. Simply put, trending reflects the movement of price over time.”³ In the trended original cost method, McKeesport investment in wastewater plant and equipment is restated to costs reflective of the appraisal date, by the application of cost trends to the property’s original investment. AUS Consultants utilized the Engineer’s Assessment performed by KLH Engineers, Inc. (Engineer’s Assessment tab) as the starting point of the Cost Approach. Utilizing the Engineer’s Assessment AUS Consultant developed McKeesport’s original cost in property, plant and equipment and its depreciated original cost at September, 2016 (AUS Original Cost and Depreciated Original Cost tab). The original cost was the basis of McKeesport’s investment in this appraisal’s cost approach.

The cost trends are applied to each of the McKeesport’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

¹ The Appraisal of Real Estate, 13th Edition. Page 385

² ibid

³ Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition. Page 59

for the water industry in the northeastern region of the United States, AUS General Plant Indexes, and various United States Bureau of Labor Statistics (US BLS) indexes.

NARUC Account	Property Description Account Description	Costing					Line	
		Cost Index Source	Table	Region		Reference	Lookup	
351	Organizations	US BLS	USBLS	Professional Labor	US	USBLS	3	USBLS3
352	Franchises	US BLS	USBLS	Professional Labor	US	USBLS	3	USBLS3
353	Land & Land Rights	US BLS	USBLS	General Inflation	US	USBLS	1	USBLS1
353.1	Land Improvements	US BLS	USBLS	General Inflation	US	USBLS	1	USBLS1
354	Structures & Improvements	Handy Whitman	HW	Water	No. Atl	W-1	15	HWW-115
354.3	Structures & Improvements - Pump Stations	Handy Whitman	HW	Water	No. Atl	W-1	15	HWW-115
354.4	Structures & Improvements - Treatment Plants	Handy Whitman	HW	Water	No. Atl	W-1	15	HWW-115
355	Power Generating Equipment	US BLS	USBLS	Generators	US	USBLS	4	USBLS4
360	Collection Sewers - Force	Handy Whitman	HW	Water	No. Atl	W-1	34	HWW-134
361	Collection Sewers - Gravity	Handy Whitman	HW	Water	No. Atl	W-1	34	HWW-134
362	Special Collection Structures	Handy Whitman	HW	Water	No. Atl	W-1	34	HWW-134
363	Services to Customers	Handy Whitman	HW	Water	No. Atl	W-1	39	HWW-139
364	Flow Measuring Devices	Handy Whitman	HW	Water	No. Atl	W-1	40	HWW-140
365	Flow Measuring Installations	Handy Whitman	HW	Water	No. Atl	W-1	40	HWW-140
366	Reuse Services	Handy Whitman	HW	Water	No. Atl	W-1	39	HWW-139
367	Reuse Meters & Meter Installations	Handy Whitman	HW	Water	No. Atl	W-1	39	HWW-139
370	Receiving Wells	Handy Whitman	HW	Water	No. Atl	W-1	2	HWW-12
371	Pumping Equipment	Handy Whitman	HW	Water	No. Atl	W-1	9	HWW-19
374	Reuse Distribution Reservoirs	Handy Whitman	HW	Water	No. Atl	W-1	2	HWW-12
375	Reuse Transmission & Distribution System	Handy Whitman	HW	Water	No. Atl	W-1	34	HWW-134
380	Treatment & Disposal Equipment	Handy Whitman	HW	Water	No. Atl	W-1	16	HWW-116
381	Plant Sewers	Handy Whitman	HW	Water	No. Atl	W-1	34	HWW-134
382	Outfall Sewer Lines	Handy Whitman	HW	Water	No. Atl	W-1	34	HWW-134
389	Other Plant & Miscellaneous Equipment	Handy Whitman	HW	Water	No. Atl	W-1	34	HWW-134
390.1	Furniture	AUS	AUS	General Plant	No. Atl	T-1	12	AUST-112
390.2	Office Equipment	AUS	AUS	General Plant	No. Atl	T-1	13	AUST-113
390.3	EDP Equipment	AUS	AUS	General Plant	No. Atl	T-1	14	AUST-114
391	Transportation Equipment	AUS	AUS	General Plant	No. Atl	T-1	4	AUST-14
392	Stores Equipment	AUS	AUS	General Plant	No. Atl	USBLS	1	USBLS1
393	Tools, Shop, & Garage Equipment	AUS	AUS	General Plant	No. Atl	T-1	7	AUST-17
394	Laboratory Equipment	AUS	AUS	General Plant	No. Atl	USBLS	1	USBLS1
395	Power Operated Equipment	AUS	AUS	General Plant	No. Atl	T-1	8	AUST-18
396	Communications Equipment	US BLS	USBLS	Communication	US	USBLS	2	USBLS2
396.1	Communications Equipment	US BLS	USBLS	Communication	US	USBLS	2	USBLS2
396.2	SCADA Systems	US BLS	USBLS	Communication	US	USBLS	2	USBLS2
397	Miscellaneous Equipment	US BLS	USBLS	CPI	US	USBLS	1	USBLS1
398	Other Tangible Plant	US BLS	USBLS	CPI	US	USBLS	1	USBLS1

Using the trended original cost method, McKeesport's investment in plant, property and equipment of \$108,231,570 was determined to have a reproduction cost new of \$323,139,630.

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

Normal depreciation/deterioration, akin to physical deterioration, is “loss in value caused by wear, tear, age and use.”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 or 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; our inspections of McKeesport’s wastewater property; and our analysis of McKeesport’s wastewater system operating performance; we found that McKeesport Wastewater Authority’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 McKeesport’s property, plant and equipment, we considered AUS Consultants’ past water and wastewater depreciation studies and the interviews with McKeesport’s and Pennsylvania American’s personnel and consultants. Through our experience and the above described interviews the following normal depreciation parameters of survival/retirement characteristics and service lives were determined for McKeesport’s wastewater 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.

NARUC Account	Property Description Account Description	Depreciable / Non- depreciable	Survivor - Retirement Characteristics	Depreciation			
				Physical Life	Functional Life	Minimum Condition	Economic Obsolescence
	351 Organizations	Non-depreciable	SQ.0	100	100	100%	0%
	352 Franchises	Non-depreciable	SQ.0	100	100	100%	0%
	353 Land & Land Rights	Non-depreciable	SQ.0	100	100	100%	0%
	353.1 Land Improvements	Depreciable	R4.0	45	45	10%	0%
	354 Structures & Improvements	Depreciable	R4.0	45	45	10%	0%
	354.3 Structures & Improvements - Pump Stations	Depreciable	R4.0	45	45	10%	0%
	354.4 Structures & Improvements - Treatment Plants	Depreciable	R4.0	45	45	10%	0%
	355 Power Generating Equipment	Depreciable	R3.0	35	35	10%	0%
	360 Collection Sewers - Force	Depreciable	R4.0	65	65	10%	0%
	361 Collection Sewers - Gravity	Depreciable	R4.0	75	75	10%	0%
	362 Special Collection Structures	Depreciable	R4.0	75	75	10%	0%
	363 Services to Customers	Depreciable	R3.0	35	35	10%	0%
	364 Flow Measuring Devices	Depreciable	R3.0	35	35	10%	0%
	365 Flow Measuring Installations	Depreciable	R3.0	35	35	10%	0%
	366 Reuse Services	Depreciable	R3.0	45	45	10%	0%
	367 Reuse Meters & Meter Installations	Depreciable	R3.0	35	35	10%	0%
	370 Receiving Wells	Depreciable	R4.0	45	45	10%	0%
	371 Pumping Equipment	Depreciable	R3.0	35	35	10%	0%
	374 Reuse Distribution Reservoirs	Depreciable	R4.0	55	55	10%	0%
	375 Reuse Transmission & Distribution System	Depreciable	R4.0	65	65	10%	0%
	380 Treatment & Disposal Equipment	Depreciable	R3.0	45	45	10%	0%
	381 Plant Sewers	Depreciable	R4.0	65	65	10%	0%
	382 Outfall Sewer Lines	Depreciable	R4.0	65	65	10%	0%
	389 Othe Plant & Miscellaneous Equipment	Depreciable	R3.0	45	45	10%	0%
	390.1 Furniture	Depreciable	R3.0	22	22	10%	0%
	390.2 Office Equipment	Depreciable	R3.0	12	12	10%	0%
	390.3 EDP Equipment	Depreciable	R3.0	8	8	10%	0%
	391 Transportation Equipment	Depreciable	R3.0	12	12	10%	0%
	392 Stores Equipment	Depreciable	R3.0	35	35	10%	0%
	393 Tools, Shop, & Garage Equipment	Depreciable	R3.0	25	25	10%	0%
	394 Laboratory Equipment	Depreciable	R3.0	25	25	10%	0%
	395 Power Operated Equipment	Depreciable	R3.0	18	18	10%	0%
	396 Communications Equipment	Depreciable	R3.0	12	12	10%	0%
	396.1 Communications Equipment	Depreciable	R3.0	12	12	10%	0%
	396.2 SCADA Systems	Depreciable	R3.0	12	12	10%	0%
	397 Miscellaneous Equipment	Depreciable	R3.0	35	35	10%	0%
	398 Other Tanigble Plant	Depreciable	R3.0	35	35	10%	0%

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:

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

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

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 reproduction cost new (RCN) of \$317,084,442 the

resultant RCN less depreciation (RCNLD) was found to be \$156,524,909 detailed as follows:

**Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016**

Summary of Cost Approach

Service Area	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	Cost New less Depreciation adjusted for External Obsolescence
McKeesport	35,663,314.30	24,781,311	125,338,615	61,696,103	61,696,103
Duquesne	8,488,374.00	4,009,366	57,112,541	22,405,247	22,405,247
Dravosburg	1,188,766.76	398,682	11,821,704	3,718,174	3,718,174
Port Vue	1,455,194.00	362,190	20,893,663	4,942,794	4,942,794
Summary	46,795,649.06	29,551,549	215,166,523	92,762,318	92,762,318
Treatment & Pumping Plant	61,374,789	50,472,921	106,863,107	62,652,591	62,652,591
Subtotal	108,170,438.06	80,024,470	322,029,630	155,414,909	155,414,909
Land	61,132	61,132	1,110,000	-	1,110,000
Total	108,231,570.06	80,085,602	323,139,630	155,414,909	156,524,909

The preliminary cost approach to value of McKeesport's sewer utility property was found to \$156,524,909.

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. McKeesport's wastewater operation is moving from a municipal operation, wherein economic returns are not the primary objective of the operation to a private (investor owned) rate regulated sewer utility operation in which economic returns are one of the objectives of the operation; therefore, the direct capitalization of earnings approach was not utilized in this appraisal.

In the discounted cash flow (DCF) approach, the property's economic returns are forecast for future periods. The cash flows 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 The City of McKeesport Municipal Authority's wastewater utility's operations was evaluated based on an analysis of historical operating performances over the period 2008 through 2015 and budgetary 2016 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.). Second similar operating statistics were developed from public investor-owned water/wastewater utilities. Third the covenants agreed upon by the parties in the Asset Purchase Agreement (September 2016) between the parties to this sale were determined, quantified and factored into the forecasted operations of the property. Next, the results of future periods operations were forecast based on the migration of McKeesport's historical operations migrating over time to operations of the McKeesport's wastewater operation similar to a public investor-owned water/wastewater utility. Finally the resultant cash flows from future period operations on the McKeesport wastewater 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, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
As of September 2016
Discounted Cash Flow Analysis

Discount Rate: 7.00%
Capitalization Rate: 3.84%

Period	Age	Income from Operations	Non Cash Expense (depreciation)	Capital Expenditures	Change in Working Capital	Net Cash Flows	Period Present Worth Factor (PW)	PW of Cashflow	Accumulated PW of Cashflows
1	0.5	(215,714)	3,451,139	1,322,243	(79,751)	1,833,431	0.967	1,772,928	1,772,928
2	1.5	829,236	3,490,323	1,337,205	1,145,667	4,128,021	0.903	3,727,603	5,500,531
3	2.5	704,924	3,529,958	1,352,338	(5,518)	2,877,026	0.844	2,428,210	7,928,741
4	3.5	572,460	3,570,047	1,367,644	(5,927)	2,768,936	0.789	2,184,691	10,113,432
5	4.5	2,753,936	3,610,599	1,383,126	520,214	5,501,623	0.738	4,060,198	14,173,630
6	5.5	2,924,371	3,651,616	1,398,785	12,295	5,189,497	0.689	3,575,563	17,749,193
7	6.5	2,971,836	3,693,103	1,414,624	12,272	5,262,587	0.644	3,389,106	21,138,299
8	7.5	4,359,854	3,735,069	1,430,645	313,829	6,978,107	0.602	4,200,820	25,339,119
9	8.5	4,422,571	3,777,517	1,446,848	17,043	6,770,283	0.563	3,811,669	29,150,788
10	9.5	5,880,304	3,820,454	1,463,237	330,734	8,568,255	0.526	4,506,902	33,657,690
11	10.5	5,960,477	3,863,884	1,479,814	22,144	8,366,691	0.491	4,108,045	37,765,735
12	11.5	6,038,753	3,907,814	1,496,582	22,260	8,472,245	0.459	3,888,760	41,654,495
13	12.5	6,115,245	3,952,249	1,513,542	22,374	8,576,326	0.429	3,679,244	45,333,739
14	13.5	6,190,048	3,997,195	1,530,697	22,484	8,679,030	0.401	3,480,291	48,814,030
15	14.5	7,925,137	4,042,660	1,548,047	395,570	10,815,320	0.375	4,055,745	52,869,775
16	15.5	8,023,379	4,088,646	1,565,598	28,666	10,575,093	0.350	3,701,283	56,571,058
17	16.5	8,120,558	4,135,164	1,583,349	28,864	10,701,237	0.327	3,499,304	60,070,362
18	17.5	8,216,725	4,182,215	1,601,304	29,061	10,826,697	0.306	3,312,969	63,383,331
19	18.5	8,311,916	4,229,809	1,619,465	29,256	10,951,516	0.286	3,132,134	66,515,465
20 and beyond	19.5	10,382,413	4,277,951	1,637,836	472,978	13,495,506	6.961	93,942,217	160,457,682
Age					19.5				
PW(Age) = 1/(1+Discount Rate) ^(Age)					0.267				
PW to Perpetuity = 1/Capitalization Rate					26.042				
PW _(20and Beyond) = PW to Perpetuity * PW Factor _(19.5)					6.961				

Based on the above described discounted cash flow analysis, the Income Approach to value of the McKeesport Municipal Authority's wastewater property and its operations was determined to be \$160,457,682.

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 (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 sale of the City of McKeesport, Pennsylvania wastewater system (sale of the subject) to Pennsylvania American Water (announced September 9 2016) and the sale of New Garden Township’s sewer utility to Aqua Pennsylvania, Inc. (August 2016) were analyze in relationship to those properties’ depreciated original cost (Market Approach tab).

Financial Market Ratios – In the market approach based on market financial ratios the market data of companies (nine) in the water industry as reported in Value Line Investment Surveys (October 2016) were analyzed. In the analysis the companies’ stock (market) and debt (book) per share are compared as a ratio to the book value per share.

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

	Market Value per Share to Book Value per Share
Financial Markets	
Market to Book (equity)	2.49 Mean
Market to Book (equity and debt)	1.78 Mean
Minimum	1.44
Mean	1.73
Median	1.62
Maximum	2.49
	Value to Depreciated Original Cost (Book Value)
Market Conclusion	
Use	1.78 Mean
McKeesport Assets	85,320,322
Market to Book Ratio	1.78
Market Value	151,870,173
Use	151,870,173

The market approach conclusion of this appraisal was determined to be \$151,870,173.

Cost Approach Revisited – Before concluding this appraisal’s fair market value the preliminary cost approach conclusion of \$156,524,909 needs to be reviewed in light of the above described income and market analyses in order to evaluate if external obsolescence exists in that 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.”⁷

The above described income approach value conclusion of \$160,457,682 and the market approach conclusion of 151,870,173 for the McKeesport’s future wastewater system compared to the preliminary cost approach conclusion of \$156,524,909 indicates no significant external obsolescence exists in the cost approach conclusion of \$156,524,909.

Value Conclusion

The Fair Market Value of McKeesport Municipal (wastewater) Authority’s property, plant and equipment and its operation was determined to be \$157,600,000 as follows:

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

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
AS of September 2016

Fair Market Value Appraisal

		Value Conclusion	Weight	Wtd Value
Cost Approach				
Cost New less Depreciation	\$	156,524,909		
Original Cost less Depreciation	\$	80,085,602		
Cost Approach Conclusion		156,524,909	50%	78,262,455
Income Approach		160,457,682	40%	64,183,073
Market Approach		151,870,173	10%	15,187,017
Appraisal Conclusion	\$	157,600,000		157,632,545

As the purpose of this appraisal was to full fill the requirements of Act 12 in the establishment of value for rate making of McKeesport’s property, plant and equipment the cost approach conclusion of \$156,524,909 is consistent with the purpose of the appraisal. This cost approach conclusion is detailed (Cost Approach tab of this report). 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 McKeesport, Pennsylvania's Municipal Wastewater Authority is the determination of the fair market value of the property plant and equipment of McKeesport Municipal Wastewater Authority. The report was prepared based on the 2016-2017 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes Paragraph 1329: Valuation of acquired water and wastewater systems, collectively referred to as Act 12. The intended users of this appraisal are Pennsylvania American Water Company and Pennsylvania Public Utility Commission.

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

"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress." The Appraisal of Real Estate, 13th Edition, page 23.

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

Annual (year-end) City of McKeesport, Pennsylvania wastewater operational financial statements cover the period 2008 through 2015 and budgetary 2016 results.

The KHL Engineer's Assessment report: The City of McKeesport, Pennsylvania wastewater facilities' inventory at September 2016.

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 January 1, 2017, and various cost indexes published by the United States Bureau of Labor Statistics (US BLS).

We conducted inspections of the McKeesport Wastewater Facilities and interviews and discussions with Pennsylvania American Water Company personnel.

We conducted and consultants regarding the township's sewer system and its operations.

The Asset Purchase Agreement between Pennsylvania American Water Company and The City of McKeesport, Pennsylvania dated September 2016.

In preparing this fair market value appraisal of the City of McKeesport, Pennsylvania's wastewater 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 sewer system's operation. A detailed explanation of each approach to value is included below in the section "Appraisal Procedures and Results".

WATER/WASTEWATER INDUSTRY NATIONALLY AND IN PENNSYLVANIA
AND
THE CITY OF MCKEESPORT PENNSYLVANIA WASTEWATER 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 ten 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 consists of both municipal and investor owned systems. Over last several years the need for infrastructure improvement 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. The Act 12 legislation added a section (1329) modifying Title 66 (Public Utilities) of the Pennsylvania Consolidated Statues adding Paragraph 1329: Valuation of acquired water and wastewater systems (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.

The City of McKeesport, Pennsylvania Wastewater Facilities, its Property and Operations

OVERVIEW OF THE FACILITIES

The City of McKeesport, Pennsylvania Wastewater facilities is comprised of several service areas: the City of McKeesport, PA, the City Duquesne, PA, the Borough of Dravosburg, and the Borough of Port Vue.

OPERATING AGREEMENTS

The Authority owns and operates three wastewater treatment facilities pursuant to Agreements with each of the twelve communities it serves. The Authority has Agreements to provide wastewater treatment services with the City of McKeesport, the City of Duquesne, the Borough of Liberty, the Borough of Port Vue, the Borough of East McKeesport, the Township of Elizabeth, the Borough of Glassport, the Borough of White Oak, the Borough of Versailles, the Borough of Lincoln, the Borough of Dravosburg, and the Township of North Versailles. The Authority's Board of Directors establishes rates which are designed to recover the cost of providing services. The rates are based upon the gallons of water used by the communities. The Authority bills the municipalities on a quarterly basis for services provided to the communities' residents at the established rate. The municipalities are responsible for setting a rate for customers within their municipalities and for billing and collecting from those customers. The Authority began conducting billing services for Versailles Borough in March of 2009 in addition to the systems that it owns; McKeesport, Duquesne & Dravosburg.

HISTORICAL EVOLUTION

The City of McKeesport sold its Collection System to the Authority effective January 1, 2009 under a lease purchase agreement. The acquisition of the sewer system included more than 550,000 feet of sewer lines ranging in size from 6" to 42" and two pumping stations. Since that date Authority personnel have performed routine maintenance and repairs to the system. On November 8, 2010 the City of Duquesne sold its wastewater

treatment plant and collection system to the Authority for \$3.8 million. The acquisition added an additional 163,700 feet of sewer lines and 557 manholes to the Authority's care. A combined sewer overflow (CSO) long term control plan has been developed and is waiting on DEP approval. In January of 2011 the Authority purchased the Dravosburg Wastewater Treatment Facility along with its corresponding collection system from the Borough of Dravosburg for \$330,000. The acquisition added an additional 47,500 feet of sewer lines and one pump station. The CSO Long Term Control Plan has been developed the initial phase was recently approved by the DEP and is now awaiting the final approval.

GENERAL TRENDS AND SIGNIFICANT EVENTS

Population in the Authority's service area continues to remain fairly constant, with a decrease in the population in the City of McKeesport and the City of Duquesne being offset by increases in other communities such as White Oak Borough, North Versailles Township and Elizabeth Township. It has been estimated that the population in the service area will increase at a rate of 90 persons per year for the next five years.

Throughout the year the Authority continued to work with the PA Department of Environmental Protection to implement its Act 537 Sewage Facility Plan and Combined Sewer Overflow (CSO) Long Term Control Plan. These plans were approved in July of 2007. The project design work was completed and submitted to the PA Department of Environmental Protection for review in July of 2009 and approved in July of 2010. Fifteen construction projects were put out for bid in February of 2011 and awarded in May. The project involves significant new treatment processes, pumping stations & interceptor lines with an associated capital cost of approximately sixty-two (62.5) million dollars.

In order to prevent a huge increase in the sewer rates the Authority has chosen to issue a series of bonds at a rate of one per year. By doing this the Authority has been able to step the necessary rate increases over a period of several years. To do this, a ten (10) million dollar bond was issued in 2009 and the rates were increased by \$0.74/1000 gallons, or 20.5%, a fourteen (14) million dollar bond was issued in 2010 which increased the rates \$0.86/1000 gallons, or 19.4%, a twenty-five (25) million dollar bond was issued in 2011 raising the rates \$0.80/1000 gallons, or 15.1%, two bonds were

issued in 2012 totaling eleven (11) million dollars with no rate increase, and finally a fourteen (14) million dollar bond was issued in 2013 raising the rates \$1.75/1000 gallons, or 28%. In 2014 the Authority issued a \$6.4 million dollar bond to refund the Authority's outstanding Sewer Revenue Bonds Series of 2008, raising rates \$0.10/1000 gallons, or 1%, due to increased utility costs for operation of the new treatment plant processes that have gone online. In 2015 the Authority did not issue any new debt, but did have a minimal rate increase of \$0.10/1000 gallons, or 1%. The project is 99% complete, just awaiting project closeout and final payments. The Authority expects future rate increases to be minimal, 1% or lower over the next few years.

APPRAISAL PROCEDURES AND RESULTS

The purpose of this appraisal of The Municipal Authority of the City of McKeesport, Pennsylvania is the determination of the fair market value of the wastewater's property plant and equipment as of September 2016. The report was prepared based on the 2016-2017 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes Paragraph 1329: Valuation of acquired water and wastewater systems, collectively referred to as Act 12. The intended users of this appraisal are New Pennsylvania American Water Company and Pennsylvania Public Utility Commission.

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

"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress." The Appraisal of Real Estate, 13th Edition, page 23.

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

Annual (year-end) City of McKeesport, Pennsylvania wastewater operational financial statements cover the period 2008 through 2015 and budgetary 2016 results.

The KHL Engineer's Assessment report: The City of McKeesport, Pennsylvania wastewater facilities' Original Cost Study and Depreciated Original Cost at September 2016.

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 January 1, 2017, and various cost indexes published by the United States Bureau of Labor Statistics (US BLS).

We conducted inspections of the McKeesport Wastewater Facilities and interviews and discussions with Pennsylvania American Water company personnel.

We conducted and consultants regarding the township's sewer system and its operations.

The Asset Purchase Agreement between Pennsylvania American Water Company and the City of McKeesport, Pennsylvania dated September 2016.

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

Cost Approach - 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].”⁸

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.”⁹

⁸ The Appraisal of Real Estate, 13th Edition. Page 385

⁹ ibid

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

The trended original cost method was utilized in preparing the reproduction cost new. "Trending is a method of estimating a property's reproduction cost new in which an *index* or *trend factor* is applied to the property's *historical cost* to convert the known cost into an indication of current cost. Simply put, trending reflects the movement of price over time."¹⁰ In the trended original cost method, McKeesport investment in wastewater plant and equipment is restated to costs reflective of the appraisal date, by the application of cost trends to the property's original investment. AUS Consultants utilized the Engineer's Assessment performed by KHL Engineers (Engineer's Assessment tab) as the starting point of the Cost Approach. Utilizing the Engineer's Assessment AUS Consultant developed McKeesport's original cost in property, plant and equipment and its depreciated original cost at September, 2016 (AUS Original Cost and Depreciated Original Cost tab). The original cost was the basis of McKeesport's investment in this appraisal's cost approach.

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 following table presents the development of the cost approach for account 361 Collection Mains McKeesport Service area (this account will be used to describe the entire cost approach:

¹⁰ Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition. Page 59

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The Municipal Authority of the City of McKeesport
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Account 361 Collection Mains - Gravity - McKeesport Service Area

(4)	(6)	(16)	(17)	(18)	(19)	(20)
Placement Year	Investment	Cost Trend Reference	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)
	OC \$s	Account Parameters Reference				RCN \$s
Input	Input	Lookup	input	Input	Calculation	Calculation
			Cost Index Lookup f(Cols. (16) & (4))	Cost Index Lookup f(Cols. (16) & (2017))	Col (18) / (17)	Col (6) * (19)
1959	\$591,400	HWW-134	65	774	11.908	7,042,393.11
1976	\$2,755,720	HWW-134	154	774	5.026	13,850,246.66
1989	\$4,016,794	HWW-134	295	774	2.624	10,540,067.43
1999	\$1,244,736	HWW-134	361	774	2.144	2,668,713.21
2008	\$24,210	HWW-134	587.5	774	1.317	31,884.02
2010	\$2,774,260	HWW-134	624	774	1.240	3,440,082.40
Total	11,407,119			774	3.294	37,573,386.83

Using the trended original cost method, McKeesport's investment in account 361 8 inch Diameter Collection Mains in the McKeesport Service Area of \$11,407,119 was determined to have a reproduction cost new of \$37,573,386. When the trended cost method is applied to each of McKeesport's investment in plant, property and equipment of \$108,231,570.06 was determined to have a reproduction cost new of \$323,139,630.

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

Normal depreciation/deterioration, akin to physical deterioration, is "loss in value caused by wear, tear, age and use."¹¹

¹¹ The Dictionary of Real Estate Appraisal, 4th Edition

Functional obsolescence is “the loss in value or usefulness of a property caused by inefficiencies or inadequacies of the property itself, when compared to a more efficient or less costly replacement property that new technology has developed.”¹²

Economic, or external, obsolescence is defined as “A loss in value caused by factors outside a property”¹³ and is most often indicated by insufficient earning.

Based on our experience in regard to: water and wastewater depreciation studies; our inspections of McKeesport’s wastewater property; and our analysis of McKeesport’s wastewater system operating performance: McKeesport’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 McKeesport’s property, plant and equipment, we considered AUS Consultants’ past water and wastewater depreciation studies and the interviews with Pennsylvania American’s and McKeesport’s personnel and consultants. Through our experience and the above described interviews the following normal depreciation parameters of survival/retirement characteristics and service lives were determined for McKeesport’s wastewater utility property:

¹² Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition. Page 67.

¹³ The Appraisal of Real Estate, 13th Edition, page 442.

NARUC Account	Property Description Account Description	Depreciable / Non- depreciable	Survivor - Retirement Characteristics	Depreciation				Economic Obsolescence
				Physical Life	Functional Life	Minimum Condition		
								0%
	351 Organizations	Non-depreciable	SQ.0	100	100	100%		0%
	352 Franchises	Non-depreciable	SQ.0	100	100	100%		0%
	353 Land & Land Rights	Non-depreciable	SQ.0	100	100	100%		0%
	353.1 Land Improvements	Depreciable	R4.0	45	45	10%		0%
	354 Structures & Improvements	Depreciable	R4.0	45	45	10%		0%
	354.3 Structures & Improvements - Pump Stations	Depreciable	R4.0	45	45	10%		0%
	354.4 Structures & Improvements - Treatment Plants	Depreciable	R4.0	45	45	10%		0%
	355 Power Generating Equipment	Depreciable	R3.0	35	35	10%		0%
	360 Collection Sewers - Force	Depreciable	R4.0	65	65	10%		0%
	361 Collection Sewers - Gravity	Depreciable	R4.0	75	75	10%		0%
	362 Special Collection Structures	Depreciable	R4.0	75	75	10%		0%
	363 Services to Customers	Depreciable	R3.0	35	35	10%		0%
	364 Flow Measuring Devices	Depreciable	R3.0	35	35	10%		0%
	365 Flow Measuring Installations	Depreciable	R3.0	35	35	10%		0%
	366 Reuse Services	Depreciable	R3.0	45	45	10%		0%
	367 Reuse Meters & Meter Installations	Depreciable	R3.0	35	35	10%		0%
	370 Receiving Wells	Depreciable	R4.0	45	45	10%		0%
	371 Pumping Equipment	Depreciable	R3.0	35	35	10%		0%
	374 Reuse Distribution Reservoirs	Depreciable	R4.0	55	55	10%		0%
	375 Reuse Transmission & Distribution System	Depreciable	R4.0	65	65	10%		0%
	380 Treatment & Disposal Equipment	Depreciable	R3.0	45	45	10%		0%
	381 Plant Sewers	Depreciable	R4.0	65	65	10%		0%
	382 Outfall Sewer Lines	Depreciable	R4.0	65	65	10%		0%
	389 Othe Plant & Miscellaneous Equipment	Depreciable	R3.0	45	45	10%		0%
	390.1 Furniture	Depreciable	R3.0	22	22	10%		0%
	390.2 Office Equipment	Depreciable	R3.0	12	12	10%		0%
	390.3 EDP Equipment	Depreciable	R3.0	8	8	10%		0%
	391 Transportation Equipment	Depreciable	R3.0	12	12	10%		0%
	392 Stores Equipment	Depreciable	R3.0	35	35	10%		0%
	393 Tools, Shop, & Garage Equipment	Depreciable	R3.0	25	25	10%		0%
	394 Laboratory Equipment	Depreciable	R3.0	25	25	10%		0%
	395 Power Operated Equipment	Depreciable	R3.0	18	18	10%		0%
	396 Communications Equipment	Depreciable	R3.0	12	12	10%		0%
	396.1 Communications Equipment	Depreciable	R3.0	12	12	10%		0%
	396.2 SCADA Systems	Depreciable	R3.0	12	12	10%		0%
	397 Miscellaneous Equipment	Depreciable	R3.0	35	35	10%		0%
	398 Other Tanigble Plant	Depreciable	R3.0	35	35	10%		0%

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:

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

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

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 reproduction cost new of account 361 8 inch diameter Collection Mains in the McKeesport Service Area of \$37,573,386 the reproduction cost new less depreciation was determined to be \$20,241,718.

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Account 361 Collection Mains - Gravity - McKeesport Service Area

(4)	(23)	(20)	21	22	24	25	26	27	28	29	30
Placement Year	Age at September 2016 Appraisal Date	Reproduction 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)
Input	years	COR \$s	Account Parameters Reference	Account Parameters Reference	% of NSL	Lookup	%	years	years	% of COR	CORLD \$s
Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation
	2016 75*(1)1	Col (20)	AUS Input	AUS Input	(23)/(22)	(21)&(24)	Iowa Life Table f(Col (25))	(24)*(26)	(23)+(27)	(27)/(26)	(20)*(29)
1959	57.75	7,042,393.11	R4.0	75.0	77	R4.0077	0.28927	21.70	79.45	27.312775%	1,923,472.98
1976	40.75	13,850,246.66	R4.0	75.0	54	R4.0054	0.47598	35.70	76.45	46.697188%	6,467,675.72
1989	27.75	10,540,067.43	R4.0	75.0	37	R4.0037	0.63414	47.56	75.31	63.152304%	6,656,295.43
1999	17.75	2,668,713.21	R4.0	75.0	24	R4.0024	0.76111	57.08	74.83	76.279567%	2,035,682.88
2008	8.75	31,884.02	R4.0	75.0	12	R4.0012	0.88023	66.02	74.77	88.297445%	28,152.78
2010	6.75	3,440,062.40	R4.0	75.0	9	R4.0009	0.91014	68.26	75.01	91.001200%	3,130,516.26
Total		37,573,386.83								53.872695%	20,241,796.05

When the above depreciation lives are used to quantify the property's depreciation is applied to each of McKeesport's investment in plant, property and equipment the reproduction cost new (RCN) of \$323,139,360 the resultant RCN less depreciation (RCNLD) was found to be \$156,524,909 detailed as follows:

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Cost Approach Summary

Service Area	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	Cost New less Depreciation adjusted for External Obsolescence
McKeesport	35,663,314.30	24,781,311	125,338,615	61,696,103	61,696,103
Duquesne	8,488,374.00	4,009,366	57,112,541	22,405,247	22,405,247
Dravosburg	1,188,766.76	398,682	11,821,704	3,718,174	3,718,174
Port Vue	1,455,194.00	362,190	20,893,663	4,942,794	4,942,794
Summary	46,795,649.06	29,551,549	215,166,523	92,762,318	92,762,318
Treatment & Pumping Plant	61,374,789	50,472,921	106,863,107	62,652,591	62,652,591
Subtotal	108,170,438.06	80,024,470	322,029,630	155,414,909	155,414,909
Land	61,132	61,132	1,110,000	-	1,110,000
Total	108,231,570.06	80,085,602	323,139,630	155,414,909	156,524,909

The preliminary cost approach to value of McKeesport's wastewater utility property was found to \$156,524,909.

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. McKeesport Municipal Authority's wastewater operation is moving from a municipal operation, wherein economic returns are not the primary objective of the operation to a private (investor owned) rate regulated sewer utility operation in which economic returns are one of the objectives of the operation; therefore, the direct capitalization of earnings approach was not utilized in this appraisal.

In the discounted cash flow (DCF) approach, the property's economic returns are forecast for future periods. The cash flows 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 McKeesport Municipal Authority wastewater utility's operations was evaluated based on an analysis of historical operating performances over the period 2008 through 2015 and budgetary 2016 (Income Approach tab – Financials Section 2008-2015 & budgetary 2016). In the analysis of the Authority's 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 – Income Analysis 2008-2015, Income Approach tab - Balance Statement Analysis 2008-2015, and Income Approach tab – Statement of Cash Flows analysis 2008-2015. Second, similar operating statistics were developed from public investor-owned water/wastewater utilities. Third, the covenants agreed upon by the parties in the Asset Purchase Agreement (August 2016) between the parties to this sale were determined, quantified and factored into the forecasted operations of the property (Income Approach

tab – Discounted Cash Flow Parameters). Using the above described analyses the results of future periods operations were forecast based on the migration of McKeesport’s historical operations type experience over time to operations of the McKeesport’s wastewater operation similar to a public investor-owned water/wastewater utility. These forecasts are detailed in the Income Approach tab in the following sections:

Income Forecast periods 1 through 19 and 20 to perpetuity

Balance Sheet Forecast: 1 through 19 and 20 to perpetuity

Current Assets

Plant and related Depreciation Expenses

Liabilities: Current Liabilities and Long term Debt

Capital Expenditures and Changes in Working Capital

Finally the resultant cash flows from future period operations of the McKeesport Municipal Authority’s wastewater system were discounted to the appraisal date using a discount 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:

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Discounted Cash Flow Analysis

Discount Rate: 7.00%
Capitalization Rate: 3.84%

Period	Age	Income from Operations	Non Cash Expense (depreciation)	Capital Expenditures	Change in Working Capital	Net Cash Flows	Period Present Worth Factor (PW)	PW of Cashflow	Accumulated PW of Cashflows
1	0.5	(215,714)	3,451,139	1,322,243	(79,751)	1,833,431	0.967	1,772,928	1,772,928
2	1.5	829,236	3,490,323	1,337,205	1,145,667	4,128,021	0.903	3,727,603	5,500,531
3	2.5	704,924	3,529,958	1,352,338	(5,518)	2,877,026	0.844	2,428,210	7,928,741
4	3.5	572,460	3,570,047	1,367,644	(5,927)	2,768,936	0.789	2,184,691	10,113,432
5	4.5	2,753,936	3,610,599	1,383,126	520,214	5,501,623	0.738	4,060,198	14,173,630
6	5.5	2,924,371	3,651,616	1,398,785	12,295	5,189,497	0.689	3,575,563	17,749,193
7	6.5	2,971,836	3,693,103	1,414,624	12,272	5,262,587	0.644	3,389,106	21,138,299
8	7.5	4,359,854	3,735,069	1,430,645	313,829	6,978,107	0.602	4,200,820	25,339,119
9	8.5	4,422,571	3,777,517	1,446,848	17,043	6,770,283	0.563	3,811,669	29,150,788
10	9.5	5,880,304	3,820,454	1,463,237	330,734	8,568,255	0.526	4,506,902	33,657,690
11	10.5	5,960,477	3,863,884	1,479,814	22,144	8,366,691	0.491	4,108,045	37,765,735
12	11.5	6,038,753	3,907,814	1,496,582	22,260	8,472,245	0.459	3,888,760	41,654,495
13	12.5	6,115,245	3,952,249	1,513,542	22,374	8,576,326	0.429	3,679,244	45,333,739
14	13.5	6,190,048	3,997,195	1,530,697	22,484	8,679,030	0.401	3,480,291	48,814,030
15	14.5	7,925,137	4,042,660	1,548,047	395,570	10,815,320	0.375	4,055,745	52,869,775
16	15.5	8,023,379	4,088,646	1,565,598	28,666	10,575,093	0.350	3,701,283	56,571,058
17	16.5	8,120,558	4,135,164	1,583,349	28,864	10,701,237	0.327	3,499,304	60,070,362
18	17.5	8,216,725	4,182,215	1,601,304	29,061	10,826,697	0.306	3,312,969	63,383,331
19	18.5	8,311,916	4,229,809	1,619,465	29,256	10,951,516	0.286	3,132,134	66,515,465
20 and beyond	19.5	10,382,413	4,277,951	1,637,836	472,978	13,495,506	6.961	93,942,217	160,457,682
Age					19.5				
PW(Age) = 1/(1+Discount Rate) ^(Age)					0.267				
PW to Perpetuity = 1/Capitalization Rate					26.042				
PW _(20and Beyond) = PW to Perpetuity * PW Factor _(19.5)					6.961				

Based on the above described discounted cash flow analysis, the Income Approach to value of the McKeesport wastewater property and its operations was determined to be \$160,457,682.

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 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 sale of the City of McKeesport, Pennsylvania wastewater system (sale of the subject) to Pennsylvania American Water (announced September 9 2016) and the sale of New Garden Township’s sewer utility to Aqua Pennsylvania, Inc. (August 2016) were analyze in relationship to those properties’ depreciated original cost (Market Approach tab).

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Comparable Sales Approach

Market Sales Basis

	OCLD	Net Book Financials	RCNLD
New Garden Statistics			
Purchase Price (Aqua-PA and New Garden)	29,500,000	29,500,000	29,500,000
AUS Depreciated Original Cost 6-30-2016	18,567,728	17,967,319	30,615,410
Purchase to DOC	1.59	1.64	0.96
McKeesport Wastewater System			
Purchase Price (America-PA and McKeesport)	156,000,000	156,000,000	156,000,000
AUS Depreciated Original Cost 9 2016	108,231,570	\$ 85,320,322	156,524,909
Rate Base OCLD	\$ 80,085,602	\$ 73,813,794	1.00
Purchase to DOC	1.44	1.83	

Financial Market Ratios – In the market approach based on market financial ratios were based on market data of companies (nine) in the water industry as reported in Value Line Investment Surveys (April 2016) were analyzed. In the analysis the companies’ stock (market) and debt (book) per share are compared as a ratio to the book value per share.

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Comparable Sales Approach

Financial Basis¹

	Industry Averages	American States Water	American Water	Aqua America	California Water	Connecticut Water	Consolidated Water	Middlesex Water	SJW Corp	York
Price per Share		38.62	71.91	31.39	30.96	49.21	11.25	34.04	42.19	28.76
Book value per share		13.7	29.05	9.78	13.55	20.7	10.1	13.15	19	8.75
Market to Book Ratio		2.82	2.48	3.21	2.28	2.38	1.11	2.59	2.22	3.29
Minimum	1.11									
Mean	2.49									
Median	2.48									
Maximum	3.29									
Debt (Total)		384.7	6,854.0	1,840.4	637.0	203.8	0.5	147.4	431.7	84.6
Outstanding Shares		36.6	177.9	177.3	48.0	11.2	14.8	16.3	20.4	12.9
Debt per share		10.51	38.53	10.38	13.27	18.2	0.03	9.04	21.16	6.56
Market Value per Share (Equity+Debt)		49.13	110.44	41.77	44.23	67.41	11.28	43.08	63.35	35.32
Book Value per Share (Equity+Debt)		24.21	67.58	20.16	26.82	38.9	10.13	22.19	40.16	15.31
Market to Book Ratio		2.03	1.63	2.07	1.65	1.73	1.11	1.94	1.58	2.31
Minimum	1.11									
Mean	1.78									
Median	1.73									
Maximum	2.31									

1. Value Line Investment Survey October 14, 2016

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

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
As of September 2016

Market Approach Summary

	Purchase Price to Depreciated Original Cost (Book Value)	Purchase Price to Depreciated Original Cost (Financials Book Value)
Comparable Sales		
New Garden	1.59	1.64
McKeesport	1.44	1.83
Minumum	1.44	
Mean	1.63	
Median	1.62	
Maximum	1.83	
	Market Value per Share to Book Value per Share	
Financial Markets		
Market to Book (equity)	2.49	Mean
Market to Book (equity and debt)	1.78	Mean
Minumum	1.44	
Mean	1.73	
Median	1.62	
Maximum	2.49	
	Value to Depreciated Original Cost (Book Value)	
Market Conclusion		
Use		1.78 Mean
McKeesport Assets	85,320,322	
Market to Book Ratio	1.78	
Market Value	151,870,173	
Use	151,870,173	

The market approach conclusion of this appraisal was determined to be \$151,870,173.

Cost Approach Revisited – Before concluding this appraisal’s fair market value the preliminary cost approach conclusion of \$156,524,909 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.”¹⁴

The above described income approach value conclusion of \$160,457,682 for the McKeesport Municipal Authority’s future sewer system and the market approach conclusion of \$151,870,173 compared to the preliminary cost approach conclusion of \$156,524,909 indicates no significant external obsolescence exists in the cost approach conclusion of \$156,524,909. Applying 0% external obsolescence to our example account of 361 8 inch diameter Collection Mains Gravity in the McKeesport Service Area the fair market value was determined as follow:

¹⁴ Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition, pp. 96-97.

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As of September 2016**

Account 361 Collection Mains - Gravity - McKeesport Service Area

(4)	(30)	(31)	(32)
Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
	CORLD \$s	% of Preliminary Cost Approach	Appraisal Date Value \$s
Input	Calculation	Input	Calculation
	(6)	Economic Obsolescence Analysis	(6) * [1.00-(31)]
1959	1,923,472.98	0.00%	1,923,472.98
1976	6,467,675.72	0.00%	6,467,675.72
1989	6,656,295.43	0.00%	6,656,295.43
1999	2,035,682.88	0.00%	2,035,682.88
2008	28,152.78	0.00%	28,152.78
2010	3,130,516.26	0.00%	3,130,516.26
Total	20,241,796.05		20,241,796.05

Therefore the preliminary cost approach conclusion of \$156,524,909 can be considered the final cost approach conclusion as follows:

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

Cost Approach Summary

Service Area	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	Cost New less Depreciation adjusted for External Obsolescence
McKeesport	35,663,314.30	24,781,311	125,338,615	61,696,103	61,696,103
Duquesne	8,488,374.00	4,009,366	57,112,541	22,405,247	22,405,247
Dravosburg	1,188,766.76	398,682	11,821,704	3,718,174	3,718,174
Port Vue	1,455,194.00	362,190	20,893,663	4,942,794	4,942,794
Summary	46,795,649.06	29,551,549	215,166,523	92,762,318	92,762,318
Treatment & Pumping Plant	61,374,789	50,472,921	106,863,107	62,652,591	62,652,591
Subtotal	108,170,438.06	80,024,470	322,029,630	155,414,909	155,414,909
Land	61,132	61,132	1,110,000	-	1,110,000
Total	108,231,570.06	80,085,602	323,139,630	155,414,909	156,524,909

Value Conclusion

The Fair Market Value of McKeesport Municipal Authority's wastewater property, plant and equipment and its operation was determined to be \$157,600,000 as follows:

**Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
AS of September 2016**

Fair Market Value Appraisal

	Value Conclusion	Weight	Wtd Value
Cost Approach			
Cost New less Depreciation	\$ 156,524,909		
Original Cost less Depreciation	\$ 80,085,602		
Cost Approach Conclusion	156,524,909	50%	78,262,455
Income Approach	160,457,682	40%	64,183,073
Market Approach	151,870,173	10%	15,187,017
Appraisal Conclusion	\$ 157,600,000		157,632,545

As the purpose of this appraisal was to full fill the requirements of Act 12 in the establishment of value for rate making of McKeesport Municipal Authority's property, plant and equipment the cost approach conclusion of \$156,524,909 is consistent with the purpose of the appraisal. This cost approach conclusion is detailed (Cost Approach tab of this report). 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.

Compliance with Uniform Standards of Professional Appraisal Practice (USPAP) 2016-2017

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 Waste Water and the Pennsylvania Public Utility Commission
- State the intended use of the appraisal
To establish the Fair Market Value of The City of McKeesport, PA's Municipal Authority's wastewater treatment and collection 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 City of McKeesport, PA's Municipal Authority's wastewater treatment and collection property consists of collection mains and laterals 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
McKeesport Municipal Authority owns approximately 18.5 acres of land on several parcels. The land is used primarily for its three treatment facilities, pump stations and office building.
- State the type and definition of value and cite the source of the definition, including whether the opinion of value is in terms of cash or of financing terms equivalent to cash, or based on non-market financing or financing with unusual conditions or incentives
 - *Market Value definition:*
"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress." The Appraisal of Real Estate, 12th Edition, page 22.
- State the effective date of the appraisal and the date of the report
The effective date of the appraisal is September 2016 and the appraisal report date is April 2017.
- Describe sufficient information to disclose to the client and any other intended users of the appraisal the scope of work used to develop the appraisal
The appraisal considered all three approaches to value: the cost, income and market. Briefly the scopes of work for each are as follows:

Compliance with Uniform Standards of Professional Appraisal Practice (USPAP) 2016-2017

Fulfillment of Requirements for a Personal Property Appraisal and Report

Cost Approach – The cost approach utilized the trended cost method utilizing the investment inventory developed by 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. McKeesport's operating experience was analyzed (2009-2015) in order to estimate the initial cash flows. Future customer tariff rates address the rates agreed to by the parties in the Asset Purchase Agreement between the parties. The operations were forecast for 19 periods in the future and a 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.

Compliance with Uniform Standards of Professional Appraisal Practice (USPAP) 2016-2017

Fulfillment of Requirements for a Personal Property Appraisal and Report

- 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
- 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.

Compliance with Uniform Standards of Professional Appraisal Practice (USPAP) 2016-2017

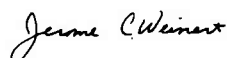
Fulfillment of Requirements for a Personal Property Appraisal and Report

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

- The statements of fact contained in this report are true and correct.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, opinions, and conclusions.
- AUS Consultants, Valuation and Depreciation Services Group has performed an appraisal of McKeesport, PA's Wastewater 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 2016-2017.
- The signers of this report have 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 KLH Engineers, Inc.'s Engineers Assessment.

AUS Consultants, Valuation and Depreciation Services Group

By:



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

**The City of McKeesport, Pennsylvania
And
The Municipal Authority of the City McKeesport**

**Appraisal Work Papers
As of September 2016**

Valuation Summary

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

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
AS of September 2016

Fair Market Value Appraisal

		Value Conclusion	Weight	Wtd Value
Cost Approach				
Cost New less Depreciation	\$	156,524,909		
Original Cost less Depreciation	\$	80,085,602		
Cost Approach Conclusion		156,524,909	50%	78,262,455
Income Approach		160,457,682	40%	64,183,073
Market Approach		151,870,173	10%	15,187,017
Appraisal Conclusion	\$	157,600,000		157,632,545

**Pennsylvania American, Inc.
 The Municipal Authority of the City of McKeesport
 Wastewater
 Investor-Owned Utility
 September 2016**

Summary of Cost Approach

Service Area	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	Cost New less Depreciation adjusted for External Obsolescence
McKeesport	35,663,314.30	24,781,311	125,338,615	61,696,103	61,696,103
Duquesne	8,488,374.00	4,009,366	57,112,541	22,405,247	22,405,247
Dravosburg	1,188,766.76	398,682	11,821,704	3,718,174	3,718,174
Port Vue	1,455,194.00	362,190	20,893,663	4,942,794	4,942,794
Summary	46,795,649.06	29,551,549	215,166,523	92,762,318	92,762,318
Treatment & Pumping Plant	61,374,789	50,472,921	106,863,107	62,652,591	62,652,591
Subtotal	108,170,438.06	80,024,470	322,029,630	155,414,909	155,414,909
Land	61,132	61,132	1,110,000	-	1,110,000
Total	108,231,570.06	80,085,602	323,139,630	155,414,909	156,524,909

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
As of September 2016
Discounted Cash Flow Analysis

Discount Rate: 7.00%
 Capitalization Rate: 3.84%

Period	Age	Income from Operations	Non Cash Expense (depreciation)	Capital Expenditures	Change in Working Capital	Net Cash Flows	Period Present Worth Factor (PW)	PW of Cashflow	Accumulated PW of Cashflows
1	0.5	(215,714)	3,451,139	1,322,243	(79,751)	1,833,431	0.967	1,772,928	1,772,928
2	1.5	829,236	3,490,323	1,337,205	1,145,667	4,128,021	0.903	3,727,603	5,500,531
3	2.5	704,924	3,529,958	1,352,338	(5,518)	2,877,026	0.844	2,428,210	7,928,741
4	3.5	572,460	3,570,047	1,367,644	(5,927)	2,768,936	0.789	2,184,691	10,113,432
5	4.5	2,753,936	3,610,599	1,383,126	520,214	5,501,623	0.738	4,060,198	14,173,630
6	5.5	2,924,371	3,651,616	1,398,785	12,295	5,189,497	0.689	3,575,563	17,749,193
7	6.5	2,971,836	3,693,103	1,414,624	12,272	5,262,587	0.644	3,389,106	21,138,299
8	7.5	4,359,854	3,735,069	1,430,645	313,829	6,978,107	0.602	4,200,820	25,339,119
9	8.5	4,422,571	3,777,517	1,446,848	17,043	6,770,283	0.563	3,811,669	29,150,788
10	9.5	5,880,304	3,820,454	1,463,237	330,734	8,568,255	0.526	4,506,902	33,657,690
11	10.5	5,960,477	3,863,884	1,479,814	22,144	8,366,691	0.491	4,108,045	37,765,735
12	11.5	6,038,753	3,907,814	1,496,582	22,260	8,472,245	0.459	3,888,760	41,654,495
13	12.5	6,115,245	3,952,249	1,513,542	22,374	8,576,326	0.429	3,679,244	45,333,739
14	13.5	6,190,048	3,997,195	1,530,697	22,484	8,679,030	0.401	3,480,291	48,814,030
15	14.5	7,925,137	4,042,660	1,548,047	395,570	10,815,320	0.375	4,055,745	52,869,775
16	15.5	8,023,379	4,088,646	1,565,598	28,666	10,575,093	0.350	3,701,283	56,571,058
17	16.5	8,120,558	4,135,164	1,583,349	28,864	10,701,237	0.327	3,499,304	60,070,362
18	17.5	8,216,725	4,182,215	1,601,304	29,061	10,826,697	0.306	3,312,969	63,383,331
19	18.5	8,311,916	4,229,809	1,619,465	29,256	10,951,516	0.286	3,132,134	66,515,465
20 and beyond	19.5	10,382,413	4,277,951	1,637,836	472,978	13,495,506	6.961	93,942,217	160,457,682

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
As of September 2016

Market Approach Summary

	Purchase Price to Depreciated Original Cost (Book Value)	Purchase Price to Depreciated Original Cost (Financials Book Value)
Comparable Sales		
New Garden	1.59	1.64
McKeesport	1.44	1.83
Mininum	1.44	
Mean	1.63	
Median	1.62	
Maximum	1.83	
	Market Value per Share to Book Value per Share	
Financial Markets		
Market to Book (equity)	2.49	Mean
Market to Book (equity and debt)	1.78	Mean
Mininum	1.44	
Mean	1.73	
Median	1.62	
Maximum	2.49	
	Value to Depreciated Original Cost (Book Value)	
Market Conclusion		
Use	1.78	Mean
McKeesport Assets	85,320,322	
Market to Book Ratio	1.78	
Market Value	151,870,173	
Use	151,870,173	

**The City of McKeesport, Pennsylvania
And
The Municipal Authority of the City McKeesport**

**Appraisal Work Papers
As of September 2016**

Cost Approach

**AUS Consultants
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Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

Summary of Cost Approach

Service Area	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	Cost New less Depreciation adjusted for External Obsolescence
McKeesport	35,663,314.30	24,781,311	125,338,615	61,696,103	61,696,103
Duquesne	8,488,374.00	4,009,366	57,112,541	22,405,247	22,405,247
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Summary	46,795,649.06	29,551,549	215,166,523	92,762,318	92,762,318
Treatment & Pumping Plant	61,374,789	50,472,921	106,863,107	62,652,591	62,652,591
Subtotal	108,170,438.06	80,024,470	322,029,630	155,414,909	155,414,909
Land	61,132	61,132	1,110,000	-	1,110,000
Total	108,231,570.06	80,085,602	323,139,630	155,414,909	156,524,909

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

McKeesport Service Area		Summary of the Original Cost (OC), OC less Depreciation, Cost New (RCN) and RCN less Depreciation							
(1)	(2)	(4)	(6)	(16)	(20)	(30)	(31)	(32)	
NARUC Account	Description	Service Date	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	OC Development Col. (16)	RCN Development Col. 20	RCNLD Development Col. 30	Account Parameters Lookup	Cols. (30)*(31)	
361	Collection Sewers - Gravity	1959	591,400.16	161,511	7,042,393	1,923,278	0%	1,923,278	
361	Collection Sewers - Gravity	1976	2,755,719.59	1,286,921	13,850,247	6,468,065	0%	6,468,065	
361	Collection Sewers - Gravity	1989	4,016,793.99	2,536,605	10,540,067	6,656,052	0%	6,656,052	
361	Collection Sewers - Gravity	1999	1,244,735.64	949,484	2,668,713	2,035,694	0%	2,035,694	
361	Collection Sewers - Gravity	2008	24,209.58	21,377	31,884	28,154	0%	28,154	
361	Collection Sewers - Gravity	2010	2,774,260.00	2,524,577	3,440,082	3,130,475	0%	3,130,475	
	Total 8"		\$11,407,118.96	7,480,475	\$37,573,386	\$20,241,718		\$20,241,718	
361	Collection Sewers - Gravity	1959	412,210.80	112,575	4,908,606	1,340,540	0%	1,340,540	
361	Collection Sewers - Gravity	1976	321,030.08	149,921	1,613,497	753,503	0%	753,503	
361	Collection Sewers - Gravity	1989	1,038,003.12	655,499	2,723,720	1,720,029	0%	1,720,029	
361	Collection Sewers - Gravity	1999	327,759.32	250,015	702,716	536,032	0%	536,032	
	Total 10"		\$2,099,003.32	\$1,168,010	\$9,948,539	\$4,350,104		\$4,350,104	
361	Collection Sewers - Gravity	1959	891,447.70	243,454	10,615,359	2,899,055	0%	2,899,055	
361	Collection Sewers - Gravity	1976	773,353.71	361,156	3,886,876	1,815,171	0%	1,815,171	
361	Collection Sewers - Gravity	2008	22,375.82	19,758	29,469	26,021	0%	26,021	
	Total 12"		\$1,687,177.23	\$624,368	\$14,531,704	\$4,740,247		\$4,740,247	
361	Collection Sewers - Gravity	1959	418,540.50	114,303	4,983,980	1,361,125	0%	1,361,125	
361	Collection Sewers - Gravity	1976	66,429.60	31,023	333,875	155,920	0%	155,920	
361	Collection Sewers - Gravity	1989	129,897.33	82,030	340,851	215,247	0%	215,247	
361	Collection Sewers - Gravity	2008	9,405.00	8,305	12,386	10,937	0%	10,937	
	Total 15"		\$624,272.43					\$1,743,229	
361	Collection Sewers - Gravity	1959	43,469.00	11,871	517,629	141,364	0%	141,364	
361	Collection Sewers - Gravity	1976	397,223.28	185,503	1,996,444	932,339	0%	932,339	
	Total 16"		\$440,692.28	\$197,374	\$2,514,073	\$1,073,703		\$1,073,703	
361	Collection Sewers - Gravity	1959	173,805.20	47,466	2,069,672	565,227	0%	565,227	
361	Collection Sewers - Gravity	1999	2,278,563.60	1,738,088	4,885,240	3,726,461	0%	3,726,461	
	Total 18"		\$2,452,368.80	\$1,785,554	\$6,954,912	\$4,291,688		\$4,291,688	
361	Collection Sewers - Gravity	1959	21,449.89	5,858	255,425	69,757	0%	69,757	
361	Collection Sewers - Gravity	2008	6,145.13	5,426	8,093	7,146	0%	7,146	
	Total 20"		\$27,595.02	\$11,284	\$263,518	\$76,903		\$76,903	
361	Collection Sewers - Gravity	2008	158,687.30	140,121	208,991	184,539	0%	184,539	
	Total 21"		\$158,687.30	\$140,121	\$208,991	\$184,539		\$184,539	
361	Collection Sewers - Gravity	1959	663,479.07	181,196	7,900,709	2,157,684	0%	2,157,684	
361	Collection Sewers - Gravity	1976	822,087.24	383,915	4,131,810	1,929,555	0%	1,929,555	

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

McKeesport Service Area		Summary of the Original Cost (OC), OC less Depreciation, Cost New (RCN) and RCN less Depreciation						
(1)	(2)	(4)	(6)	(16)	(20)	(30)	(31)	(32)
NARUC Account	Description	Service Date	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	OC Development Col. (16)	RCN Development Col. 20	RCNLD Development Col. 30	Account Parameters Lookup	Cols (30)*(31)
361	Collection Sewers - Gravity	1989	1,247,533.65	787,817	3,273,528	2,067,233	0%	2,067,233
361	Collection Sewers - Gravity	2008	393,918.33	347,830	518,790	458,092	0%	458,092
361	Collection Sewers - Gravity	2011	231,361.55	213,570	276,477	255,216	0%	255,216
	Total 24"		\$3,358,379.84	\$1,914,328	\$16,101,314	\$6,867,780		\$6,867,780
361	Collection Sewers - Gravity	1959	402,636.60	109,960	4,794,597	1,309,404	0%	1,309,404
361	Collection Sewers - Gravity	1976	319,621.76	149,263	1,606,419	750,198	0%	750,198
361	Collection Sewers - Gravity	2009	743,130.00	666,588	936,344	839,901	0%	839,901
361	Collection Sewers - Gravity	2011	398,629.00	367,974	476,362	439,730	0%	439,730
	Total 30"		\$1,864,017.36	\$1,293,785	\$7,813,722	\$3,339,233		\$3,339,233
361	Collection Sewers - Gravity	1959	9,355.50	2,555	111,405	30,425	0%	30,425
361	Collection Sewers - Gravity	2008	143,689.30	126,878	189,239	167,098	0%	167,098
361	Collection Sewers - Gravity	2009	6,284,480.00	5,637,179	7,918,445	7,102,845	0%	7,102,845
	Total 36"		\$6,437,524.80	\$5,766,612	\$8,219,089	\$7,300,368		\$7,300,368
361	Collection Sewers - Gravity	2008	111,600.72	98,543	146,978	129,782	0%	129,782
	Total 42"		\$111,600.72	\$98,543	\$146,978	\$129,782		\$129,782
361	Collection Sewers - Gravity	2008	235,425.96	207,881	310,056	273,779	0%	273,779
	Total 48"		\$235,425.96	\$207,881	\$310,056	\$273,779		\$273,779
361	Collection Sewers - Gravity	2011	151,156.18	139,532	180,632	166,741	0%	166,741
	Total 54"		\$151,156.18	\$139,532	\$180,632	\$166,741		\$166,741
361	Collection Sewers - Gravity	2008	311,864.70	275,377	410,726	362,671	0%	362,671
	Total 60"		\$311,864.70	\$275,377	\$410,726	\$362,671		\$362,671
361	Collection Sewers - Gravity	2008	170,044.74	150,150	223,949	197,747	0%	197,747
361	Collection Sewers - Gravity	2011	1,679,719.47	1,550,549	2,007,265	1,852,906	0%	1,852,906
	Total 72"		\$1,849,764.21	\$1,700,699	\$2,231,214	\$2,050,653		\$2,050,653
361	Collection Sewers - Gravity	1959	878,795.70	239,999	10,464,699	2,857,909	0%	2,857,909
361	Collection Sewers - Gravity	2008	162,824.13	143,774	214,439	189,350	0%	189,350
361	Collection Sewers - Gravity	2011	45,739.33	42,222	54,658	50,455	0%	50,455
	Total Manholes		\$1,087,359.16	\$425,995	\$10,733,796	\$3,097,714		\$3,097,714
364	Flow Measuring Devices	1960	6,474.93	647	33,534	3,353	0%	3,353
364	Flow Measuring Devices	2008	81,438.72	61,266	88,198	66,351	0%	66,351
	Total Flow Meters		\$87,913.65	\$61,913	\$121,732	\$69,704		\$69,704
360	Collection Sewers - Force	2015	1,263,672.93	1,229,554	1,321,802	1,286,113	0%	1,286,113

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McKeesport Service Area		Summary of the Original Cost (OC), OC less Depreciation, Cost New (RCN) and RCN less Depreciation						
(1)	(2)	(4)	(6)	(16)	(20)	(30)	(31)	(32)
NARUC Account	Description	Service Date	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	OC/LD Development Col. (16)	RCN Development Col. 20	RCN/LD Development Col. 30	Account Parameters Lookup	Col. (30)*(31)
	Total Force Mains		\$1,263,672.93	\$1,229,554	\$1,321,802	\$1,286,113		\$1,286,113
360	Collection Sewers - Force Total Air Release	2015	85,664.16 \$85,664.16	83,351 \$83,351	89,605 \$89,605	87,186 \$87,186	0%	87,186 \$87,186
361	Collection Sewers - Gravity Total CSO Structures	1960	9,968.94 \$9,968.94	2,807 \$2,807	113,466 \$113,466	31,952 \$31,952	0%	31,952 \$31,952
	Total McKeesport		\$35,663,314.30	\$24,545,650	\$119,667,523	\$59,952,874		\$61,696,103

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Duquesne Service Area		Summary of the Original Cost (OC), OC less Depreciation, Cost New (RCN) and RCN less Depreciation						
(1)	(2)	(4)	(6)	(16)	(20)	(30)	(31)	(32)
Account	Description	Year	Original Cost	OC less Depreciation	Cost New	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	OCLD Development Col. (16)	RCN Development Col. 20	RCNLD Development Col. 30	Account Parameters Lookup	Cols. (30)*(31)
361	Collection Sewers - Gravity	1959	\$238,640.00	65,173	2,841,725	776,075	0%	776,075
361	Collection Sewers - Gravity	1976	\$744,785.86	347,815	3,743,294	1,748,118	0%	1,748,118
361	Collection Sewers - Gravity	1989	\$1,085,623.08	685,571	2,848,675	1,798,938	0%	1,798,938
361	Collection Sewers - Gravity	1999	\$336,409.38	256,613	721,262	550,179	0%	550,179
	Total 8"		\$2,405,458	\$1,355,172	\$10,154,956	\$4,873,310		\$4,873,310
361	Collection Sewers - Gravity	1959	\$111,407.60	30,425	1,326,642	362,306	0%	362,306
361	Collection Sewers - Gravity	1976	\$86,768.32	40,521	436,098	203,658	0%	203,658
361	Collection Sewers - Gravity	1989	\$280,547.96	177,166	736,158	464,884	0%	464,884
361	Collection Sewers - Gravity	1999	\$88,583.60	67,572	189,923	144,873	0%	144,873
	Total 10"		\$567,307	\$315,684	\$2,688,821	\$1,175,721		\$1,175,721
361	Collection Sewers - Gravity	1959	\$241,598.50	65,981	2,876,955	785,696	0%	785,696
361	Collection Sewers - Gravity	1976	\$209,011.77	97,608	1,050,493	490,580	0%	490,580
	Total 12"							\$1,276,276
361	Collection Sewers - Gravity	1959	\$113,400.00	30,970	1,350,367	368,785	0%	368,785
361	Collection Sewers - Gravity	1976	\$17,950.92	8,383	90,221	42,133	0%	42,133
361	Collection Sewers - Gravity	1989	\$35,101.59	22,167	92,107	58,166	0%	58,166
	Total 15"		\$166,453	\$61,520	\$1,532,695	\$469,084		\$469,084
361	Collection Sewers - Gravity	1959	\$11,747.00	3,208	139,883	38,202	0%	38,202
361	Collection Sewers - Gravity	1976	\$107,359.82	50,137	539,590	251,989	0%	251,989
	Total 16"		\$119,107	\$53,345	\$679,473	\$290,191		\$290,191
361	Collection Sewers - Gravity	1959	\$46,971.75	12,828	559,340	152,756	0%	152,756
361	Collection Sewers - Gravity	1999	\$615,828.00	469,754	1,320,335	1,007,152	0%	1,007,152
	Total 18"		\$662,800	\$482,582	\$1,879,675	\$1,159,908		\$1,159,908
361	Collection Sewers - Gravity	1959	\$5,981.43	1,634	71,227	19,452	0%	19,452
	Total 20"		\$5,981	\$1,634	\$71,227	\$19,452		\$19,452
361	Collection Sewers - Gravity	1959	\$197,361.48	53,899	2,350,181	641,834	0%	641,834
361	Collection Sewers - Gravity	1976	\$222,177.15	103,757	1,116,662	521,481	0%	521,481
361	Collection Sewers - Gravity	1989	\$337,181.13	212,930	884,763	558,728	0%	558,728
	Total 24"		\$756,720	\$370,586	\$4,351,606	\$1,722,043		\$1,722,043

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Duquesne Service Area		Summary of the Original Cost (OC), OC less Depreciation, Cost New (RCN) and RCN less Depreciation						
(1)	(2)	(4)	(6)	(16)	(20)	(30)	(31)	(32)
Account	Description	Year	Original Cost	OC less Depreciation	Cost New	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	OC Development Col. (16)	RCN Development Col. 20	RCN Development Col. 30	Account Parameters Lookup	Cols. (30)*(31)
361	Collection Sewers - Gravity	1959	\$119,255.40	32,569	1,420,093	387,827	0%	387,827
361	Collection Sewers - Gravity	1976	\$86,388.64	40,343	434,189	202,766	0%	202,766
	Total 30"		\$205,644	\$72,912	\$1,854,282	\$590,593		\$590,593
361	Collection Sewers - Gravity	1959	\$6,819.12	1,862	81,202	22,176	0%	22,176
	Total 36"		\$6,819	\$1,862	\$81,202	\$22,176		\$22,176
361	Collection Sewers - Gravity	1963	\$2,438,230.41	763,166	26,210,977	8,204,036	0%	8,204,036
	Total Other		\$2,438,230	\$763,166	\$26,210,977	\$8,204,036		\$8,204,036
361	Collection Sewers - Gravity	1963	\$154,808.28	48,455	1,664,189	1,536,213	0%	1,536,213
361	Collection Sewers - Gravity	1963	\$8,991.39	2,814	96,657	30,254	0%	30,254
361	Collection Sewers - Gravity	1976	\$234,127.60	109,338	1,176,725	549,531	0%	549,531
361	Collection Sewers - Gravity	1989	\$205,024.00	129,473	537,983	339,736	0%	339,736
361	Collection Sewers - Gravity	1999	\$76,443.90	58,311	163,896	125,020	0%	125,020
	Total Manholes		\$679,395	\$348,391	\$3,639,450	\$2,580,754		\$2,580,754
364	Flow Measuring Devices	2011	\$22,437.20	18,782	23,918	20,022	0%	20,022
	Total Flow Meters		\$22,437	\$18,782	\$23,918	\$20,022		\$20,022
361	Collection Sewers - Gravity	1959	\$1,411.72	141	16,811	1,681	0%	1,681
	Total CSO Structures		\$1,412	\$141	\$16,811	\$1,681		\$1,681
	Total Duquesne		\$8,037,764	\$3,845,777	\$53,185,093	\$21,128,971		\$22,405,247

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Dravosburg Service Area

Summary of the Original Cost (OC), OC less Depreciation, Cost New (RCN) and RCN less Depreciation

(1)	(2)	(4)	(6)	(16)	(20)	(30)	(31)	(32)
Account	Description	Year	Original Cost	OC less Depreciation	Cost New	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	OC Development Col. (16)	RCN Development Col. 20	RCN Development Col. 30	Account Parameters Lookup	Col. (30)*(31)
361	Collection Sewers - Gravity	1962	\$14,157.00	4,305	154,325	46,930	0%	46,930
361	Collection Sewers - Gravity	1962	\$289,684.08	88,093	3,157,846	960,301	0%	960,301
361	Collection Sewers - Gravity	1962	\$116,490.48	35,425	1,269,863	386,165	0%	386,165
361	Collection Sewers - Gravity	1962	\$115,525.52	35,131	1,259,344	382,967	0%	382,967
361	Collection Sewers - Gravity	1962	\$5,507.20	1,675	60,034	18,256	0%	18,256
361	Collection Sewers - Gravity	1962	\$50,490.00	15,354	550,391	167,374	0%	167,374
361	Collection Sewers - Gravity	1962	\$8,618.40	2,621	93,949	28,570	0%	28,570
361	Collection Sewers - Gravity	1962	\$42,206.40	12,835	460,092	139,914	0%	139,914
361	Collection Sewers - Gravity	1962	\$33,229.92	10,105	362,239	110,157	0%	110,157
361	Collection Sewers - Gravity	1962	\$208,803.52	63,497	2,276,167	692,182	0%	692,182
361	Collection Sewers - Gravity	1962	\$47,593.32	14,473	518,815	157,772	0%	157,772
Total 1962			\$932,305.84	\$283,514	\$10,163,065	\$3,090,588		\$3,090,588
361	Collection Sewers - Gravity	1980	\$78,763.85	40,595	301,823	155,560	0%	155,560
361	Collection Sewers - Gravity	1984	\$68,207.82	38,551	216,355	122,284	0%	122,284
Total 8"			\$146,971.67	\$79,146	\$518,178	\$277,844		\$277,844
361	Collection Sewers - Gravity	1962	\$103,702.19	31,536	1,130,458	343,772	0%	343,772
364	Flow Measuring Devices	2010	\$5,401.55	4,369	5,801	4,692	0%	4,692
361	Collection Sewers - Gravity	1962	\$385.51	117	4,202	1,278	0%	1,278
Total Dravosburg			\$1,188,766.76	\$398,682	\$11,821,704	\$3,718,174		\$3,718,174

Summary of the Original Cost (OC), OC less Depreciation, Cost New (RCN) and RCN less Depreciation

(4)	(6)	(16)	(20)	(29)	(30)	(31)
Year	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation
AUS Input	OC Development Col. (6)	OCLD Development Col. (16)	RCN Development Col. 20	RCNLD Development Col. 29	Account Parameters Lookup	Cols. (29)*(30)
1955	18,221	4,295	266,099	62,720	0%	62,720
1955	741,167	174,693	10,824,003	2,551,218	0%	2,551,218
1955	155,556	36,665	2,271,740	535,449	0%	535,449
1955	81,445	19,197	1,189,423	280,347	0%	280,347
1955	111,207	26,211	1,624,067	382,793	0%	382,793
1955	20,888	4,923	305,048	71,900	0%	71,900
1955	74,423	17,542	1,086,873	256,176	0%	256,176
1955	36,102	8,509	527,234	124,269	0%	124,269
1955	16,446	3,876	240,177	56,610	0%	56,610
	\$1,255,455	\$295,911	\$18,334,664	\$4,321,482		\$4,321,482
1955	171,799	40,493	2,508,953	591,360	0%	591,360
2016	25,969	25,413	26,021	25,464	0%	25,464
1955	494	76	7,214	1,104	0%	1,104
1960	1,477	297	16,811	3,384	0%	3,384
	\$1,455,194	\$362,190	\$20,893,663	\$4,942,794		\$4,942,794

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation					External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	lowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	lowa Lookup	lowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (I50) & (48)	Cost Index Lookup (I50) & (2017)	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2016 75 (48)	(57)/(56)	Colls (55) & (58)	lowa Lookup (I59)	(56)*(60)	(57)/(61)	(61)/(62)	(54)*(63)	Account Parameters	(54)*(64)	
390.1 Furniture	2015	\$0 AUST-112		454	457	1.007		R3.0	22	1.75	8 R3.0008	0.9216	20.28	22.03	92.06%		0%			
390.3 EDP Equipment	2015	\$0 AUST-114		0.63	0.73	1.159		R3.0	8	1.75	22 R3.0022	0.78729	6.30	8.05	78.26%		0%			
390.1 Furniture	2015	\$0 AUST-112		454	457	1.007		R3.0	22	1.75	8 R3.0008	0.9216	20.28	22.03	92.06%		0%			
390.2 Office Equipment	2015	\$0 AUST-113		172	173	1.006		R3.0	12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%		0%			
396.1 Communications Equipment	2015	\$12,600 USBL52		96	96	1	12,600	R3.0	12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	10,763	0%	10,763		
396.1 Communications Equipment	2004	\$6,000 USBL52		98	96	0.98	5,880	R3.0	12	12.75	106 R3.0106	0.17527	2.10	14.85	14.14%	831	0%	831		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%		0%			
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%		0%			
354.4 Structures & Improvements - Treatment Plants	1960	\$286,202 HWW-115		53	672	12.679	3,628,755	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	362,876	0%	362,876		
354.4 Structures & Improvements - Treatment Plants	1975	\$106,080 HWW-115		127	672	5.291	561,269	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	92,441	0%	92,441		
354.4 Structures & Improvements - Treatment Plants	2008	\$160,825 HWW-115		538.3	672	1.248	200,710	R4.0	45	8.75	19 R4.0019	0.81061	36.48	45.23	80.65%	161,873	0%	161,873		
354.4 Structures & Improvements - Treatment Plants	2008	\$0 HWW-115		538.3	672	1.248		R4.0	45	8.75	19 R4.0019	0.81061	36.48	45.23	80.65%		0%			
354.4 Structures & Improvements - Treatment Plants	2014	\$417,812 HWW-115		630.8	672	1.065	444,970	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	417,827	0%	417,827		
380.0 Treatment & Disposal Equipment	2015	\$43,000 HWW-116		741.3	774	1.044	44,892	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	43,146	0%	43,146		
380.0 Treatment & Disposal Equipment	2015	\$43,000 HWW-116		741.3	774	1.044	44,892	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	43,146	0%	43,146		
380.0 Treatment & Disposal Equipment	2015	\$33,500 HWW-116		741.3	774	1.044	34,974	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	33,614	0%	33,614		
380.0 Treatment & Disposal Equipment	2015	\$0 HWW-116		741.3	774	1.044		R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%		0%			
380.0 Treatment & Disposal Equipment	1960	\$0 HWW-116		55	774	14.073		R3.0	45	56.75	126 R3.0126	0.10823	4.87	61.62	10.00%		0%			
380.0 Treatment & Disposal Equipment	1960	\$0 HWW-116		55	774	14.073		R3.0	45	56.75	126 R3.0126	0.10823	4.87	61.62	10.00%		0%			
395.0 Power Operated Equipment	2015	\$7,397 AUST-18		315	322	1.022	7,560	R3.0	18	1.75	10 R3.0010	0.90216	16.24	17.99	90.27%	6,824	0%	6,824		
390.2 Office Equipment	2010	\$0 AUST-113		169	173	1.024		R3.0	12	6.75	56 R3.0056	0.48904	5.87	12.62	46.51%		0%			
380.0 Treatment & Disposal Equipment	2001	\$54,944 HWW-116		428	774	1.808	99,339	R3.0	45	15.75	35 R3.0035	0.66761	30.04	45.79	65.60%	65,166	0%	65,166		
380.0 Treatment & Disposal Equipment	2015	\$37,200 HWW-116		741.3	774	1.044	38,837	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	37,326	0%	37,326		
380.0 Treatment & Disposal Equipment	2001	\$142,854 HWW-116		428	774	1.808	258,280	R3.0	45	15.75	35 R3.0035	0.66761	30.04	45.79	65.60%	169,432	0%	169,432		
380.0 Treatment & Disposal Equipment	2015	\$86,000 HWW-116		741.3	774	1.044	89,784	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	86,291	0%	86,291		
396.2 SCADA Systems	2015	\$576,120 USBL52		96	96	1	576,120	R3.0	12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	492,122	0%	492,122		
390.1 Furniture	2015	\$0 AUST-112		454	457	1.007		R3.0	22	1.75	8 R3.0008	0.9216	20.28	22.03	92.06%		0%			
380.0 Treatment & Disposal Equipment	2001	\$640,705 HWW-116		428	774	1.808	1,158,395	R3.0	45	15.75	35 R3.0035	0.66761	30.04	45.79	65.60%	759,907	0%	759,907		
380.0 Treatment & Disposal Equipment	2015	\$1,800,000 HWW-116		741.3	774	1.044	1,879,200	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	1,806,099	0%	1,806,099		
390.2 Office Equipment	1990	\$0 AUST-113		154	173	1.123		R3.0	12	26.75	223 R3.0223	0	0.00	26.75	10.00%		0%			
380.0 Treatment & Disposal Equipment	1985	\$0 HWW-116		262	774	2.954		R3.0	45	31.75	71 R3.0071	0.37545	16.90	48.65	34.74%		0%			
390.2 Office Equipment	2010	\$0 AUST-113		169	173	1.024		R3.0	12	6.75	56 R3.0056	0.48904	5.87	12.62	46.51%		0%			
390.2 Office Equipment	1995	\$0 AUST-113		156	173	1.109		R3.0	12	21.75	181 R3.0181	0	0.00	21.75	10.00%		0%			
390.2 Office Equipment	1990	\$0 AUST-113		154	173	1.123		R3.0	12	26.75	223 R3.0223	0	0.00	26.75	10.00%		0%			
390.3 EDP Equipment	2015	\$0 AUST-114		0.63	0.73	1.159		R3.0	8	1.75	22 R3.0022	0.78729	6.30	8.05	78.26%		0%			
394.0 Laboratory Equipment	2015	\$10,000 USBL51		237	243	1.025	10,250	R3.0	25	1.75	7 R3.0007	0.93135	23.28	25.03	93.01%	9,534	0%	9,534		
394.0 Laboratory Equipment	2010	\$41,985 USBL51		218	243	1.115	46,813	R3.0	25	6.75	27 R3.0027	0.74058	18.51	25.26	73.28%	34,305	0%	34,305		
394.0 Laboratory Equipment	2015	\$7,200 USBL51		237	243	1.025	7,380	R3.0	25	1.75	7 R3.0007	0.93135	23.28	25.03	93.01%	6,864	0%	6,864		
394.0 Laboratory Equipment	2010	\$0 USBL51		218	243	1.115		R3.0	25	6.75	27 R3.0027	0.74058	18.51	25.26	73.28%		0%			
380.0 Treatment & Disposal Equipment	1960	\$0 HWW-116		55	774	14.073		R3.0	45	56.75	126 R3.0126	0.10823	4.87	61.62	10.00%		0%			
380.0 Treatment & Disposal Equipment	2015	\$5,417 HWW-116		741.3	774	1.044	5,655	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	5,435	0%	5,435		
390.2 Office Equipment	1995	\$11,074 AUST-113		156	173	1.109	12,281	R3.0	12	21.75	181 R3.0181	0	0.00	21.75	10.00%	1,228	0%	1,228		

Cost Approach

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation					External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup R(50) & (48)	Cost Index Lookup R(50) & (2017)	(52)/(51)	(49)*(51)	Account Parameters	Account Parameters	2016 75 (48)	(57)/(56)	Col: (55) & (58)	Iowa Lookup R(59)	(56)*(60)	(57)*(61)	(61)/(62)	(54)*(61)	Account Parameters	(54)*(64)	
380.0 Treatment & Disposal Equipment	1975	\$0 HWW-116		134	774	5.776		R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-		
380.0 Treatment & Disposal Equipment	1975	\$20,457 HWW-116		134	774	5.776	118,160	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	24,034	0%	24,034		
380.0 Treatment & Disposal Equipment	2016	\$21,859 HWW-116		761.3	774	1.017	22,231	R3.0	45	0.75	2 R3.0002	0.98032	44.11	44.86	98.33%	21,860	0%	21,860		
390.3 EDP Equipment	2016	\$7,500 AUST-114		0.65	0.73	1.123	8,423	R3.0	8	0.75	9 R3.0009	0.91187	7.29	8.04	90.67%	7,637	0%	7,637		
380.0 Treatment & Disposal Equipment	1975	\$230,139 HWW-116		134	774	5.776	1,329,283	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	270,376	0%	270,376		
380.0 Treatment & Disposal Equipment	1975	\$9,133 HWW-116		134	774	5.776	52,752	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	10,730	0%	10,730		
380.0 Treatment & Disposal Equipment	1975	\$0 HWW-116		134	774	5.776	-	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-		
380.0 Treatment & Disposal Equipment	1975	\$0 HWW-116		134	774	5.776	-	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-		
380.0 Treatment & Disposal Equipment	1975	\$10,046 HWW-116		134	774	5.776	58,026	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	11,802	0%	11,802		
380.0 Treatment & Disposal Equipment	1975	\$10,046 HWW-116		134	774	5.776	58,026	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	11,802	0%	11,802		
380.0 Treatment & Disposal Equipment	1975	\$10,046 HWW-116		134	774	5.776	58,026	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	11,802	0%	11,802		
380.0 Treatment & Disposal Equipment	1975	\$0 HWW-116		134	774	5.776	-	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-		
380.0 Treatment & Disposal Equipment	1975	\$0 HWW-116		134	774	5.776	-	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	2014	\$4,043,354 HWW-115		630.8	672	1.065	4,306,172	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	4,043,496	0%	4,043,496		
380.0 Treatment & Disposal Equipment	2015	\$975,000 HWW-116		741.3	774	1.044	1,017,900	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	978,304	0%	978,304		
380.0 Treatment & Disposal Equipment	2015	\$0 HWW-116		741.3	774	1.044	-	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	-	0%	-		
380.0 Treatment & Disposal Equipment	2015	\$6,000 HWW-116		741.3	774	1.044	6,264	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	6,020	0%	6,020		
390.2 Office Equipment	2015	\$0 AUST-113		172	173	1.006	-	R3.0	12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	-	0%	-		
380.0 Treatment & Disposal Equipment	2015	\$452,000 HWW-116		741.3	774	1.044	471,888	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	453,532	0%	453,532		
380.0 Treatment & Disposal Equipment	2015	\$500,000 HWW-116		741.3	774	1.044	522,000	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	501,694	0%	501,694		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	2014	\$378,778 HWW-115		630.8	672	1.065	403,399	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	378,792	0%	378,792		
380.0 Treatment & Disposal Equipment	2015	\$57,500 HWW-116		741.3	774	1.044	60,030	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695		
380.0 Treatment & Disposal Equipment	2015	\$57,500 HWW-116		741.3	774	1.044	60,030	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695		

Cost Approach

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(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)				
Account										Costing					Depreciation					External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation					
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (F50) & (48)	Cost Index Lookup (F50) & (2017)	(52)/(51)	(49)*(51)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(56)	Col. (55) & (58)	Iowa Lookup (F59)	(56)/(60)	(57)/(61)	(61)/(62)	(54)/(63)	Account Parameters	(54)*(64)					
380.0 Treatment & Disposal Equipment	2015	\$57,500	HWW-116	741.3	774	1.044	60,030	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695						
380.0 Treatment & Disposal Equipment	2015	\$57,500	HWW-116	741.3	774	1.044	60,030	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695						
380.0 Treatment & Disposal Equipment	2015	\$57,500	HWW-116	741.3	774	1.044	60,030	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695						
380.0 Treatment & Disposal Equipment	2015	\$6,000	HWW-116	741.3	774	1.044	6,264	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	6,020	0%	6,020						
380.0 Treatment & Disposal Equipment	2015	\$18,600	HWW-116	741.3	774	1.044	19,418	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	18,663	0%	18,663						
380.0 Treatment & Disposal Equipment	2015	\$154,675	HWW-116	741.3	774	1.044	161,481	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	155,199	0%	155,199						
380.0 Treatment & Disposal Equipment	2015	\$175,000	HWW-116	741.3	774	1.044	182,700	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	175,593	0%	175,593						
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	2014	\$227,300	HWW-115	630.8	672	1.065	242,075	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	227,308	0%	227,308						
380.0 Treatment & Disposal Equipment	2015	\$6,500	HWW-116	741.3	774	1.044	6,786	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	6,522	0%	6,522						
380.0 Treatment & Disposal Equipment	2015	\$10,000	HWW-116	741.3	774	1.044	10,440	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	10,034	0%	10,034						
380.0 Treatment & Disposal Equipment	2015	\$18,500	HWW-116	741.3	774	1.044	19,314	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	18,563	0%	18,563						
380.0 Treatment & Disposal Equipment	2015	\$12,000	HWW-116	741.3	774	1.044	12,528	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	12,041	0%	12,041						
380.0 Treatment & Disposal Equipment	2015	\$0	HWW-116	741.3	774	1.044	-	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	-	0%	-						
380.0 Treatment & Disposal Equipment	2015	\$35,000	HWW-116	741.3	774	1.044	36,540	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	35,119	0%	35,119						
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	2014	\$575,000	HWW-115	630.8	672	1.065	612,375	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	575,020	0%	575,020						
380.0 Treatment & Disposal Equipment	2015	\$43,500	HWW-116	741.3	774	1.044	45,414	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	43,647	0%	43,647						
380.0 Treatment & Disposal Equipment	2015	\$43,500	HWW-116	741.3	774	1.044	45,414	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	43,647	0%	43,647						
380.0 Treatment & Disposal Equipment	2015	\$43,500	HWW-116	741.3	774	1.044	45,414	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	43,647	0%	43,647						
380.0 Treatment & Disposal Equipment	2015	\$43,500	HWW-116	741.3	774	1.044	45,414	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	43,647	0%	43,647						
380.0 Treatment & Disposal Equipment	2015	\$12,400	HWW-116	741.3	774	1.044	12,946	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	12,442	0%	12,442						
380.0 Treatment & Disposal Equipment	2015	\$160,000	HWW-116	741.3	774	1.044	167,040	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	160,542	0%	160,542						
380.0 Treatment & Disposal Equipment	2015	\$183,100	HWW-116	741.3	774	1.044	191,156	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	183,720	0%	183,720						
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1999	\$0	HWW-115	343	672	1.959	-	R4.0	45	17.75	39 R4.0039	0.61495	27.67	45.42	60.92%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1975	\$1,733,304	HWW-115	127	672	5.291	9,170,911	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	1,510,449	0%	1,510,449						
380.0 Treatment & Disposal Equipment	2013	\$21,542	HWW-116	699	774	1.107	23,847	R3.0	45	3.75	8 R3.0008	0.9216	41.47	45.22	91.71%	21,870	0%	21,870						
380.0 Treatment & Disposal Equipment	2013	\$21,542	HWW-116	699	774	1.107	23,847	R3.0	45	3.75	8 R3.0008	0.9216	41.47	45.22	91.71%	21,870	0%	21,870						
380.0 Treatment & Disposal Equipment	2003	\$0	HWW-116	451.8	774	1.713	-	R3.0	45	13.75	31 R3.0031	0.7038	31.67	45.42	69.73%	-	0%	-						
380.0 Treatment & Disposal Equipment	2015	\$20,000	HWW-116	741.3	774	1.044	20,880	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	20,068	0%	20,068						
380.0 Treatment & Disposal Equipment	2003	\$0	HWW-116	451.8	774	1.713	-	R3.0	45	13.75	31 R3.0031	0.7038	31.67	45.42	69.73%	-	0%	-						
380.0 Treatment & Disposal Equipment	2003	\$5,992	HWW-116	451.8	774	1.713	10,264	R3.0	45	13.75	31 R3.0031	0.7038	31.67	45.42	69.73%	7,157	0%	7,157						
380.0 Treatment & Disposal Equipment	2015	\$127,200	HWW-116	741.3	774	1.044	132,797	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	127,631	0%	127,631						
380.0 Treatment & Disposal Equipment	1975	\$1,922,449	HWW-116	134	774	5.776	11,104,065	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	2,258,567	0%	2,258,567						
380.0 Treatment & Disposal Equipment	2015	\$87,420	HWW-116	741.3	774	1.044	91,266	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	87,716	0%	87,716						
380.0 Treatment & Disposal Equipment	1975	\$302,268	HWW-116	134	774	5.776	1,745,900	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	355,116	0%	355,116						
380.0 Treatment & Disposal Equipment	1999	\$530,970	HWW-116	401	774	1.93	1,024,772	R3.0	45	17.75	39 R3.0039	0.63205	28.44	46.19	61.57%	630,952	0%	630,952						

Cost Approach

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation						External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (50) & (48)	Cost Index Lookup (50) & (2017)	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2016 75 (48)	(57)/(56)	Col. (55) & (58)	Iowa Lookup (59)	(56)*(60)	(57)*(61)	(63)/(62)	(64)*(63)	Account Parameters	(64)*(64)	
380.0 Treatment & Disposal Equipment	2007	\$98,988	HWW-116	537	774	1.441	142,642	R3.0	45	9.75	22 R3.0022	0.78729	35.43	45.18	78.42%	111,860	0%	111,860		
380.0 Treatment & Disposal Equipment	2007	\$98,988	HWW-116	537	774	1.441	142,642	R3.0	45	9.75	22 R3.0022	0.78729	35.43	45.18	78.42%	111,860	0%	111,860		
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1975	\$393,386	HWW-115	127	672	5.291	2,081,405	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	342,807	0%	342,807		
380.0 Treatment & Disposal Equipment	2008	\$413,155	HWW-116	586	774	1.321	545,778	R3.0	45	8.75	19 R3.0019	0.81568	36.71	45.46	80.75%	440,716	0%	440,716		
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1975	\$395,941	HWW-115	127	672	5.291	2,094,924	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	345,034	0%	345,034		
380.0 Treatment & Disposal Equipment	2008	\$413,155	HWW-116	586	774	1.321	545,778	R3.0	45	8.75	19 R3.0019	0.81568	36.71	45.46	80.75%	440,716	0%	440,716		
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1975	\$335,807	HWW-115	127	672	5.291	1,776,755	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	292,632	0%	292,632		
364.0 Flow Measuring Devices	2011	\$0	HWW-140	379	404	1.066	-	R3.0	35	5.75	16 R3.0016	0.8443	29.55	35.30	83.71%	-	0%	-		
380.0 Treatment & Disposal Equipment	2015	\$28,500	HWW-116	741.3	774	1.044	29,754	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	28,597	0%	28,597		
380.0 Treatment & Disposal Equipment	2015	\$28,500	HWW-116	741.3	774	1.044	29,754	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	28,597	0%	28,597		
390.2 Office Equipment	1995	\$0	AUST-113	156	173	1.109	-	R3.0	12	21.75	181 R3.0181	0	0.00	21.75	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1960	\$18,880	HWW-116	55	774	14.073	265,698	R3.0	45	56.75	126 R3.0126	0.10823	4.87	61.62	10.00%	26,570	0%	26,570		
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$280,787	HWW-115	53	672	12.679	3,560,098	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	356,010	0%	356,010		
354.4 Structures & Improvements - Treatment Plants	2014	\$110,000	HWW-115	630.8	672	1.065	117,150	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	110,004	0%	110,004		
380.0 Treatment & Disposal Equipment	2015	\$51,000	HWW-116	741.3	774	1.044	53,244	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	51,173	0%	51,173		
380.0 Treatment & Disposal Equipment	2015	\$51,000	HWW-116	741.3	774	1.044	53,244	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	51,173	0%	51,173		
380.0 Treatment & Disposal Equipment	2015	\$51,000	HWW-116	741.3	774	1.044	53,244	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	51,173	0%	51,173		
380.0 Treatment & Disposal Equipment	2015	\$51,000	HWW-116	741.3	774	1.044	53,244	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	51,173	0%	51,173		
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	2014	\$6,497,100	HWW-115	630.8	672	1.065	6,919,412	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	6,497,328	0%	6,497,328		
380.0 Treatment & Disposal Equipment	2015	\$2,698,000	HWW-116	741.3	774	1.044	2,816,712	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	2,707,142	0%	2,707,142		
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	2014	\$1,348,050	HWW-115	630.8	672	1.065	1,435,673	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	1,348,097	0%	1,348,097		

Cost Approach

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation						External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation		
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (50) & (48)	Cost Index Lookup (50) & (51)	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2014 75 (48)	(57)/(54)	Cost (55) & (58)	Iowa Lookup (59)	(56)*(60)	(57)*(61)	(63)/(62)	(54)*(63)	Account Parameters	(64)*(64)	
354.4 Structures & Improvements - Treatment Plants	2010	\$3,800,000	HWW-115	559.8	672	1.2	4,560,000	R4.0	45	6.75	15 R4.0015	0.85036	38.27	45.02	85.01%	3,876,456	0%	3,876,456		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
390.1 Furniture	1963	\$0	AUST-112	71	457	6.437	-	R3.0	22	53.75	244 R3.0244	0	0.00	53.75	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	2014	\$6,911	HWW-116	724.8	774	1.068	7,381	R3.0	45	2.75	6 R3.0006	0.94112	42.35	45.10	93.90%	6,931	0%	6,931		
390.1 Furniture	1963	\$0	AUST-112	71	457	6.437	-	R3.0	22	53.75	244 R3.0244	0	0.00	53.75	10.00%	-	0%	-		
390.3 EDP Equipment	2013	\$0	AUST-114	0.5	0.73	1.46	-	R3.0	8	3.75	47 R3.0047	0.56303	4.50	8.25	54.55%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
355.0 Power Generating Equipment	1963	\$0	USBL54	30.2	206	6.821	-	R3.0	35	53.75	154 R3.0154	0.03593	1.26	55.01	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
390.2 Office Equipment	1963	\$0	AUST-113	90	173	1.922	-	R3.0	12	53.75	448 R3.0448	0	0.00	53.75	10.00%	-	0%	-		
394.0 Laboratory Equipment	1963	\$0	USBL51	31	243	7.839	-	R3.0	25	53.75	215 R3.0215	0	0.00	53.75	10.00%	-	0%	-		
390.1 Furniture	1963	\$0	AUST-112	71	457	6.437	-	R3.0	22	53.75	244 R3.0244	0	0.00	53.75	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
390.2 Office Equipment	1963	\$0	AUST-113	90	173	1.922	-	R3.0	12	53.75	448 R3.0448	0	0.00	53.75	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-		

Cost Approach

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation					External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup f(50) & (48)	Cost Index Lookup f(50) & (2017)	(52)/(51)	(49)/(53)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(56)	Cols. (55) & (58)	Iowa Lookup f(59)	(56)*(60)	(57)*(61)	(61)/(61)	(54)*(63)	Account Parameters	(54)*(64)	
394.0 Laboratory Equipment	1963	\$0 USBL51		31	243	7.839		R3.0	25	53.75	215 R3.0215		0	0.00	53.75	10.00%				
380.0 Treatment & Disposal Equipment	1963	\$0 HWW-116		59	774	13.119		R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%			0%		
354.4 Structures & Improvements - Treatment Plants	1963	\$0 HWW-115		55	672	12.218		R4.0	45	53.75	119 R4.0119	0.07948	3.58	57.33	10.00%			0%		
354.4 Structures & Improvements - Treatment Plants	1963	\$0 HWW-115		55	672	12.218		R4.0	45	53.75	119 R4.0119	0.07948	3.58	57.33	10.00%			0%		
354.4 Structures & Improvements - Treatment Plants	1963	\$0 HWW-116		59	774	13.119		R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%			0%		
354.4 Structures & Improvements - Treatment Plants	1963	\$0 HWW-115		55	672	12.218		R4.0	45	53.75	119 R4.0119	0.07948	3.58	57.33	10.00%			0%		
354.4 Structures & Improvements - Treatment Plants	1963	\$0 HWW-115		55	672	12.218		R4.0	45	53.75	119 R4.0119	0.07948	3.58	57.33	10.00%			0%		
354.4 Structures & Improvements - Treatment Plants	1963	\$0 HWW-115		55	672	12.218		R4.0	45	53.75	119 R4.0119	0.07948	3.58	57.33	10.00%			0%		
380.0 Treatment & Disposal Equipment	1963	\$0 HWW-116		59	774	13.119		R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%			0%		
380.0 Treatment & Disposal Equipment	1963	\$0 HWW-116		59	774	13.119		R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%			0%		
380.0 Treatment & Disposal Equipment	1963	\$0 HWW-116		59	774	13.119		R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%			0%		
380.0 Treatment & Disposal Equipment	1963	\$0 HWW-116		59	774	13.119		R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%			0%		
380.0 Treatment & Disposal Equipment	1963	\$0 HWW-116		59	774	13.119		R3.0	45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%			0%		
353.1 Land Improvements	1963	\$0 USBL51		31	243	7.839		R4.0	45	53.75	119 R4.0119	0.07948	3.58	57.33	10.00%			0%		
353.1 Land Improvements	1963	\$0 USBL51		31	243	7.839		R4.0	45	53.75	119 R4.0119	0.07948	3.58	57.33	10.00%			0%		
354.3 Structures & Improvements - Pump Stations	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%			0%		
354.3 Structures & Improvements - Pump Stations	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%			0%		
354.3 Structures & Improvements - Pump Stations	1960	\$83,533 HWW-115		53	672	12.679	1,059,115	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	105,912		0%	105,912	
354.3 Structures & Improvements - Pump Stations	2014	\$68,849 HWW-115		630.8	672	1.065	73,324	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	68,851		0%	68,851	
371.0 Pumping Equipment	2012	\$14,282 HWW-19		787.5	1075	1.365	19,495	R3.0	35	4.75	14 R3.0014	0.8635	30.22	34.97	86.42%	16,848		0%	16,848	
364.0 Flow Measuring Devices	2015	\$14,500 HWW-140		400.8	404	1.008	14,616	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	13,885		0%	13,885	
371.0 Pumping Equipment	2015	\$121,000 HWW-19		945	1075	1.138	137,698	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	130,813		0%	130,813	
371.0 Pumping Equipment	2015	\$130,000 HWW-19		945	1075	1.138	147,940	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	140,543		0%	140,543	
371.0 Pumping Equipment	2015	\$211,000 HWW-19		945	1075	1.138	240,118	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	228,112		0%	228,112	
371.0 Pumping Equipment	2015	\$7,200 HWW-19		945	1075	1.138	8,194	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	7,784		0%	7,784	
396.2 SCADA Systems	2015	\$86,500 USBL52		96	96	1	86,500	R3.0	12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	73,888		0%	73,888	
371.0 Pumping Equipment	2015	\$0 HWW-19		945	1075	1.138		R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%			0%		
353.1 Land Improvements	1960	\$0 USBL51		30	243	8.1		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%			0%		
353.1 Land Improvements	1960	\$0 USBL51		30	243	8.1		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%			0%		
353.1 Land Improvements	2014	\$0 USBL51		237	243	1.025		R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%			0%		
353.1 Land Improvements	2014	\$0 USBL51		237	243	1.025		R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%			0%		
355.0 Power Generating Equipment	2015	\$74,000 USBL54		206.4	206	0.998	73,852	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	70,159		0%	70,159	
396.1 Communications Equipment	2012	\$0 USBL52		96	96	1		R3.0	12	4.75	40 R3.0040	0.62327	7.48	12.23	61.16%			0%		
354.3 Structures & Improvements - Pump Stations	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%			0%		
354.3 Structures & Improvements - Pump Stations	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%			0%		
354.3 Structures & Improvements - Pump Stations	1960	\$51,484 HWW-115		53	672	12.679	652,766	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	65,277		0%	65,277	
354.3 Structures & Improvements - Pump Stations	2014	\$37,203 HWW-115		630.8	672	1.065	39,621	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	37,204		0%	37,204	
371.0 Pumping Equipment	2015	\$15,000 HWW-19		945	1075	1.138	17,070	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	16,217		0%	16,217	
371.0 Pumping Equipment	2015	\$155,000 HWW-19		945	1075	1.138	176,390	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	167,571		0%	167,571	
364.0 Flow Measuring Devices	2015	\$14,500 HWW-140		400.8	404	1.008	14,616	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	13,885		0%	13,885	
371.0 Pumping Equipment	2015	\$130,000 HWW-19		945	1075	1.138	147,940	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	140,543		0%	140,543	
371.0 Pumping Equipment	2015	\$259,000 HWW-19		945	1075	1.138	294,742	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	280,005		0%	280,005	
371.0 Pumping Equipment	2015	\$7,200 HWW-19		945	1075	1.138	8,194	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	7,784		0%	7,784	
371.0 Pumping Equipment	2015	\$0 HWW-19		945	1075	1.138		R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%			0%		
396.2 SCADA Systems	2015	\$86,500 USBL52		96	96	1	86,500	R3.0	12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	73,888		0%	73,888	
390.2 Office Equipment	2012	\$0 AUST-113		173	173	1		R3.0	12	4.75	40 R3.0040	0.62327	7.48	12.23	61.16%			0%		
353.1 Land Improvements	1960	\$0 USBL51		30	243	8.1		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%			0%		
353.1 Land Improvements	2014	\$10,036 USBL51		237	243	1.025	10,287	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	9,659		0%	9,659	
353.1 Land Improvements	1960	\$0 USBL51		30	243	8.1		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%			0%		
353.1 Land Improvements	2014	\$5,438 USBL51		237	243	1.025	5,574	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	5,234		0%	5,234	
353.1 Land Improvements	1960	\$0 USBL51		30	243	8.1		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%			0%		

Cost Approach

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation					External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation		
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (150) & (48)	Cost Index Lookup (150) & (101)(1)	(52)(51)	(49)(53)	Account Parameters	Account Parameter	2016 75 (48)	(57)(56)	Cost (55) & (58)	Iowa Lookup (159)	(56)(60)	(57)(61)	(61)(62)	(54)(63)	Account Parameters	(54)(54)	
353.1 Land Improvements	2014	\$0 USBL51		237	243	1.025	-	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	-	0%	-		
353.1 Land Improvements	2014	\$0 USBL51		237	243	1.025	-	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	-	0%	-		
355.0 Power Generating Equipment	2015	\$104,000 USBL54		206.4	206	0.998	103,792	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	98,602	0%	98,602		
396.1 Communications Equipment	2015	\$0 USBL52		96	96	1	-	R3.0	12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2016	\$0 HWW-115		661.3	672	1.016	-	R4.0	45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2016	\$0 HWW-115		661.3	672	1.016	-	R4.0	45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	1960	\$31,290 HWW-115		53	672	12.679	396,726	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	39,673	0%	39,673		
354.3 Structures & Improvements - Pump Stations	2014	\$2,492,500 HWW-115		630.8	672	1.065	2,654,513	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	2,492,588	0%	2,492,588		
371.0 Pumping Equipment	2015	\$457,000 HWW-19		945	1075	1.138	520,066	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	494,063	0%	494,063		
371.0 Pumping Equipment	2015	\$31,200 HWW-19		945	1075	1.138	35,506	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	33,731	0%	33,731		
371.0 Pumping Equipment	2015	\$0 HWW-19		945	1075	1.138	-	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	-	0%	-		
371.0 Pumping Equipment	2015	\$0 HWW-19		945	1075	1.138	-	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	-	0%	-		
371.0 Pumping Equipment	2015	\$14,500 HWW-19		945	1075	1.138	16,501	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	15,676	0%	15,676		
371.0 Pumping Equipment	2012	\$212,794 HWW-19		787.5	1075	1.365	290,464	R3.0	35	4.75	14 R3.0014	0.8635	30.22	34.97	86.42%	251,019	0%	251,019		
371.0 Pumping Equipment	2015	\$38,600 HWW-19		945	1075	1.138	43,927	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	41,731	0%	41,731		
371.0 Pumping Equipment	2015	\$8,200 HWW-19		945	1075	1.138	9,332	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	8,865	0%	8,865		
354.3 Structures & Improvements - Pump Stations	2016	\$0 HWW-115		661.3	672	1.016	-	R4.0	45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2016	\$0 HWW-115		661.3	672	1.016	-	R4.0	45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	1968	\$61,843 HWW-115		64	672	10.5	649,352	R4.0	45	48.75	108 R4.0108	0.11375	5.12	53.87	10.00%	64,935	0%	64,935		
355.0 Power Generating Equipment	2015	\$152,500 USBL54		206.4	206	0.998	152,195	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	144,585	0%	144,585		
396.2 SCADA Systems	2015	\$86,500 USBL52		96	96	1	86,500	R3.0	12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	73,888	0%	73,888		
371.0 Pumping Equipment	2015	\$373,000 HWW-19		945	1075	1.138	424,474	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	403,250	0%	403,250		
353.1 Land Improvements	2016	\$0 USBL51		240	243	1.013	-	R4.0	45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%	-	0%	-		
353.1 Land Improvements	2015	\$10,500 USBL51		237	243	1.025	10,763	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	10,344	0%	10,344		
353.1 Land Improvements	2015	\$0 USBL51		237	243	1.025	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	-	0%	-		
353.1 Land Improvements	2015	\$0 USBL51		237	243	1.025	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	-	0%	-		
353.1 Land Improvements	2015	\$8,500 USBL51		237	243	1.025	8,713	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	8,374	0%	8,374		
353.1 Land Improvements	2015	\$7,000 USBL51		237	243	1.025	7,175	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	6,896	0%	6,896		
354.3 Structures & Improvements - Pump Stations	2006	\$0 HWW-115		466.3	672	1.441	-	R4.0	45	10.75	24 R4.0024	0.76111	34.25	45.00	76.11%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2006	\$0 HWW-115		466.3	672	1.441	-	R4.0	45	10.75	24 R4.0024	0.76111	34.25	45.00	76.11%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	1960	\$9,740 HWW-115		53	672	12.679	123,493	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	12,349	0%	12,349		
354.3 Structures & Improvements - Pump Stations	2005	\$34,000 HWW-115		448	672	1.5	51,000	R4.0	45	11.75	26 R4.0026	0.74138	33.36	45.11	73.95%	37,715	0%	37,715		
354.3 Structures & Improvements - Pump Stations	2004	\$148,000 HWW-115		420.8	672	1.597	236,356	R4.0	45	12.75	28 R4.0028	0.72172	32.48	45.23	71.81%	169,727	0%	169,727		
371.0 Pumping Equipment	2004	\$55,263 HWW-19		572.3	1075	1.878	103,784	R3.0	35	12.75	36 R3.0036	0.65866	23.05	35.80	64.39%	66,827	0%	66,827		
371.0 Pumping Equipment	2004	\$0 HWW-19		572.3	1075	1.878	-	R3.0	35	12.75	36 R3.0036	0.65866	23.05	35.80	64.39%	-	0%	-		
355.0 Power Generating Equipment	2004	\$26,215 USBL54		145.8	206	1.413	37,042	R3.0	35	12.75	36 R3.0036	0.65866	23.05	35.80	64.39%	23,851	0%	23,851		
354.3 Structures & Improvements - Pump Stations	2006	\$0 HWW-115		466.3	672	1.441	-	R4.0	45	10.75	24 R4.0024	0.76111	34.25	45.00	76.11%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2006	\$0 HWW-115		466.3	672	1.441	-	R4.0	45	10.75	24 R4.0024	0.76111	34.25	45.00	76.11%	-	0%	-		
371.0 Pumping Equipment	2006	\$27,591 HWW-19		624.3	1075	1.722	47,512	R3.0	35	10.75	31 R3.0031	0.7038	24.63	35.38	69.62%	33,078	0%	33,078		
371.0 Pumping Equipment	2016	\$9,840 HWW-19		1022.8	1075	1.051	10,342	R3.0	35	0.75	2 R3.0002	0.98032	34.31	35.06	97.86%	10,121	0%	10,121		
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2014	\$5,046,922 HWW-115		630.8	672	1.065	5,374,972	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	5,047,099	0%	5,047,099		
371.0 Pumping Equipment	2015	\$20,000 HWW-19		945	1075	1.138	22,760	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	21,622	0%	21,622		
371.0 Pumping Equipment	2015	\$0 HWW-19		945	1075	1.138	-	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	-	0%	-		
371.0 Pumping Equipment	2015	\$390,000 HWW-19		945	1075	1.138	443,820	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	421,629	0%	421,629		
371.0 Pumping Equipment	2012	\$382,744 HWW-19		787.5	1075	1.365	522,446	R3.0	35	4.75	14 R3.0014	0.8635	30.22	34.97	86.42%	451,498	0%	451,498		
371.0 Pumping Equipment	2012	\$428,445 HWW-19		787.5	1075	1.365	584,827	R3.0	35	4.75	14 R3.0014	0.8635	30.22	34.97	86.42%	505,407	0%	505,407		

Cost Approach

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
					Costing				Depreciation										External Obsolescence	
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (I50) & (48)	Cost Index Lookup (I50) & (48)	(52)/(51)	(49)*(51)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(56)	Calc. (55) & (58)	Iowa Lookup (I59)	(56)*(60)	(57)*(61)	(61)*(62)	(54)*(63)	Account Parameters	(64)*(64)	
371.0 Pumping Equipment	2015	\$350,000 HWW-19		945	1075	1.138	398,300	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	378,385	0%	378,385		
371.0 Pumping Equipment	2015	\$6,300 HWW-19		945	1075	1.138	7,169	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	6,811	0%	6,811		
371.0 Pumping Equipment	2015	\$10,300 HWW-19		945	1075	1.138	11,721	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	11,135	0%	11,135		
396.2 SCADA Systems	2015	\$86,500 USBL52		96	96	1	86,500	R3.0	12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	73,888	0%	73,888		
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2014	\$79,528 HWW-115		630.8	672	1.065	84,697	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	79,530	0%	79,530		
371.0 Pumping Equipment	2015	\$26,000 HWW-19		945	1075	1.138	29,588	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	28,109	0%	28,109		
371.0 Pumping Equipment	2015	\$21,000 HWW-19		945	1075	1.138	23,898	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	22,703	0%	22,703		
353.1 Land Improvements	2015	\$0 USBL51		237	243	1.025	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	-	0%	-		
353.1 Land Improvements	2014	\$23,880 USBL51		237	243	1.025	24,477	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	22,984	0%	22,984		
353.1 Land Improvements	2014	\$0 USBL51		237	243	1.025	-	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	-	0%	-		
353.1 Land Improvements	2014	\$11,107 USBL51		237	243	1.025	11,385	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	10,691	0%	10,691		
353.1 Land Improvements	2014	\$0 USBL51		237	243	1.025	-	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	-	0%	-		
353.1 Land Improvements	2014	\$0 USBL51		237	243	1.025	-	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	-	0%	-		
355.0 Power Generating Equipment	2012	\$380,840 USBL54		201.2	206	1.024	389,980	R3.0	35	4.75	14 R3.0014	0.8635	30.22	34.97	86.42%	337,021	0%	337,021		
354.3 Structures & Improvements - Pump Stations	2013	\$0 HWW-115		613.8	672	1.095	-	R4.0	45	3.75	8 R4.0008	0.92012	41.41	45.16	91.70%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2013	\$0 HWW-115		613.8	672	1.095	-	R4.0	45	3.75	8 R4.0008	0.92012	41.41	45.16	91.70%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2013	\$93,416 HWW-115		613.8	672	1.095	102,291	R4.0	45	3.75	8 R4.0008	0.92012	41.41	45.16	91.70%	93,801	0%	93,801		
371.0 Pumping Equipment	2013	\$255,963 HWW-19		836	1075	1.286	329,168	R3.0	35	3.75	11 R3.0011	0.89247	31.24	34.99	89.28%	293,881	0%	293,881		
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2014	\$1,001,446 HWW-115		630.8	672	1.065	1,066,540	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	1,001,481	0%	1,001,481		
371.0 Pumping Equipment	2015	\$22,000 HWW-19		945	1075	1.138	25,036	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	23,784	0%	23,784		
371.0 Pumping Equipment	2015	\$77,000 HWW-19		945	1075	1.138	87,626	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	83,245	0%	83,245		
364.0 Flow Measuring Devices	2015	\$10,000 HWW-140		400.8	404	1.008	10,080	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	9,576	0%	9,576		
371.0 Pumping Equipment	2015	\$155,600 HWW-19		945	1075	1.138	177,073	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	168,219	0%	168,219		
396.1 Communications Equipment	2011	\$0 USBL52		96	96	1	-	R3.0	12	5.75	48 R3.0048	0.55461	6.66	12.41	53.67%	-	0%	-		
371.0 Pumping Equipment	2011	\$84,925 HWW-19		752	1075	1.43	121,443	R3.0	35	5.75	16 R3.0016	0.8443	29.55	35.30	83.71%	101,660	0%	101,660		
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	2014	\$375,850 HWW-115		630.8	672	1.065	400,280	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	375,863	0%	375,863		
355.0 Power Generating Equipment	2015	\$82,500 USBL54		206.4	206	0.998	82,335	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	78,218	0%	78,218		
396.2 SCADA Systems	2015	\$86,500 USBL52		96	96	1	86,500	R3.0	12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	73,888	0%	73,888		
371.0 Pumping Equipment	2015	\$112,500 HWW-19		945	1075	1.138	128,025	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	121,624	0%	121,624		
353.1 Land Improvements	2015	\$0 USBL51		237	243	1.025	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	-	0%	-		
353.1 Land Improvements	2013	\$16,316 USBL51		233	243	1.043	17,018	R4.0	45	3.75	8 R4.0008	0.92012	41.41	45.16	91.70%	15,606	0%	15,606		
371.0 Pumping Equipment	1991	\$14,268 HWW-19		355	1075	3.028	43,204	R3.0	35	25.75	74 R3.0074	0.35439	12.40	38.15	32.50%	14,041	0%	14,041		
355.0 Power Generating Equipment	1991	\$12,971 USBL54		129.7	206	1.588	20,598	R3.0	35	25.75	74 R3.0074	0.35439	12.40	38.15	32.50%	6,694	0%	6,694		
371.0 Pumping Equipment	1991	\$5,765 HWW-19		355	1075	3.028	17,456	R3.0	35	25.75	74 R3.0074	0.35439	12.40	38.15	32.50%	5,673	0%	5,673		
354.3 Structures & Improvements - Pump Stations	1970	\$0 HWW-115		75	672	8.96	-	R4.0	45	46.75	104 R4.0104	0.12895	5.80	52.55	11.04%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	1970	\$0 HWW-115		75	672	8.96	-	R4.0	45	46.75	104 R4.0104	0.12895	5.80	52.55	11.04%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	1970	\$6,521 HWW-115		75	672	8.96	58,428	R4.0	45	46.75	104 R4.0104	0.12895	5.80	52.55	11.04%	6,450	0%	6,450		
354.3 Structures & Improvements - Pump Stations	1995	\$0 HWW-115		316	672	2.127	-	R4.0	45	21.75	48 R4.0048	0.53035	23.87	45.62	52.32%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	1995	\$0 HWW-115		316	672	2.127	-	R4.0	45	21.75	48 R4.0048	0.53035	23.87	45.62	52.32%	-	0%	-		
354.3 Structures & Improvements - Pump Stations	1995	\$40,788 HWW-115		316	672	2.127	86,756	R4.0	45	21.75	48 R4.0048	0.53035	23.87	45.62	52.32%	45,391	0%	45,391		
371.0 Pumping Equipment	2002	\$14,891 HWW-19		529	1075	2.032	30,259	R3.0	35	14.75	42 R3.0042	0.60583	21.20	35.95	58.97%	17,844	0%	17,844		
371.0 Pumping Equipment	2002	\$7,342 HWW-19		529	1075	2.032	14,919	R3.0	35	14.75	42 R3.0042	0.60583	21.20	35.95	58.97%	8,798	0%	8,798		

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation						External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (150) & (148)	Cost Index Lookup (150) & (103)	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2016 75 (48)	(57)/(56)	Coli (55) & (58)	Iowa Lookup (159)	(56)/(60)	(57)/(61)	(61)/(62)	(54)*(63)	Account Parameters	(64)*(64)	
354.3 Structures & Improvements - Pump Stations	1995	\$0	HWW-115	316	672	2.127		R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%		0%		
354.3 Structures & Improvements - Pump Stations	1995	\$0	HWW-115	316	672	2.127		R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%		0%		
354.3 Structures & Improvements - Pump Stations	1995	\$19,209	HWW-115	316	672	2.127	40,858	R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%	21,377	0%	21,377	
355.0 Power Generating Equipment	2002	\$13,159	USBL54	142	206	1.451	19,094	R3.0	35	14.75	42	R3.0042	0.60583	21.20	35.95	58.97%	11,260	0%	11,260	
396.2 SCADA Systems	2002	\$0	USBL52	105	96	0.914		R3.0	12	14.75	123	R3.0123	0.11668	1.40	16.15	10.00%		0%		
361.0 Collection Sewers - Gravity	2016	\$10,989	HWW-134	755.3	774	1.025	11,264	R4.0	75	0.75	1	R4.0001	0.99001	74.25	75.00	99.00%	11,151	0%	11,151	
361.0 Collection Sewers - Gravity	2007	\$2,820,000	HWW-134	530	774	1.46	4,117,200	R4.0	75	9.75	13	R4.0013	0.87027	65.27	75.02	87.00%	3,581,964	0%	3,581,964	
354.3 Structures & Improvements - Pump Stations	1955	-\$5,194	HWW-115	43	672	15.628	(862,572)	R4.0	45	61.75	137	R4.0137	0.03332	1.50	63.25	10.00%	(86,257)	0%	(86,257)	
364.0 Flow Measuring Devices	2016	\$29,451	HWW-140	403.3	404	1.002	29,510	R3.0	35	0.75	2	R3.0002	0.98032	34.31	35.06	97.86%	28,878	0%	28,878	
364.0 Flow Measuring Devices	2013	\$160,432	HWW-140	380.8	404	1.061	170,218	R3.0	35	3.75	11	R3.0011	0.89247	31.24	34.99	89.28%	151,971	0%	151,971	
371.0 Pumping Equipment	2015	\$0	HWW-19	945	1075	1.138		R3.0	35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%		0%		
395.0 Power Operated Equipment	1987	\$13,871	AUST-18	205	322	1.571	21,791	R3.0	18	29.75	165	R3.0165	0.01039	0.19	29.94	10.00%	2,179	0%	2,179	
391.0 Transportation Equipment	2003	\$20,846	AUST-14	257	305	1.187	24,744	R3.0	12	13.75	115	R3.0115	0.14158	1.70	15.45	11.00%	2,722	0%	2,722	
391.0 Transportation Equipment	2004	\$22,675	AUST-14	266	305	1.147	26,008	R3.0	12	12.75	106	R3.0106	0.17527	2.10	14.85	14.14%	3,678	0%	3,678	
395.0 Power Operated Equipment	2009	\$46,982	AUST-18	286	322	1.126	52,902	R3.0	18	7.75	43	R3.0043	0.59718	10.75	18.50	58.11%	30,741	0%	30,741	
391.0 Transportation Equipment	2009	\$20,081	AUST-14	273	305	1.117	22,430	R3.0	12	7.75	65	R3.0065	0.41931	5.03	12.78	39.36%	8,828	0%	8,828	
391.0 Transportation Equipment	2007	\$126,140	AUST-14	257	305	1.187	149,728	R3.0	12	9.75	81	R3.0081	0.30773	3.69	13.44	27.46%	41,115	0%	41,115	
391.0 Transportation Equipment	2010	\$7,500	AUST-14	269	305	1.134	8,505	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	3,956	0%	3,956	
395.0 Power Operated Equipment	2010	\$356,691	AUST-18	288	322	1.118	398,781	R3.0	18	6.75	38	R3.0038	0.64088	11.54	18.29	63.09%	251,591	0%	251,591	
391.0 Transportation Equipment	2010	\$7,000	AUST-14	269	305	1.134	7,938	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	3,692	0%	3,692	
395.0 Power Operated Equipment	2011	\$7,000	AUST-18	290	322	1.11	7,770	R3.0	18	5.75	32	R3.0032	0.69469	12.50	18.25	68.49%	5,322	0%	5,322	
395.0 Power Operated Equipment	2011	\$40,000	AUST-18	290	322	1.11	44,400	R3.0	18	5.75	32	R3.0032	0.69469	12.50	18.25	68.49%	30,410	0%	30,410	
391.0 Transportation Equipment	2011	\$9,700	AUST-14	273	305	1.117	10,835	R3.0	12	5.75	48	R3.0048	0.55461	6.66	12.41	53.67%	5,815	0%	5,815	
391.0 Transportation Equipment	2011	\$9,500	AUST-14	273	305	1.117	10,612	R3.0	12	5.75	48	R3.0048	0.55461	6.66	12.41	53.67%	5,695	0%	5,695	
395.0 Power Operated Equipment	2012	\$88,636	AUST-18	294	322	1.095	97,056	R3.0	18	4.75	26	R3.0026	0.74986	13.50	18.25	73.97%	71,792	0%	71,792	
395.0 Power Operated Equipment	2012	\$73,193	AUST-18	294	322	1.095	80,146	R3.0	18	4.75	26	R3.0026	0.74986	13.50	18.25	73.97%	59,284	0%	59,284	
395.0 Power Operated Equipment	2012	\$0	AUST-18	294	322	1.095		R3.0	18	4.75	26	R3.0026	0.74986	13.50	18.25	73.97%		0%		
391.0 Transportation Equipment	2012	\$34,995	AUST-14	279	305	1.093	38,250	R3.0	12	4.75	40	R3.0040	0.62327	7.48	12.23	61.16%	23,394	0%	23,394	

Cost Approach

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation					External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input:	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup f(150) & (48)	Cost Index Lookup f(150) & (2017)	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(56)	Cols (55) & (58)	Iowa Lookup f(159)	(56)*(60)	(57)*(61)	(61)/(62)	(54)*(63)	Account Parameters	(64)*(64)	
391.0	Transportation Equipment	2013	\$18,502 AUST-14	282	305	1.082	20,019	R3.0	12	3.75	31	R3.0031	0.7038	8.45	12.20	69.26%	13,865	0%	13,865	
391.0	Transportation Equipment	2014	\$23,917 AUST-14	287	305	1.063	25,424	R3.0	12	2.75	23	R3.0023	0.77789	9.33	12.08	77.24%	19,637	0%	19,637	
391.0	Transportation Equipment	2014	\$414,614 AUST-14	287	305	1.063	440,735	R3.0	12	2.75	23	R3.0023	0.77789	9.33	12.08	77.24%	340,424	0%	340,424	
391.0	Transportation Equipment	2015	\$32,443 AUST-14	295	305	1.034	33,546	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	28,655	0%	28,655	
391.0	Transportation Equipment	2008	\$9,995 AUST-14	257	305	1.187	11,864	R3.0	12	8.75	73	R3.0073	0.36135	4.34	13.09	33.16%	3,934	0%	3,934	
391.0	Transportation Equipment	2016	\$32,733 AUST-14	298	305	1.023	33,486	R3.0	12	0.75	6	R3.0006	0.94112	11.29	12.04	93.77%	31,400	0%	31,400	
391.0	Transportation Equipment	2015	\$32,443 AUST-14	295	305	1.034	33,546	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	28,655	0%	28,655	
			\$61,374,789				\$106,863,107										\$62,652,591		\$62,652,591	

Cost Approach

**The City of McKeesport, Pennsylvania
And
The Municipal Authority of the City McKeesport**

**Appraisal Work Papers
As of September 2016**

**Cost Approach
Replacement Cost New**

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**Pennsylvania American, Inc.
 The Municipal Authority of the City of McKeesport
 Wastewater
 Investor-Owned Utility
 September 2016**

Summary of Cost Approach

Service Area	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	Cost New less Depreciation adjusted for External Obsolescence
McKeesport	35,663,314.30	24,781,311	125,338,615	61,696,103	61,696,103
Duquesne	8,488,374.00	4,009,366	57,112,541	22,405,247	22,405,247
Dravosburg	1,188,766.76	398,682	11,821,704	3,718,174	3,718,174
Port Vue	1,455,194.00	362,190	20,893,663	4,942,794	4,942,794
Summary	46,795,649.06	29,551,549	215,166,523	92,762,318	92,762,318
Treatment & Pumping Plant	61,374,789	50,472,921	106,863,107	62,652,591	62,652,591
Subtotal	108,170,438.06	80,024,470	322,029,630	155,414,909	155,414,909
Land	61,132	61,132	1,110,000	-	1,110,000
Total	108,231,570.06	80,085,602	323,139,630	155,414,909	156,524,909

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

McKeesport Service Area		Development of Cost New (RCN)						
(1)	(2)	(4)	(6)	(16)	(17)	(18)	(19)	(20)
Account	Description	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	Account Parameters Lookup	Cost Index Lookup f(Cols. (16) & (4))	Cost Index Lookup f(Cols. (16) & (2017))	Cols. (18)/(17)	Cols. (6)*(19)
361	Collection Sewers - Gravity	1959	\$591,400.16	HWW-134	65	774	11.908	7,042,393
361	Collection Sewers - Gravity	1976	\$2,755,719.59	HWW-134	154	774	5.026	13,850,247
361	Collection Sewers - Gravity	1989	\$4,016,793.99	HWW-134	295	774	2.624	10,540,067
361	Collection Sewers - Gravity	1999	\$1,244,735.64	HWW-134	361	774	2.144	2,668,713
361	Collection Sewers - Gravity	2008	\$24,209.58	HWW-134	587.5	774	1.317	31,884
361	Collection Sewers - Gravity	2010	\$2,774,260.00	HWW-134	624	774	1.24	3,440,082
	Total 8"		\$11,407,119					\$37,573,386
361	Collection Sewers - Gravity	1959	\$412,210.80	HWW-134	65	774	11.908	4,908,606
361	Collection Sewers - Gravity	1976	\$321,030.08	HWW-134	154	774	5.026	1,613,497
361	Collection Sewers - Gravity	1989	\$1,038,003.12	HWW-134	295	774	2.624	2,723,720
361	Collection Sewers - Gravity	1999	\$327,759.32	HWW-134	361	774	2.144	702,716
	Total 10"		\$2,099,003					\$9,948,539
361	Collection Sewers - Gravity	1959	\$891,447.70	HWW-134	65	774	11.908	10,615,359
361	Collection Sewers - Gravity	1976	\$773,353.71	HWW-134	154	774	5.026	3,886,876
361	Collection Sewers - Gravity	2008	\$22,375.82	HWW-134	587.5	774	1.317	29,469
	Total 12"		\$1,687,177					\$14,531,704
361	Collection Sewers - Gravity	1959	\$418,540.50	HWW-134	65	774	11.908	4,983,980
361	Collection Sewers - Gravity	1976	\$66,429.60	HWW-134	154	774	5.026	333,875
361	Collection Sewers - Gravity	1989	\$129,897.33	HWW-134	295	774	2.624	340,851
361	Collection Sewers - Gravity	2008	\$9,405.00	HWW-134	587.5	774	1.317	12,386
	Total 15"		\$624,272					\$5,671,092
361	Collection Sewers - Gravity	1959	\$43,469.00	HWW-134	65	774	11.908	517,629
361	Collection Sewers - Gravity	1976	\$397,223.28	HWW-134	154	774	5.026	1,996,444
	Total 16"		\$440,692					\$2,514,073
361	Collection Sewers - Gravity	1959	\$173,805.20	HWW-134	65	774	11.908	2,069,672
361	Collection Sewers - Gravity	1999	\$2,278,563.60	HWW-134	361	774	2.144	4,885,240
	Total 18"		\$2,452,369					\$6,954,912
361	Collection Sewers - Gravity	1959	\$21,449.89	HWW-134	65	774	11.908	255,425
361	Collection Sewers - Gravity	2008	\$6,145.13	HWW-134	587.5	774	1.317	8,093

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

McKeesport Service Area			Development of Cost New (RCN)					
(1)	(2)	(4)	(6)	(16)	(17)	(18)	(19)	(20)
Account	Description	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	Account Parameters Lookup	Cost Index Lookup f(Cols. (16) & (4))	Cost Index Lookup f(Cols. (16) & (2017))	Cols. (18)/(17)	Cols. (6)*(19)
	Total 20"		\$27,595					\$263,518
361	Collection Sewers - Gravity	2008	\$158,687.30	HWW-134	587.5	774	1.317	208,991
	Total 21"		\$158,687					\$208,991
361	Collection Sewers - Gravity	1959	\$663,479.07	HWW-134	65	774	11.908	7,900,709
361	Collection Sewers - Gravity	1976	\$822,087.24	HWW-134	154	774	5.026	4,131,810
361	Collection Sewers - Gravity	1989	\$1,247,533.65	HWW-134	295	774	2.624	3,273,528
361	Collection Sewers - Gravity	2008	\$393,918.33	HWW-134	587.5	774	1.317	518,790
361	Collection Sewers - Gravity	2011	\$231,361.55	HWW-134	647.5	774	1.195	276,477
	Total 24"		\$3,358,380					\$16,101,314
361	Collection Sewers - Gravity	1959	\$402,636.60	HWW-134	65	774	11.908	4,794,597
361	Collection Sewers - Gravity	1976	\$319,621.76	HWW-134	154	774	5.026	1,606,419
361	Collection Sewers - Gravity	2009	\$743,130.00	HWW-134	614.3	774	1.26	936,344
361	Collection Sewers - Gravity	2011	\$398,629.00	HWW-134	647.5	774	1.195	476,362
	Total 30"		\$1,864,017					\$7,813,722
361	Collection Sewers - Gravity	1959	\$9,355.50	HWW-134	65	774	11.908	111,405
361	Collection Sewers - Gravity	2008	\$143,689.30	HWW-134	587.5	774	1.317	189,239
361	Collection Sewers - Gravity	2009	\$6,284,480.00	HWW-134	614.3	774	1.26	7,918,445
	Total 36"		\$6,437,525					\$8,219,089
361	Collection Sewers - Gravity	2008	\$111,600.72	HWW-134	587.5	774	1.317	146,978
	Total 48"		\$111,601					\$146,978
361	Collection Sewers - Gravity	2008	\$235,425.96	HWW-134	587.5	774	1.317	310,056
	Total 48"		\$235,426					\$310,056
361	Collection Sewers - Gravity	2011	\$151,156.18	HWW-134	647.5	774	1.195	180,632
	Total 54"		\$151,156					\$180,632
361	Collection Sewers - Gravity	2008	\$311,864.70	HWW-134	587.5	774	1.317	410,726

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McKeesport Service Area		Development of Cost New (RCN)						
(1)	(2)	(4)	(6)	(16)	(17)	(18)	(19)	(20)
Account	Description	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	Account Parameters Lookup	Cost Index Lookup f(Cols. (16) & (4))	Cost Index Lookup f(Cols. (16) & (2017))	Cols. (18)/(17)	Cols. (6)*(19)
	Total 60"							\$410,726
361	Collection Sewers - Gravity	2008	\$170,044.74	HWW-134	587.5	774	1.317	223,949
361	Collection Sewers - Gravity	2011	\$1,679,719.47	HWW-134	647.5	774	1.195	2,007,265
	Total 72"		\$1,849,764					\$2,231,214
361	Collection Sewers - Gravity	1959	\$878,795.70	HWW-134	65	774	11.908	10,464,699
361	Collection Sewers - Gravity	2008	\$162,824.13	HWW-134	587.5	774	1.317	214,439
361	Collection Sewers - Gravity	2011	\$45,739.33	HWW-134	647.5	774	1.195	54,658
	Total Manholes		\$1,087,359					\$10,733,796
364	Flow Measuring Devices	1960	\$6,474.93	HWW-140	78	404	5.179	33,534
364	Flow Measuring Devices	2008	\$81,438.72	HWW-140	373	404	1.083	88,198
	Total Flow Meters							\$121,732
360	Collection Sewers - Force	2015	\$1,263,672.93	HWW-134	739.8	774	1.046	1,321,802
	Total Force Mains		\$1,263,673					\$1,321,802
360	Collection Sewers - Force	2015	\$85,664.16	HWW-134	739.8	774	1.046	89,605
	Total Air Release		\$85,664					\$89,605
361	Collection Sewers - Gravity	1960	\$9,968.94	HWW-134	68	774	11.382	113,466
	Total CSO Structures		\$9,968.94					\$113,466
	Total McKeesport		\$35,351,450					\$125,338,615

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Duquesne Service Area			Development of Cost New (RCN)						
(1)	(2)	(4)	(6)	Costing		(17)	(18)	(19)	(20)
Account	Description	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	Account Parameters Lookup	Cost Index Lookup f(Cols. (16) & (4))	Cost Index Lookup f(Cols. (16) & (2017))	Cols. (18)/(17)	Cols. (6)*(19)	
361	Collection Sewers - Gravity	1959	\$238,640.00	HWW-134	65	774	11.908	2,841,725	
361	Collection Sewers - Gravity	1976	\$744,785.86	HWW-134	154	774	5.026	3,743,294	
361	Collection Sewers - Gravity	1989	\$1,085,623.08	HWW-134	295	774	2.624	2,848,675	
361	Collection Sewers - Gravity	1999	\$336,409.38	HWW-134	361	774	2.144	721,262	
	Total 8"		\$2,405,458					\$10,154,956	
361	Collection Sewers - Gravity	1959	\$111,407.60	HWW-134	65	774	11.908	1,326,642	
361	Collection Sewers - Gravity	1976	\$86,768.32	HWW-134	154	774	5.026	436,098	
361	Collection Sewers - Gravity	1989	\$280,547.96	HWW-134	295	774	2.624	736,158	
361	Collection Sewers - Gravity	1999	\$88,583.60	HWW-134	361	774	2.144	189,923	
	Total 10"		\$567,307					\$2,688,821	
361	Collection Sewers - Gravity	1959	\$241,598.50	HWW-134	65	774	11.908	2,876,955	
361	Collection Sewers - Gravity	1976	\$209,011.77	HWW-134	154	774	5.026	1,050,493	
	Total 12"		\$450,610					\$3,927,448	
361	Collection Sewers - Gravity	1959	\$113,400.00	HWW-134	65	774	11.908	1,350,367	
361	Collection Sewers - Gravity	1976	\$17,950.92	HWW-134	154	774	5.026	90,221	
361	Collection Sewers - Gravity	1989	\$35,101.59	HWW-134	295	774	2.624	92,107	
	Total 15"		\$166,453					\$1,532,695	
361	Collection Sewers - Gravity	1959	\$11,747.00	HWW-134	65	774	11.908	139,883	
361	Collection Sewers - Gravity	1976	\$107,359.82	HWW-134	154	774	5.026	539,590	
	Total 16"		\$119,107					\$679,473	
361	Collection Sewers - Gravity	1959	\$46,971.75	HWW-134	65	774	11.908	559,340	
361	Collection Sewers - Gravity	1999	\$615,828.00	HWW-134	361	774	2.144	1,320,335	
	Total 18"		\$662,800					\$1,879,675	
361	Collection Sewers - Gravity	1959	\$5,981.43	HWW-134	65	774	11.908	71,227	
	Total 20"		\$5,981					\$71,227	

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Duquesne Service Area		Development of Cost New (RCN)						
(1)	(2)	(4)	(6)	Costing (16)	(17)	(18)	(19)	(20)
Account	Description	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	Account Parameters Lookup	Cost Index Lookup f(Cols. (16) & (4))	Cost Index Lookup f(Cols. (16) & (2017))	Cols. (18)/(17)	Cols. (6)*(19)
361	Collection Sewers - Gravity	1959	\$197,361.48	HWW-134	65	774	11.908	2,350,181
361	Collection Sewers - Gravity	1976	\$222,177.15	HWW-134	154	774	5.026	1,116,662
361	Collection Sewers - Gravity	1989	\$337,181.13	HWW-134	295	774	2.624	884,763
	Total 24"		\$756,720					\$4,351,606
361	Collection Sewers - Gravity	1959	\$119,255.40	HWW-134	65	774	11.908	1,420,093
361	Collection Sewers - Gravity	1976	\$86,388.64	HWW-134	154	774	5.026	434,189
	Total 30"		\$205,644					\$1,854,282
361	Collection Sewers - Gravity	1959	\$6,819.12	HWW-134	65	774	11.908	81,202
	Total 36"		\$6,819					\$81,202
361	Collection Sewers - Gravity	1963	\$2,438,230.41	HWW-134	72	774	10.75	26,210,977
	Total Other		\$2,438,230					\$26,210,977
361	Collection Sewers - Gravity	1963	\$154,808.28	HWW-134	72	774	10.75	1,664,189
361	Collection Sewers - Gravity	1963	\$8,991.39	HWW-134	72	774	10.75	96,657
361	Collection Sewers - Gravity	1976	\$234,127.60	HWW-134	154	774	5.026	1,176,725
361	Collection Sewers - Gravity	1989	\$205,024.00	HWW-134	295	774	2.624	537,983
361	Collection Sewers - Gravity	1999	\$76,443.90	HWW-134	361	774	2.144	163,896
	Total Manholes		\$679,395					\$3,639,450
364	Flow Measuring Devices	2011	\$22,437.20	HWW-140	379	404	1.066	23,918
	Total Flow Meters		\$22,437					\$23,918
361	Collection Sewers - Gravity	1959	\$1,411.72	HWW-134	65	774	11.908	16,811

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Duquesne Service Area			Development of Cost New (RCN)					
(1)	(2)	(4)	(6)	Costing (16)	(17)	(18)	(19)	(20)
Account	Description	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	Account Parameters Lookup	Cost Index Lookup f(Cols. (16) & (4))	Cost Index Lookup f(Cols. (16) & (2017))	Cols. (18)/(17)	Cols. (6)*(19)
	Total CSO Structures		\$1,411.72					\$16,811
	Total Duquesne		\$8,488,374					\$57,112,541

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Dravosburg Service Area		Determination of Cost New (RCN)						
Cost (1)	(2)	(4)	(6)	(16)	(17)	(18)	(19)	(20)
Account	Description	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	Account Parameters Lookup	Cost Index Lookup f(Cols. (16) & (4))	Cost Index Lookup f(Cols. (16) & (2017))	Cols. (18)/(17)	Cols. (6)*(19)
361	Collection Sewers - Gravity	1962	\$14,157.00	HWW-134	71	774	10.901	154,325
361	Collection Sewers - Gravity	1962	\$289,684.08	HWW-134	71	774	10.901	3,157,846
361	Collection Sewers - Gravity	1962	\$116,490.48	HWW-134	71	774	10.901	1,269,863
361	Collection Sewers - Gravity	1962	\$115,525.52	HWW-134	71	774	10.901	1,259,344
361	Collection Sewers - Gravity	1962	\$5,507.20	HWW-134	71	774	10.901	60,034
361	Collection Sewers - Gravity	1962	\$50,490.00	HWW-134	71	774	10.901	550,391
361	Collection Sewers - Gravity	1962	\$8,618.40	HWW-134	71	774	10.901	93,949
361	Collection Sewers - Gravity	1962	\$42,206.40	HWW-134	71	774	10.901	460,092
361	Collection Sewers - Gravity	1962	\$33,229.92	HWW-134	71	774	10.901	362,239
361	Collection Sewers - Gravity	1962	\$208,803.52	HWW-134	71	774	10.901	2,276,167
361	Collection Sewers - Gravity	1962	\$47,593.32	HWW-134	71	774	10.901	518,815
Total 1962			\$932,306					\$10,163,065
361	Collection Sewers - Gravity	1980	\$78,763.85	HWW-134	202	774	3.832	301,823
361	Collection Sewers - Gravity	1984	\$68,207.82	HWW-134	244	774	3.172	216,355
Total 8"								\$518,178
361	Collection Sewers - Gravity	1962	\$103,702.19	HWW-134	71	774	10.901	1,130,458
364	Flow Measuring Devices	2010	\$5,401.55	HWW-140	376.3	404	1.074	5,801
361	Collection Sewers - Gravity	1962	\$385.51	HWW-134	71	774	10.901	4,202
Total Dravosburg								\$11,821,704

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Port Vue Service Area		Development of Cost New (RCN)							
Costing	(1)	(2)	(4)	(6)	(16)	(17)	(18)	(19)	(20)
Account	Description	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	
KLH Input	KLH Input	AUS Input	OC Development Col. (6)	Account Parameters Lookup	Cost Index Lookup f(Cols. (16) & (4))	Cost Index Lookup f(Cols. (16) & (2017))	Cols. (18)/(17)	Cols. (6)*(19)	
361	Collection Sewers - Gravity	1955	\$18,221	HWW-134	53	774	14.604	266,099	
361	Collection Sewers - Gravity	1955	\$741,167	HWW-134	53	774	14.604	10,824,003	
361	Collection Sewers - Gravity	1955	\$155,556	HWW-134	53	774	14.604	2,271,740	
361	Collection Sewers - Gravity	1955	\$81,445	HWW-134	53	774	14.604	1,189,423	
361	Collection Sewers - Gravity	1955	\$111,207	HWW-134	53	774	14.604	1,624,067	
361	Collection Sewers - Gravity	1955	\$20,888	HWW-134	53	774	14.604	305,048	
361	Collection Sewers - Gravity	1955	\$74,423	HWW-134	53	774	14.604	1,086,873	
361	Collection Sewers - Gravity	1955	\$36,102	HWW-134	53	774	14.604	527,234	
361	Collection Sewers - Gravity	1955	\$16,446	HWW-134	53	774	14.604	240,177	
			\$1,255,455					\$18,334,664	
361	Collection Sewers - Gravity	1955	\$171,799	HWW-134	53	774	14.604	2,508,953	
364	Flow Measuring Devices	2016	\$25,969	HWW-140	403.3	404	1.002	26,021	
360	Collection Sewers - Force	1955	\$494	HWW-134	53	774	14.604	7,214	
360	Collection Sewers - Force	1960	\$1,477	HWW-134	68	774	11.382	16,811	
			\$1,455,194					\$20,893,663	

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(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation					External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (F)(50) & (48)	Cost Index Lookup (F)(50) & (2017)	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2016 75 (48)	(57)/(56)	Col. (55) & (58)	Iowa Lookup (F)(59)	(56)*(60)	(57)/(61)	(61)/(62)	(54)*(63)	Account Parameters	(64)*(64)	
390.1 Furniture	2015	\$0	AUST-112	454	457	1.007	-	R3.0	22	1.75	8	R3.0008	0.9216	20.28	22.03	92.06%	-	0%	-	
390.3 EDP Equipment	2015	\$0	AUST-114	0.63	0.73	1.159	-	R3.0	8	1.75	22	R3.0022	0.78729	6.30	8.05	78.26%	-	0%	-	
390.1 Furniture	2015	\$0	AUST-112	454	457	1.007	-	R3.0	22	1.75	8	R3.0008	0.9216	20.28	22.03	92.06%	-	0%	-	
390.2 Office Equipment	2015	\$0	AUST-113	172	173	1.006	-	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	-	0%	-	
396.1 Communications Equipment	2015	\$12,600	USBL52	96	96	1	12,600	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	-	0%	-	
396.1 Communications Equipment	2004	\$6,000	USBL52	98	96	0.98	5,880	R3.0	12	12.75	106	R3.0106	0.17527	2.10	14.85	14.14%	831	0%	831	
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	1960	\$286,202	HWW-115	53	672	12.679	3,628,755	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	1975	\$106,080	HWW-115	127	672	5.291	561,269	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	362,876	0%	362,876	
354.4 Structures & Improvements - Treatment Plants	2008	\$160,825	HWW-115	538.3	672	1.248	200,710	R4.0	45	8.75	19	R4.0019	0.81061	36.48	45.23	80.65%	92,441	0%	92,441	
354.4 Structures & Improvements - Treatment Plants	2008	\$0	HWW-115	538.3	672	1.248	-	R4.0	45	8.75	19	R4.0019	0.81061	36.48	45.23	80.65%	161,873	0%	161,873	
354.4 Structures & Improvements - Treatment Plants	2014	\$417,812	HWW-115	630.8	672	1.065	444,970	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	-	0%	-	
380.0 Treatment & Disposal Equipment	2015	\$43,000	HWW-116	741.3	774	1.044	44,892	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	43,146	0%	43,146	
380.0 Treatment & Disposal Equipment	2015	\$43,000	HWW-116	741.3	774	1.044	44,892	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	43,146	0%	43,146	
380.0 Treatment & Disposal Equipment	2015	\$33,500	HWW-116	741.3	774	1.044	34,974	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	33,614	0%	33,614	
380.0 Treatment & Disposal Equipment	2015	\$0	HWW-116	741.3	774	1.044	-	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	-	0%	-	
380.0 Treatment & Disposal Equipment	1960	\$0	HWW-116	55	774	14.073	-	R3.0	45	56.75	126	R3.0126	0.10823	4.87	61.62	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1960	\$0	HWW-116	55	774	14.073	-	R3.0	45	56.75	126	R3.0126	0.10823	4.87	61.62	10.00%	-	0%	-	
395.0 Power Operated Equipment	2015	\$7,397	AUST-18	315	322	1.022	7,560	R3.0	18	1.75	10	R3.0010	0.90216	16.24	17.99	90.27%	6,824	0%	6,824	
390.2 Office Equipment	2010	\$0	AUST-113	169	173	1.024	-	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	-	0%	-	
380.0 Treatment & Disposal Equipment	2001	\$54,944	HWW-116	428	774	1.808	99,339	R3.0	45	15.75	35	R3.0035	0.66761	30.04	45.79	65.60%	65,166	0%	65,166	
380.0 Treatment & Disposal Equipment	2015	\$37,200	HWW-116	741.3	774	1.044	38,837	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	37,326	0%	37,326	
380.0 Treatment & Disposal Equipment	2001	\$142,854	HWW-116	428	774	1.808	258,280	R3.0	45	15.75	35	R3.0035	0.66761	30.04	45.79	65.60%	169,432	0%	169,432	
380.0 Treatment & Disposal Equipment	2015	\$86,000	HWW-116	741.3	774	1.044	89,784	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	86,291	0%	86,291	
396.2 SCADA Systems	2015	\$576,120	USBL52	96	96	1	576,120	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	492,122	0%	492,122	
390.1 Furniture	2015	\$0	AUST-112	454	457	1.007	-	R3.0	22	1.75	8	R3.0008	0.9216	20.28	22.03	92.06%	-	0%	-	
380.0 Treatment & Disposal Equipment	2001	\$640,705	HWW-116	428	774	1.808	1,158,395	R3.0	45	15.75	35	R3.0035	0.66761	30.04	45.79	65.60%	759,907	0%	759,907	
380.0 Treatment & Disposal Equipment	2015	\$1,800,000	HWW-116	741.3	774	1.044	1,879,200	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	1,806,099	0%	1,806,099	
390.2 Office Equipment	1990	\$0	AUST-113	154	173	1.123	-	R3.0	12	26.75	223	R3.0223	0	0.00	26.75	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1985	\$0	HWW-116	262	774	2.954	-	R3.0	45	31.75	71	R3.0071	0.37545	16.90	48.65	34.74%	-	0%	-	
390.2 Office Equipment	2010	\$0	AUST-113	169	173	1.024	-	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	-	0%	-	
390.2 Office Equipment	1995	\$0	AUST-113	156	173	1.109	-	R3.0	12	21.75	181	R3.0181	0	0.00	21.75	10.00%	-	0%	-	
390.2 Office Equipment	1990	\$0	AUST-113	154	173	1.123	-	R3.0	12	26.75	223	R3.0223	0	0.00	26.75	10.00%	-	0%	-	
390.3 EDP Equipment	2015	\$0	AUST-114	0.63	0.73	1.159	-	R3.0	8	1.75	22	R3.0022	0.78729	6.30	8.05	78.26%	-	0%	-	
394.0 Laboratory Equipment	2015	\$10,000	USBL51	237	243	1.025	10,250	R3.0	25	1.75	7	R3.0007	0.93135	23.28	25.03	93.01%	9,534	0%	9,534	
394.0 Laboratory Equipment	2010	\$41,985	USBL51	218	243	1.115	46,813	R3.0	25	6.75	27	R3.0027	0.74058	18.51	25.26	73.28%	34,305	0%	34,305	
394.0 Laboratory Equipment	2015	\$7,200	USBL51	237	243	1.025	7,380	R3.0	25	1.75	7	R3.0007	0.93135	23.28	25.03	93.01%	6,864	0%	6,864	
394.0 Laboratory Equipment	2010	\$0	USBL51	218	243	1.115	-	R3.0	25	6.75	27	R3.0027	0.74058	18.51	25.26	73.28%	-	0%	-	
380.0 Treatment & Disposal Equipment	1960	\$0	HWW-116	55	774	14.073	-	R3.0	45	56.75	126	R3.0126	0.10823	4.87	61.62	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	2015	\$5,417	HWW-116	741.3	774	1.044	5,655	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	5,435	0%	5,435	
390.2 Office Equipment	1995	\$11,074	AUST-113	156	173	1.109	12,281	R3.0	12	21.75	181	R3.0181	0	0.00	21.75	10.00%	1,228	0%	1,228	

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation					External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (48)	Cost Index Lookup (50) & (2017)	(52)/(51)	(49)/(53)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(56)	Col. (55) & (58)	Iowa Lookup (59)	(56)/(60)	(57)+(61)	(61)/(62)	(54)*(63)	Account Parameters	(64)*(64)	
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12,679	-	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12,679	-	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$115,338 HWW-115		53	672	12,679	1,462,371	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	146,237	0%	146,237		
354.4 Structures & Improvements - Treatment Plants	2014	\$113,090 HWW-115		630.8	672	10,65	120,441	R4.0	45	2.75	6 R4 0006	0.94008	42.30	45.05	93.90%	113,094	0%	113,094		
380.0 Treatment & Disposal Equipment	2015	\$25,000 HWW-116		741.3	774	1,044	26,100	R3.0	45	1.75	4 R3 0004	0.96069	43.23	44.98	96.11%	25,085	0%	25,085		
380.0 Treatment & Disposal Equipment	2005	\$0 HWW-116		485.8	774	1,593	-	R3.0	45	11.75	26 R3 0026	0.74986	33.74	45.49	74.17%	-	0%	-		
380.0 Treatment & Disposal Equipment	2015	\$338,000 HWW-116		741.3	774	1,044	352,872	R3.0	45	1.75	4 R3 0004	0.96069	43.23	44.98	96.11%	339,145	0%	339,145		
380.0 Treatment & Disposal Equipment	2015	\$229,000 HWW-116		741.3	774	1,044	239,076	R3.0	45	1.75	4 R3 0004	0.96069	43.23	44.98	96.11%	229,776	0%	229,776		
380.0 Treatment & Disposal Equipment	2015	\$450,000 HWW-116		741.3	774	1,044	469,800	R3.0	45	1.75	4 R3 0004	0.96069	43.23	44.98	96.11%	451,525	0%	451,525		
380.0 Treatment & Disposal Equipment	2015	\$7,500 HWW-116		741.3	774	1,044	7,830	R3.0	45	1.75	4 R3 0004	0.96069	43.23	44.98	96.11%	7,525	0%	7,525		
380.0 Treatment & Disposal Equipment	2014	\$13,822 HWW-116		724.8	774	1,068	14,762	R3.0	45	2.75	6 R3 0006	0.94112	42.35	45.10	93.90%	13,862	0%	13,862		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12,679	-	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12,679	-	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12,679	-	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12,679	-	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12,679	-	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$47,172 HWW-115		53	672	12,679	598,094	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	59,809	0%	59,809		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12,679	-	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12,679	-	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$28,687 HWW-115		53	672	12,679	363,722	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	36,372	0%	36,372		
354.4 Structures & Improvements - Treatment Plants	1975	\$44,202 HWW-115		127	672	5,291	233,873	R4.0	45	41.75	93 R4 0093	0.1829	8.23	49.98	16.47%	38,519	0%	38,519		
354.4 Structures & Improvements - Treatment Plants	2001	\$128,684 HWW-115		378	672	1,778	228,800	R4.0	45	15.75	35 R4 0035	0.65344	29.40	45.15	65.12%	148,995	0%	148,995		
354.4 Structures & Improvements - Treatment Plants	2008	\$41,895 HWW-115		538.3	672	1,248	52,285	R4.0	45	8.75	19 R4 0019	0.81061	36.48	45.23	80.65%	42,168	0%	42,168		
393.0 Tools, Shop, & Garage Equipment	1972	\$0 AUST-17		96	514	5,354	-	R3.0	25	44.75	179 R3 0179	0	0.00	44.75	10.00%	-	0%	-		
393.0 Tools, Shop, & Garage Equipment	1972	\$0 AUST-17		96	514	5,354	-	R3.0	25	44.75	179 R3 0179	0	0.00	44.75	10.00%	-	0%	-		
393.0 Tools, Shop, & Garage Equipment	1975	\$5,936 AUST-17		139	514	3,698	21,951	R3.0	25	41.75	167 R3 0167	0.06641	0.16	41.91	10.00%	2,195	0%	2,195		
395.0 Power Operated Equipment	2010	\$6,046 AUST-18		288	322	1,118	6,759	R3.0	18	6.75	38 R3 0038	0.64088	11.54	18.29	63.09%	4,264	0%	4,264		
393.0 Tools, Shop, & Garage Equipment	1970	\$0 AUST-17		90	514	5,711	-	R3.0	25	46.75	187 R3 0187	0	0.00	46.75	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1985	\$0 HWW-116		262	774	2,954	-	R3.0	45	31.75	71 R3 0071	0.37545	16.90	48.65	34.74%	-	0%	-		
380.0 Treatment & Disposal Equipment	2000	\$12,143 HWW-116		413	774	1,874	22,756	R3.0	45	16.75	37 R3 0037	0.64975	29.24	45.99	63.58%	14,468	0%	14,468		
395.0 Power Operated Equipment	1995	\$0 AUST-18		254	322	1,268	-	R3.0	18	21.75	121 R3 0121	0.12255	2.21	23.96	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1990	\$10,191 HWW-116		313	774	2,473	25,202	R3.0	45	26.75	59 R3 0059	0.4653	20.94	47.69	43.91%	11,066	0%	11,066		
380.0 Treatment & Disposal Equipment	1970	\$0 HWW-116		79	774	9,797	-	R3.0	45	46.75	104 R3 0104	0.18372	8.27	55.02	15.03%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12,679	-	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12,679	-	R4.0	45	56.75	126 R4 0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1975	\$147,294 HWW-115		127	672	5,291	779,333	R4.0	45	41.75	93 R4 0093	0.1829	8.23	49.98	16.47%	128,356	0%	128,356		
380.0 Treatment & Disposal Equipment	2003	\$40,300 HWW-116		451.8	774	1,713	69,034	R3.0	45	13.75	31 R3 0031	0.7038	31.67	45.42	69.73%	48,137	0%	48,137		
380.0 Treatment & Disposal Equipment	1985	\$0 HWW-116		262	774	2,954	-	R3.0	45	31.75	71 R3 0071	0.37545	16.90	48.65	34.74%	-	0%	-		
380.0 Treatment & Disposal Equipment	2015	\$15,000 HWW-116		741.3	774	1,044	15,660	R3.0	45	1.75	4 R3 0004	0.96069	43.23	44.98	96.11%	15,051	0%	15,051		
380.0 Treatment & Disposal Equipment	1975	\$6,101 HWW-116		134	774	5,776	35,239	R3.0	45	41.75	93 R3 0093	0.23696	10.66	52.41	20.34%	7,168	0%	7,168		
380.0 Treatment & Disposal Equipment	1975	\$6,101 HWW-116		134	774	5,776	35,239	R3.0	45	41.75	93 R3 0093	0.23696	10.66	52.41	20.34%	7,168	0%	7,168		
380.0 Treatment & Disposal Equipment	1975	\$12,238 HWW-116		134	774	5,776	70,687	R3.0	45	41.75	93 R3 0093	0.23696	10.66	52.41	20.34%	14,378	0%	14,378		
380.0 Treatment & Disposal Equipment	1975	\$12,238 HWW-116		134	774	5,776	70,687	R3.0	45	41.75	93 R3 0093	0.23696	10.66	52.41	20.34%	14,378	0%	14,378		
380.0 Treatment & Disposal Equipment	1975	\$12,238 HWW-116		134	774	5,776	70,687	R3.0	45	41.75	93 R3 0093	0.23696	10.66	52.41	20.34%	14,378	0%	14,378		
380.0 Treatment & Disposal Equipment	1975	\$0 HWW-116		134	774	5,776	-	R3.0	45	41.75	93 R3 0093	0.23696	10.66	52.41	20.34%	-	0%	-		
380.0 Treatment & Disposal Equipment	1975	\$0 HWW-116		134	774	5,776	-	R3.0	45	41.75	93 R3 0093	0.23696	10.66	52.41	20.34%	-	0%	-		

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation					External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation		
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup f(50) & (48)	Cost Index Lookup f(50) & (2017)	(52)/(51)	(49)/(51)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(56)	Col. (55) & (58)	Iowa Lookup f(59)	(56)/(60)	(57)/(63)	(61)/(62)	(54)/(64)	Account Parameters	(64)/(64)	
380.0 Treatment & Disposal Equipment	1975	\$0	HWW-116	134	774	5.776	-	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-	
380.0 Treatment & Disposal Equipment	1975	\$20,457	HWW-116	134	774	5.776	118,160	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	24,034	0%	24,034	
380.0 Treatment & Disposal Equipment	2016	\$21,859	HWW-116	761.3	774	1.017	22,231	R3.0	45	0.75	2	R3.0002	0.98032	44.11	44.86	98.33%	21,860	0%	21,860	
390.3 EDP Equipment	2016	\$7,500	AUST-114	0.65	0.73	1.123	8,423	R3.0	8	0.75	9	R3.0009	0.91187	7.29	8.04	90.67%	7,637	0%	7,637	
380.0 Treatment & Disposal Equipment	1975	\$230,139	HWW-116	134	774	5.776	1,329,283	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	270,376	0%	270,376	
380.0 Treatment & Disposal Equipment	1975	\$9,133	HWW-116	134	774	5.776	52,752	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	10,730	0%	10,730	
380.0 Treatment & Disposal Equipment	1975	\$0	HWW-116	134	774	5.776	-	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-	
380.0 Treatment & Disposal Equipment	1975	\$0	HWW-116	134	774	5.776	-	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-	
380.0 Treatment & Disposal Equipment	1975	\$10,046	HWW-116	134	774	5.776	58,026	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	11,802	0%	11,802	
380.0 Treatment & Disposal Equipment	1975	\$10,046	HWW-116	134	774	5.776	58,026	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	11,802	0%	11,802	
380.0 Treatment & Disposal Equipment	1975	\$10,046	HWW-116	134	774	5.776	58,026	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	11,802	0%	11,802	
380.0 Treatment & Disposal Equipment	1975	\$0	HWW-116	134	774	5.776	-	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-	
380.0 Treatment & Disposal Equipment	1975	\$0	HWW-116	134	774	5.776	-	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	2014	\$4,043,354	HWW-115	630.8	672	1.065	4,306,172	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	4,043,496	0%	4,043,496	
380.0 Treatment & Disposal Equipment	2015	\$975,000	HWW-116	741.3	774	1.044	1,017,900	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	978,304	0%	978,304	
380.0 Treatment & Disposal Equipment	2015	\$0	HWW-116	741.3	774	1.044	-	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	-	0%	-	
380.0 Treatment & Disposal Equipment	2015	\$6,000	HWW-116	741.3	774	1.044	6,264	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	6,020	0%	6,020	
390.2 Office Equipment	2015	\$0	AUST-113	172	173	1.006	-	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	-	0%	-	
380.0 Treatment & Disposal Equipment	2015	\$452,000	HWW-116	741.3	774	1.044	471,888	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	453,532	0%	453,532	
380.0 Treatment & Disposal Equipment	2015	\$500,000	HWW-116	741.3	774	1.044	522,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	501,694	0%	501,694	
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	2014	\$378,778	HWW-115	630.8	672	1.065	403,399	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	378,792	0%	378,792	
380.0 Treatment & Disposal Equipment	2015	\$57,500	HWW-116	741.3	774	1.044	60,030	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695	
380.0 Treatment & Disposal Equipment	2015	\$57,500	HWW-116	741.3	774	1.044	60,030	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695	

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation						External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation		
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (F50) & (48)	Cost Index Lookup (F50) & (2017)	(52)(F51)	(49)*(53)	Account Parameters	Account Parameters	2016 75 (48)	(57)(F58)	Col. (55) & (58)	Iowa Lookup (F59)	(56)*(60)	(57)+(61)	(F61)(F62)	(54)*(63)	Account Parameters	(64)*(64)	
380.0 Treatment & Disposal Equipment	2015	\$57,500 HWW-116		741.3	774	1.044	60,030	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695		
380.0 Treatment & Disposal Equipment	2015	\$57,500 HWW-116		741.3	774	1.044	60,030	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695		
380.0 Treatment & Disposal Equipment	2015	\$57,500 HWW-116		741.3	774	1.044	60,030	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695		
380.0 Treatment & Disposal Equipment	2015	\$6,000 HWW-116		741.3	774	1.044	6,264	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	6,020	0%	6,020		
380.0 Treatment & Disposal Equipment	2015	\$18,600 HWW-116		741.3	774	1.044	19,418	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	18,663	0%	18,663		
380.0 Treatment & Disposal Equipment	2015	\$154,675 HWW-116		741.3	774	1.044	161,481	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	155,199	0%	155,199		
380.0 Treatment & Disposal Equipment	2015	\$175,000 HWW-116		741.3	774	1.044	182,700	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	175,593	0%	175,593		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	2014	\$227,300 HWW-115		630.8	672	1.065	242,075	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	227,308	0%	227,308		
380.0 Treatment & Disposal Equipment	2015	\$6,500 HWW-116		741.3	774	1.044	6,786	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	6,522	0%	6,522		
380.0 Treatment & Disposal Equipment	2015	\$10,000 HWW-116		741.3	774	1.044	10,440	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	10,034	0%	10,034		
380.0 Treatment & Disposal Equipment	2015	\$18,500 HWW-116		741.3	774	1.044	19,314	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	18,563	0%	18,563		
380.0 Treatment & Disposal Equipment	2015	\$12,000 HWW-116		741.3	774	1.044	12,528	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	12,041	0%	12,041		
380.0 Treatment & Disposal Equipment	2015	\$0 HWW-116		741.3	774	1.044	-	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	-	0%	-		
380.0 Treatment & Disposal Equipment	2015	\$35,000 HWW-116		741.3	774	1.044	36,540	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	35,119	0%	35,119		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	2014	\$575,000 HWW-115		630.8	672	1.065	612,375	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	575,020	0%	575,020		
380.0 Treatment & Disposal Equipment	2015	\$43,500 HWW-116		741.3	774	1.044	45,414	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	43,647	0%	43,647		
380.0 Treatment & Disposal Equipment	2015	\$43,500 HWW-116		741.3	774	1.044	45,414	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	43,647	0%	43,647		
380.0 Treatment & Disposal Equipment	2015	\$43,500 HWW-116		741.3	774	1.044	45,414	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	43,647	0%	43,647		
380.0 Treatment & Disposal Equipment	2015	\$43,500 HWW-116		741.3	774	1.044	45,414	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	43,647	0%	43,647		
380.0 Treatment & Disposal Equipment	2015	\$12,400 HWW-116		741.3	774	1.044	12,946	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	12,442	0%	12,442		
380.0 Treatment & Disposal Equipment	2015	\$160,000 HWW-116		741.3	774	1.044	167,040	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	160,542	0%	160,542		
380.0 Treatment & Disposal Equipment	2015	\$183,100 HWW-116		741.3	774	1.044	191,156	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	183,720	0%	183,720		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1999	\$0 HWW-115		343	672	1.959	-	R4.0	45	17.75	39 R4.0039	0.61495	27.67	45.42	60.92%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1975	\$1,733,304 HWW-115		127	672	5.291	9,170,911	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	1,510,449	0%	1,510,449		
380.0 Treatment & Disposal Equipment	2013	\$21,542 HWW-116		699	774	1.107	23,847	R3.0	45	3.75	8 R3.0008	0.9216	41.47	45.22	91.71%	21,870	0%	21,870		
380.0 Treatment & Disposal Equipment	2013	\$21,542 HWW-116		699	774	1.107	23,847	R3.0	45	3.75	8 R3.0008	0.9216	41.47	45.22	91.71%	21,870	0%	21,870		
380.0 Treatment & Disposal Equipment	2003	\$0 HWW-116		451.8	774	1.713	-	R3.0	45	13.75	31 R3.0031	0.7038	31.67	45.42	69.73%	-	0%	-		
380.0 Treatment & Disposal Equipment	2015	\$20,000 HWW-116		741.3	774	1.044	20,880	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	20,068	0%	20,068		
380.0 Treatment & Disposal Equipment	2003	\$0 HWW-116		451.8	774	1.713	-	R3.0	45	13.75	31 R3.0031	0.7038	31.67	45.42	69.73%	-	0%	-		
380.0 Treatment & Disposal Equipment	2003	\$5,992 HWW-116		451.8	774	1.713	10,264	R3.0	45	13.75	31 R3.0031	0.7038	31.67	45.42	69.73%	7,157	0%	7,157		
380.0 Treatment & Disposal Equipment	2015	\$127,200 HWW-116		741.3	774	1.044	132,797	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	127,631	0%	127,631		
380.0 Treatment & Disposal Equipment	2015	\$1,922,449 HWW-116		134	774	5.776	11,104,065	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	2,258,567	0%	2,258,567		
380.0 Treatment & Disposal Equipment	2015	\$87,420 HWW-116		741.3	774	1.044	91,266	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	87,716	0%	87,716		
380.0 Treatment & Disposal Equipment	1975	\$302,268 HWW-116		134	774	5.776	1,745,900	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	355,116	0%	355,116		
380.0 Treatment & Disposal Equipment	1999	\$530,970 HWW-116		401	774	1.93	1,024,772	R3.0	45	17.75	39 R3.0039	0.63205	28.44	46.19	61.57%	630,952	0%	630,952		

Replacement Cost New

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)				
Account										Costing					Depreciation					External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation					
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (F50) & (48)	Cost Index Lookup (F50) & (2017)	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2016 75 (48)	(57)/(56)	Cols (55) & (58)	Iowa Lookup (F59)	(56)*(60)	(57)*(61)	(61)/(62)	(54)*(63)	Account Parameters	(64)*(64)					
380.0 Treatment & Disposal Equipment	2007	\$98,988 HWW-116		537	774	1.441	142,642	R3.0	45	9.75	22 R3.0022	0.78729	35.43	45.18	78.42%	111,860	0%	111,860						
380.0 Treatment & Disposal Equipment	2007	\$98,988 HWW-116		537	774	1.441	142,642	R3.0	45	9.75	22 R3.0022	0.78729	35.43	45.18	78.42%	111,860	0%	111,860						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1975	\$393,386 HWW-115		127	672	5.291	2,081,405	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	342,807	0%	342,807						
380.0 Treatment & Disposal Equipment	2008	\$413,155 HWW-116		586	774	1.321	545,778	R3.0	45	8.75	19 R3.0019	0.81568	36.71	45.46	80.75%	440,716	0%	440,716						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1975	\$395,941 HWW-115		127	672	5.291	2,094,924	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	345,034	0%	345,034						
380.0 Treatment & Disposal Equipment	2008	\$413,155 HWW-116		586	774	1.321	545,778	R3.0	45	8.75	19 R3.0019	0.81568	36.71	45.46	80.75%	440,716	0%	440,716						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1975	\$335,807 HWW-115		127	672	5.291	1,776,755	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	292,632	0%	292,632						
364.0 Flow Measuring Devices	2011	\$0 HWW-140		379	404	1.066	-	R3.0	35	5.75	16 R3.0016	0.8443	29.55	35.30	83.71%	-	0%	-						
380.0 Treatment & Disposal Equipment	2015	\$28,500 HWW-116		741.3	774	1.044	29,754	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	28,597	0%	28,597						
380.0 Treatment & Disposal Equipment	2015	\$28,500 HWW-116		741.3	774	1.044	29,754	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	28,597	0%	28,597						
390.2 Office Equipment	1995	\$0 AUST-113		156	173	1.109	-	R3.0	12	21.75	181 R3.0181	0	0.00	21.75	10.00%	-	0%	-						
380.0 Treatment & Disposal Equipment	1960	\$18,880 HWW-116		55	774	14.073	265,698	R3.0	45	56.75	126 R3.0126	0.10823	4.87	61.62	10.00%	26,570	0%	26,570						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$280,787 HWW-115		53	672	12.679	3,560,098	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	356,010	0%	356,010						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	2014	\$110,000 HWW-115		630.8	672	1.065	117,150	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	110,004	0%	110,004						
380.0 Treatment & Disposal Equipment	2015	\$51,000 HWW-116		741.3	774	1.044	53,244	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	51,173	0%	51,173						
380.0 Treatment & Disposal Equipment	2015	\$51,000 HWW-116		741.3	774	1.044	53,244	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	51,173	0%	51,173						
380.0 Treatment & Disposal Equipment	2015	\$51,000 HWW-116		741.3	774	1.044	53,244	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	51,173	0%	51,173						
380.0 Treatment & Disposal Equipment	2015	\$51,000 HWW-116		741.3	774	1.044	53,244	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	51,173	0%	51,173						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	2014	\$6,497,100 HWW-115		630.8	672	1.065	6,919,412	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	6,497,328	0%	6,497,328						
380.0 Treatment & Disposal Equipment	2015	\$2,698,000 HWW-116		741.3	774	1.044	2,816,712	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	2,707,142	0%	2,707,142						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-						
354.4 Structures & Improvements - Treatment Plants	2014	\$1,348,050 HWW-115		630.8	672	1.065	1,435,673	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	1,348,097	0%	1,348,097						

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing								Depreciation							External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	lowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	lowa Lookup	lowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup R(50) & (48)	Cost Index Lookup R(50) & (2617)	(72)/(51)	(49)/(53)	Account Parameters	Account Parameters	(57)/(56)	Col (55) & (58)	lowa Lookup R(59)	(54)/(60)	(57)/(61)	(61)/(62)	(54)/(61)	Account Parameters	(64)/(64)		
380.0	Treatment & Disposal Equipment	2015	\$1,047,000 HWW-116	741.3	774	1.044	1,093,068	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	1,050,548	0%	1,050,548	
380.0	Treatment & Disposal Equipment	2015	\$50,000 HWW-116	741.3	774	1.044	52,200	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	50,169	0%	50,169	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	2014	\$54,904 HWW-115	630.8	672	1.065	58,473	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	54,906	0%	54,906	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	2014	\$54,904 HWW-115	630.8	672	1.065	58,473	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	54,906	0%	54,906	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	2014	\$22,689 HWW-115	630.8	672	1.065	24,164	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	22,690	0%	22,690	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	2014	\$49,801 HWW-115	630.8	672	1.065	53,038	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	49,803	0%	49,803	
353.1	Land Improvements	1960	\$0 USBL51	30	243	8.1	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
353.1	Land Improvements	2014	\$93,936 USBL51	237	243	1.025	96,284	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	90,411	0%	90,411	
353.1	Land Improvements	1960	\$0 USBL51	30	243	8.1	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
353.1	Land Improvements	2014	\$140,410 USBL51	237	243	1.025	143,920	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	135,141	0%	135,141	
353.1	Land Improvements	1960	\$0 USBL51	30	243	8.1	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
353.1	Land Improvements	1960	\$0 USBL51	30	243	8.1	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
353.1	Land Improvements	2014	\$24,718 USBL51	237	243	1.025	25,336	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	23,791	0%	23,791	
353.1	Land Improvements	1975	\$0 USBL51	54	243	4.5	-	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	-	0%	-	
353.1	Land Improvements	2000	\$11,577 USBL51	172	243	1.413	16,358	R4.0	45	16.75	37	R4.0037	0.63414	28.54	45.29	63.02%	10,309	0%	10,309	
353.1	Land Improvements	2014	\$18,314 USBL51	237	243	1.025	18,772	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	17,627	0%	17,627	
353.1	Land Improvements	2000	\$24,140 USBL51	172	243	1.413	34,110	R4.0	45	16.75	37	R4.0037	0.63414	28.54	45.29	63.02%	21,496	0%	21,496	
353.1	Land Improvements	2014	\$98,730 USBL51	237	243	1.025	101,198	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	95,025	0%	95,025	
353.1	Land Improvements	1975	\$0 USBL51	54	243	4.5	-	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	-	0%	-	
353.1	Land Improvements	2000	\$60,350 USBL51	172	243	1.413	85,275	R4.0	45	16.75	37	R4.0037	0.63414	28.54	45.29	63.02%	53,740	0%	53,740	
353.1	Land Improvements	2014	\$14,831 USBL51	237	243	1.025	15,202	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	14,275	0%	14,275	
353.1	Land Improvements	1990	\$11,362 USBL51	131	243	1.855	21,077	R4.0	45	26.75	59	R4.0059	0.43225	19.45	46.20	42.10%	8,873	0%	8,873	
353.1	Land Improvements	2014	\$0 USBL51	237	243	1.025	-	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1965	\$0 HWW-115	57	672	11.789	-	R4.0	45	51.75	115	R4.0115	0.09103	4.10	55.85	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1965	\$0 HWW-115	57	672	11.789	-	R4.0	45	51.75	115	R4.0115	0.09103	4.10	55.85	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	2011	\$330,000 HWW-115	583.5	672	1.152	380,160	R4.0	45	5.75	13	R4.0013	0.87027	39.16	44.91	87.20%	331,500	0%	331,500	
354.4	Structures & Improvements - Treatment Plants	2014	\$5,500 HWW-115	630.8	672	1.065	5,858	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	5,501	0%	5,501	
393.0	Tools, Shop, & Garage Equipment	1980	\$0 AUST-17	213	514	2.413	-	R3.0	25	36.75	147	R3.0147	0.05355	1.34	38.09	10.00%	-	0%	-	
380.0	Treatment & Disposal Equipment	1965	\$0 HWW-116	62	774	12.484	-	R3.0	45	51.75	115	R3.0115	0.14158	6.37	58.12	10.96%	-	0%	-	
390.1	Furniture	1980	\$0 AUST-112	182	457	2.511	-	R3.0	22	36.75	167	R3.0167	0.00641	0.14	36.89	10.00%	-	0%	-	
380.0	Treatment & Disposal Equipment	2006	\$0 HWW-116	503.8	774	1.536	-	R3.0	45	10.75	24	R3.0024	0.76851	34.58	45.33	76.29%	-	0%	-	
380.0	Treatment & Disposal Equipment	2006	\$7,252 HWW-116	503.8	774	1.536	11,139	R3.0	45	10.75	24	R3.0024	0.76851	34.58	45.33	76.29%	8,498	0%	8,498	
380.0	Treatment & Disposal Equipment	1995	\$0 HWW-116	357	774	2.168	-	R3.0	45	21.75	48	R3.0048	0.55461	24.96	46.71	53.44%	-	0%	-	
380.0	Treatment & Disposal Equipment	2002	\$11,636 HWW-116	443.3	774	1.746	20,316	R3.0	45	14.75	33	R3.0033	0.68563	30.85	45.60	67.65%	13,744	0%	13,744	
390.1	Furniture	1980	\$0 AUST-112	182	457	2.511	-	R3.0	22	36.75	167	R3.0167	0.00641	0.14	36.89	10.00%	-	0%	-	
380.0	Treatment & Disposal Equipment	2012	\$6,665 HWW-116	679.5	774	1.139	7,591	R3.0	45	4.75	11	R3.0011	0.89247	40.16	44.91	89.42%	6,788	0%	6,788	
390.3	EDP Equipment	2013	\$0 AUST-114	0.5	773	1.46	-	R3.0	8	3.75	47	R3.0047	0.56303	4.50	8.25	54.55%	-	0%	-	
394.0	Laboratory Equipment	1995	\$7,268 USBL51	152	243	1.599	11,622	R3.0	25	21.75	87	R3.0087	0.27078	6.77	28.52	23.74%	2,759	0%	2,759	
394.0	Laboratory Equipment	2010	\$11,162 USBL51	218	243	1.115	12,446	R3.0	25	6.75	27	R3.0027	0.74058	18.51	25.26	73.28%	9,120	0%	9,120	
380.0	Treatment & Disposal Equipment	2010	\$8,558 HWW-116	637.3	774	1.214	10,389	R3.0	45	6.75	15	R3.0015	0.85389	38.43	45.18	85.06%	8,837	0%	8,837	
353.1	Land Improvements	1965	\$0 USBL51	32	243	7.594	-	R4.0	45	51.75	115	R4.0115	0.09103	4.10	55.85	10.00%	-	0%	-	
353.1	Land Improvements	1965	\$0 USBL51	32	243	7.594	-	R4.0	45	51.75	115	R4.0115	0.09103	4.10	55.85	10.00%	-	0%	-	
353.1	Land Improvements	1965	\$0 USBL51	32	243	7.594	-	R4.0	45	51.75	115	R4.0115	0.09103	4.10	55.85	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1963	\$0 HWW-115	55	672	12.218	-	R4.0	45	53.75	119	R4.0119	0.07948	3.58	57.33	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1963	\$0 HWW-115	55	672	12.218	-	R4.0	45	53.75	119	R4.0119	0.07948	3.58	57.33	10.00%	-	0%	-	

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing														Depreciation				External Obsolescence		
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup f(50) & (48)	Cost Index Lookup f(50) & (2017)	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(56)	Cols (55) & (58)	Iowa Lookup f(59)	(56)*(60)	(57)+(61)	(61)/(62)	(54)*(53)	Account Parameters	(64)*(64)	
354.4 Structures & Improvements - Treatment Plants	2010	\$3,800,000	HWW-115	559.8	672	1.2	4,560,000	R4.0	45	6.75	15	R4.0015	0.85036	38.27	45.02	85.01%	3,876,456	0%	3,876,456	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
390.1 Furniture	1963	\$0	AUST-112	71	457	6.437	-	R3.0	22	53.75	244	R3.0244	0	0.00	53.75	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	2014	\$6,911	HWW-116	724.8	774	1.068	7,381	R3.0	45	2.75	6	R3.0006	0.94112	42.35	45.10	93.90%	6,931	0%	6,931	
390.1 Furniture	1963	\$0	AUST-112	71	457	6.437	-	R3.0	22	53.75	244	R3.0244	0	0.00	53.75	10.00%	-	0%	-	
390.3 EDP Equipment	2013	\$0	AUST-114	0.5	0.73	1.46	-	R3.0	8	3.75	47	R3.0047	0.56303	4.50	8.25	54.55%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
355.0 Power Generating Equipment	1963	\$0	USBLS4	30.2	206	6.821	-	R3.0	35	53.75	154	R3.0154	0.03593	1.26	55.01	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
390.2 Office Equipment	1963	\$0	AUST-113	90	173	1.922	-	R3.0	12	53.75	448	R3.0448	0	0.00	53.75	10.00%	-	0%	-	
394.0 Laboratory Equipment	1963	\$0	USBLS1	31	243	7.839	-	R3.0	25	53.75	215	R3.0215	0	0.00	53.75	10.00%	-	0%	-	
390.1 Furniture	1963	\$0	AUST-112	71	457	6.437	-	R3.0	22	53.75	244	R3.0244	0	0.00	53.75	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
390.2 Office Equipment	1963	\$0	AUST-113	90	173	1.922	-	R3.0	12	53.75	448	R3.0448	0	0.00	53.75	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	

Parliament Cost New

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation					External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
				Cost Index Lookup (50) & (48)	Cost Index Lookup (50) & (48)	(52)/(51)	(49)/(53)	Account Parameters	Account Parameters	2016-75 (48)	(57)/(56)	Col. (55) R. (58)	Iowa Lookup (59)	(56)/(60)	(57)/(61)	(61)/(62)	(54)/(63)	Account Parameters	(54)/(64)	
AUS Input																				
354.3 Structures & Improvements - Pump Stations	1995	\$0	HWW-115	316	672	2.127		R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%		0%		
354.3 Structures & Improvements - Pump Stations	1995	\$0	HWW-115	316	672	2.127		R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%		0%		
354.3 Structures & Improvements - Pump Stations	1995	\$19,209	HWW-115	316	672	2.127	40,858	R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%	21,377	0%	21,377	
355.0 Power Generating Equipment	2002	\$13,159	USBLS4	142	206	1.451	19,094	R3.0	35	14.75	42	R3.0042	0.60583	21.20	35.95	58.97%	11,260	0%	11,260	
396.2 SCADA Systems	2002	\$0	USBLS2	105	96	0.914		R3.0	12	14.75	123	R3.0123	0.11668	1.40	16.15	10.00%		0%		
361.0 Collection Sewers - Gravity	2016	\$10,989	HWW-134	755.3	774	1.025	11,264	R4.0	75	0.75	1	R4.0001	0.99001	74.25	75.00	99.00%	11,151	0%	11,151	
361.0 Collection Sewers - Gravity	2007	\$2,820,000	HWW-134	530	774	1.46	4,117,200	R4.0	75	9.75	13	R4.0013	0.87027	65.27	75.02	87.00%	3,581,964	0%	3,581,964	
354.3 Structures & Improvements - Pump Stations	1955	-\$55,194	HWW-115	43	672	15.628	(862,572)	R4.0	45	61.75	137	R4.0137	0.03332	1.50	63.25	10.00%	(86,257)	0%	(86,257)	
364.0 Flow Measuring Devices	2016	\$29,451	HWW-140	403.3	404	1.002	29,510	R3.0	35	0.75	2	R3.0002	0.98032	34.31	35.06	97.86%	28,878	0%	28,878	
364.0 Flow Measuring Devices	2013	\$160,432	HWW-140	380.8	404	1.061	170,218	R3.0	35	3.75	11	R3.0011	0.89247	31.24	34.99	89.28%	151,971	0%	151,971	
371.0 Pumping Equipment	2015	\$0	HWW-19	945	1075	1.138		R3.0	35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%		0%		
395.0 Power Operated Equipment	1987	\$13,871	AUST-18	205	322	1.571	21,791	R3.0	18	29.75	165	R3.0165	0.01039	0.19	29.94	10.00%	2,179	0%	2,179	
391.0 Transportation Equipment	2003	\$20,846	AUST-14	257	305	1.187	24,744	R3.0	12	13.75	115	R3.0115	0.14158	1.70	15.45	11.00%	2,722	0%	2,722	
391.0 Transportation Equipment	2004	\$22,675	AUST-14	266	305	1.147	26,008	R3.0	12	12.75	106	R3.0106	0.17527	2.10	14.85	14.14%	3,678	0%	3,678	
395.0 Power Operated Equipment	2009	\$46,982	AUST-18	286	322	1.126	52,902	R3.0	18	7.75	43	R3.0043	0.59718	10.75	18.50	58.11%	30,741	0%	30,741	
391.0 Transportation Equipment	2009	\$20,081	AUST-14	273	305	1.117	22,430	R3.0	12	7.75	65	R3.0065	0.41931	5.03	12.78	39.36%	8,828	0%	8,828	
391.0 Transportation Equipment	2007	\$126,140	AUST-14	257	305	1.187	149,728	R3.0	12	9.75	81	R3.0081	0.30773	3.69	13.44	27.46%	41,115	0%	41,115	
391.0 Transportation Equipment	2010	\$7,500	AUST-14	269	305	1.134	8,505	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	3,956	0%	3,956	
395.0 Power Operated Equipment	2010	\$356,691	AUST-18	288	322	1.118	398,781	R3.0	18	6.75	38	R3.0038	0.64088	11.54	18.29	63.09%	251,591	0%	251,591	
391.0 Transportation Equipment	2010	\$7,000	AUST-14	269	305	1.134	7,938	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	3,692	0%	3,692	
395.0 Power Operated Equipment	2011	\$7,000	AUST-18	290	322	1.11	7,770	R3.0	18	5.75	32	R3.0032	0.69469	12.50	18.25	68.49%	5,322	0%	5,322	
395.0 Power Operated Equipment	2011	\$40,000	AUST-18	290	322	1.11	44,400	R3.0	18	5.75	32	R3.0032	0.69469	12.50	18.25	68.49%	30,410	0%	30,410	
391.0 Transportation Equipment	2011	\$9,700	AUST-14	273	305	1.117	10,835	R3.0	12	5.75	48	R3.0048	0.55461	6.66	12.41	53.67%	5,815	0%	5,815	
391.0 Transportation Equipment	2011	\$9,500	AUST-14	273	305	1.117	10,612	R3.0	12	5.75	48	R3.0048	0.55461	6.66	12.41	53.67%	5,695	0%	5,695	
395.0 Power Operated Equipment	2012	\$88,636	AUST-18	294	322	1.095	97,056	R3.0	18	4.75	26	R3.0026	0.74986	13.50	18.25	73.97%	71,792	0%	71,792	
395.0 Power Operated Equipment	2012	\$73,193	AUST-18	294	322	1.095	80,146	R3.0	18	4.75	26	R3.0026	0.74986	13.50	18.25	73.97%	59,284	0%	59,284	
395.0 Power Operated Equipment	2012	\$0	AUST-18	294	322	1.095		R3.0	18	4.75	26	R3.0026	0.74986	13.50	18.25	73.97%		0%		
391.0 Transportation Equipment	2012	\$34,995	AUST-14	279	305	1.093	38,250	R3.0	12	4.75	40	R3.0040	0.62327	7.48	12.23	61.16%	23,394	0%	23,394	

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation					External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup I{(50) & (48)}	Cost Index Lookup I{(50) & (2017)}	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(56)	Col. (55) & (58)	Iowa Lookup I{(59)}	(56)*(60)	(57)/(61)	(61)/(62)	(54)*(63)	Account Parameters	(64)*(64)	
391.0 Transportation Equipment	2013	\$18,502	AUST-14	282	305	1.082	20,019	R3.0	12	3.75	31	R3.0031	0.7038	8.45	12.20	69.26%	13,865	0%	13,865	
391.0 Transportation Equipment	2014	\$23,917	AUST-14	287	305	1.063	25,424	R3.0	12	2.75	23	R3.0023	0.77789	9.33	12.08	77.24%	19,637	0%	19,637	
391.0 Transportation Equipment	2014	\$414,614	AUST-14	287	305	1.063	440,735	R3.0	12	2.75	23	R3.0023	0.77789	9.33	12.08	77.24%	340,424	0%	340,424	
391.0 Transportation Equipment	2015	\$32,443	AUST-14	295	305	1.034	33,546	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	28,655	0%	28,655	
391.0 Transportation Equipment	2008	\$9,995	AUST-14	257	305	1.187	11,864	R3.0	12	8.75	73	R3.0073	0.36135	4.34	13.09	33.16%	3,934	0%	3,934	
391.0 Transportation Equipment	2016	\$32,733	AUST-14	298	305	1.023	33,486	R3.0	12	0.75	6	R3.0006	0.94112	11.29	12.04	93.77%	31,400	0%	31,400	
391.0 Transportation Equipment	2015	\$32,443	AUST-14	295	305	1.034	33,546	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	28,655	0%	28,655	
		\$61,374,789					\$106,863,107										\$62,652,591		\$62,652,591	

Replacement Cost New

**The City of McKeesport, Pennsylvania
And
The Municipal Authority of the City McKeesport**

**Appraisal Work Papers
As of September 2016**

**Cost Approach
Replacement Cost New less Depreciation**

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**Pennsylvania American, Inc.
 The Municipal Authority of the City of McKeesport
 Wastewater
 Investor-Owned Utility
 September 2016**

Summary of Cost Approach

Service Area	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	Cost New less Depreciation adjusted for External Obsolescence
McKeesport	35,663,314.30	24,781,311	125,338,615	61,696,103	61,696,103
Duquesne	8,488,374.00	4,009,366	57,112,541	22,405,247	22,405,247
Dravosburg	1,188,766.76	398,682	11,821,704	3,718,174	3,718,174
Port Vue	1,455,194.00	362,190	20,893,663	4,942,794	4,942,794
Summary	46,795,649.06	29,551,549	215,166,523	92,762,318	92,762,318
Treatment & Pumping Plant	61,374,789	50,472,921	106,863,107	62,652,591	62,652,591
Subtotal	108,170,438.06	80,024,470	322,029,630	155,414,909	155,414,909
Land	61,132	61,132	1,110,000	-	1,110,000
Total	108,231,570.06	80,085,602	323,139,630	155,414,909	156,524,909

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

McKeesport Service Area

Development of Cost New less Depreciation (RCNLD)

(1)	(2)	(4)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
Account	Description	Service Date	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation
K/H Input	K/H Input	K/H Input	Cost New Development Col. (20)	Account Parameters Lookup	Account Parameters Lookup	2016 75-Col (4)	(23)/(22)	Cols. (21)/(24)	IowaLookup (Col (25))	Cols (22)*(26)	Cols (23)/(27)	Cols (27)/(28)	Cols (20)/(29)
361	Collection Sewers - Gravity	1959	7,042,393	R 4.0	75	57.75		77 R 4.0077	0.28927	21.70	79.45	27.31%	1,923,278
361	Collection Sewers - Gravity	1976	13,850,247	R 4.0	75	40.75		54 R 4.0054	0.47598	35.70	76.45	46.70%	6,468,065
361	Collection Sewers - Gravity	1989	10,540,067	R 4.0	75	27.75		37 R 4.0037	0.63414	47.56	75.31	63.15%	6,656,052
361	Collection Sewers - Gravity	1999	2,668,713	R 4.0	75	17.75		24 R 4.0024	0.76111	57.08	74.83	76.28%	2,035,694
361	Collection Sewers - Gravity	2008	31,884	R 4.0	75	8.75		12 R 4.0012	0.88023	66.02	74.77	88.30%	28,154
361	Collection Sewers - Gravity	2010	3,440,082	R 4.0	75	6.75		9 R 4.0009	0.91014	68.26	75.01	91.00%	3,130,475
	Total 8"		\$37,573,386										\$20,241,718
361	Collection Sewers - Gravity	1959	4,908,606	R 4.0	75	57.75		77 R 4.0077	0.28927	21.70	79.45	27.31%	1,340,540
361	Collection Sewers - Gravity	1976	1,613,497	R 4.0	75	40.75		54 R 4.0054	0.47598	35.70	76.45	46.70%	753,503
361	Collection Sewers - Gravity	1989	2,723,720	R 4.0	75	27.75		37 R 4.0037	0.63414	47.56	75.31	63.15%	1,720,029
361	Collection Sewers - Gravity	1999	702,716	R 4.0	75	17.75		24 R 4.0024	0.76111	57.08	74.83	76.28%	536,032
	Total 10"		\$9,948,539										\$4,350,104
361	Collection Sewers - Gravity	1959	10,615,359	R 4.0	75	57.75		77 R 4.0077	0.28927	21.70	79.45	27.31%	2,899,055
361	Collection Sewers - Gravity	1976	3,886,876	R 4.0	75	40.75		54 R 4.0054	0.47598	35.70	76.45	46.70%	1,815,171
361	Collection Sewers - Gravity	2008	29,469	R 4.0	75	8.75		12 R 4.0012	0.88023	66.02	74.77	88.30%	26,021
	Total 12"		\$14,531,704										\$4,740,247
361	Collection Sewers - Gravity	1959	4,983,980	R 4.0	75	57.75		77 R 4.0077	0.28927	21.70	79.45	27.31%	1,361,125
361	Collection Sewers - Gravity	1976	333,875	R 4.0	75	40.75		54 R 4.0054	0.47598	35.70	76.45	46.70%	155,920
361	Collection Sewers - Gravity	1989	340,851	R 4.0	75	27.75		37 R 4.0037	0.63414	47.56	75.31	63.15%	215,247
361	Collection Sewers - Gravity	2008	12,386	R 4.0	75	8.75		12 R 4.0012	0.88023	66.02	74.77	88.30%	10,937
	Total 15"		\$5,671,092										\$1,743,229
361	Collection Sewers - Gravity	1959	517,629	R 4.0	75	57.75		77 R 4.0077	0.28927	21.70	79.45	27.31%	141,364
361	Collection Sewers - Gravity	1976	1,996,444	R 4.0	75	40.75		54 R 4.0054	0.47598	35.70	76.45	46.70%	932,339
	Total 16"		\$2,514,073										\$1,073,703
361	Collection Sewers - Gravity	1959	2,069,672	R 4.0	75	57.75		77 R 4.0077	0.28927	21.70	79.45	27.31%	565,227
361	Collection Sewers - Gravity	1999	4,885,240	R 4.0	75	17.75		24 R 4.0024	0.76111	57.08	74.83	76.28%	3,726,461
	Total 18"		\$6,954,912										\$4,291,688
361	Collection Sewers - Gravity	1959	255,425	R 4.0	75	57.75		77 R 4.0077	0.28927	21.70	79.45	27.31%	69,757
361	Collection Sewers - Gravity	2008	8,093	R 4.0	75	8.75		12 R 4.0012	0.88023	66.02	74.77	88.30%	7,146
	Total 20"		\$263,518										\$76,903
361	Collection Sewers - Gravity	2008	208,991	R 4.0	75	8.75		12 R 4.0012	0.88023	66.02	74.77	88.30%	184,539
	Total 21"		\$208,991										\$184,539
361	Collection Sewers - Gravity	1959	7,900,709	R 4.0	75	57.75		77 R 4.0077	0.28927	21.70	79.45	27.31%	2,157,684
361	Collection Sewers - Gravity	1976	4,131,810	R 4.0	75	40.75		54 R 4.0054	0.47598	35.70	76.45	46.70%	1,929,555
361	Collection Sewers - Gravity	1989	3,273,528	R 4.0	75	27.75		37 R 4.0037	0.63414	47.56	75.31	63.15%	2,067,233
361	Collection Sewers - Gravity	2008	518,790	R 4.0	75	8.75		12 R 4.0012	0.88023	66.02	74.77	88.30%	458,092
361	Collection Sewers - Gravity	2011	276,477	R 4.0	75	5.75		8 R 4.0008	0.92012	69.01	74.76	92.31%	255,216
	Total 24"		\$16,101,314										\$6,867,780
361	Collection Sewers - Gravity	1959	4,794,597	R 4.0	75	57.75		77 R 4.0077	0.28927	21.70	79.45	27.31%	1,309,404
361	Collection Sewers - Gravity	1976	1,606,419	R 4.0	75	40.75		54 R 4.0054	0.47598	35.70	76.45	46.70%	750,198
361	Collection Sewers - Gravity	2009	936,344	R 4.0	75	7.75		10 R 4.0010	0.90017	67.51	75.26	89.70%	839,901
361	Collection Sewers - Gravity	2011	476,362	R 4.0	75	5.75		8 R 4.0008	0.92012	69.01	74.76	92.31%	439,730
	Total 30"		\$7,813,722										\$3,339,233
361	Collection Sewers - Gravity	1959	111,405	R 4.0	75	57.75		77 R 4.0077	0.28927	21.70	79.45	27.31%	30,425
361	Collection Sewers - Gravity	2008	189,239	R 4.0	75	8.75		12 R 4.0012	0.88023	66.02	74.77	88.30%	167,098
361	Collection Sewers - Gravity	2009	7,918,445	R 4.0	75	7.75		10 R 4.0010	0.90017	67.51	75.26	89.70%	7,102,845
	Total 36"		\$8,219,089										\$7,300,368

Pennsylvania American, Inc.
 The Municipal Authority of the City of McKeesport
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McKeesport Service Area		Development of Cost New less Depreciation (RCNLD)											
(1)	(2)	(4)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
Account	Description	Service Date	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation
KLH Input	KLH Input	KLH Input	Cost New Development Col. (20)	Account Parameters Lookup	Account Parameters Lookup	2016 75-Col. (4)	(23)/(22)	Col. (21)&(24)	Iowa Lookup f(Col. (25))	Col. (22)*(26)	Col. (23)*(27)	Col. (27)/(28)	Col. (20)*(29)
361	Collection Sewers - Gravity Total 42"	2008	146,978 \$146,978	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	129,782 \$129,782
361	Collection Sewers - Gravity Total 48"	2008	310,056 \$310,056	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	273,779 \$273,779
361	Collection Sewers - Gravity Total 54"	2011	180,632 \$180,632	R4.0	75	5.75	8	R4.0008	0.92012	69.01	74.76	92.31%	166,741 \$166,741
361	Collection Sewers - Gravity Total 60"	2008	410,726 \$410,726	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	362,671 \$362,671
361	Collection Sewers - Gravity	2008	223,949	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	197,747
361	Collection Sewers - Gravity Total 72"	2011	2,007,265 \$2,231,214	R4.0	75	5.75	8	R4.0008	0.92012	69.01	74.76	92.31%	1,852,906 \$2,050,653
361	Collection Sewers - Gravity	1959	10,464,699	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	2,857,909
361	Collection Sewers - Gravity	2008	214,439	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	189,350
361	Collection Sewers - Gravity	2011	54,658	R4.0	75	5.75	8	R4.0008	0.92012	69.01	74.76	92.31%	50,455
	Total Manholes		\$10,733,796										\$3,097,714
364	Flow Measuring Devices	1960	33,534	R3.0	35	56.75	162	R3.0162	0.01699	0.59	57.34	10.00%	3,353
364	Flow Measuring Devices	2008	88,198	R3.0	35	8.75	25	R3.0025	0.75917	26.57	35.32	75.23%	66,351
	Total Flow Meters		\$121,732										\$69,704
360	Collection Sewers - Force	2015	1,321,802	R4.0	65	1.75	3	R4.0003	0.97003	63.05	64.80	97.30%	1,286,113
	Total Force Mains		\$1,321,802										\$1,286,113
360	Collection Sewers - Force	2015	89,605	R4.0	65	1.75	3	R4.0003	0.97003	63.05	64.80	97.30%	87,186
	Total Air Release		\$89,605										\$87,186
361	Collection Sewers - Gravity	1960	113,466	R4.0	75	56.75	76	R4.0076	0.29658	22.24	78.99	28.16%	31,952
	Total CSO Structures		\$113,466										\$31,952
	Total McKeesport		\$125,338,615										\$61,696,103

Pennsylvania American, Inc.
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Duquesne Service Area		Development of Cost New less Depreciation (RCNLD)												
Depreciation	(1)	(2)	(4)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
Account	Description	Year	Cost New	lowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	lowa Lookup	lowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	
KLH input	KLH input	KLH Input	Cost New Development Col (20)	Account Parameters Lookup	Account Parameters Lookup	2016 75-Col (4)	(23)/(22)	Cols (21)&(24)	lowaLookup f(Col (25))	Cols (22)*(26)	Cols (23)-(27)	Cols (27)/(28)	Cols (20)*(29)	
361	Collection Sewers - Gravity	1959	2,841,725	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	776,075	
361	Collection Sewers - Gravity	1976	3,743,294	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	1,748,118	
361	Collection Sewers - Gravity	1989	2,848,675	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	1,798,938	
361	Collection Sewers - Gravity	1999	721,262	R4.0	75	17.75	24	R4.0024	0.76111	57.08	74.83	76.28%	550,179	
	Total 8"		\$10,154,956										\$4,873,310	
361	Collection Sewers - Gravity	1959	1,326,642	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	362,306	
361	Collection Sewers - Gravity	1976	436,098	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	203,658	
361	Collection Sewers - Gravity	1989	736,158	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	464,884	
361	Collection Sewers - Gravity	1999	189,923	R4.0	75	17.75	24	R4.0024	0.76111	57.08	74.83	76.28%	144,873	
	Total 10"		\$2,688,821										\$1,175,721	
361	Collection Sewers - Gravity	1959	2,876,955	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	785,696	
361	Collection Sewers - Gravity	1976	1,050,493	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	490,580	
	Total 12"		\$3,927,448										\$1,276,276	
361	Collection Sewers - Gravity	1959	1,350,367	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	368,785	
361	Collection Sewers - Gravity	1976	90,221	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	42,133	
361	Collection Sewers - Gravity	1989	92,107	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	58,166	
	Total 15"		\$1,532,695										\$469,084	
361	Collection Sewers - Gravity	1959	139,883	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	38,202	
361	Collection Sewers - Gravity	1976	539,590	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	251,989	
	Total 16"		\$679,473										\$290,191	
361	Collection Sewers - Gravity	1959	559,340	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	152,756	
361	Collection Sewers - Gravity	1999	1,320,335	R4.0	75	17.75	24	R4.0024	0.76111	57.08	74.83	76.28%	1,007,152	
	Total 18"		\$1,879,675										\$1,159,908	
361	Collection Sewers - Gravity	1959	71,227	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	19,452	
	Total 20"		\$71,227										\$19,452	
361	Collection Sewers - Gravity	1959	2,350,181	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	641,834	
361	Collection Sewers - Gravity	1976	1,116,662	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	521,481	
361	Collection Sewers - Gravity	1989	884,763	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	558,728	
	Total 24"		\$4,351,606										\$1,722,043	
361	Collection Sewers - Gravity	1959	1,420,093	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	387,827	
361	Collection Sewers - Gravity	1976	434,189	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	202,766	
	Total 30"		\$1,854,282										\$590,593	
361	Collection Sewers - Gravity	1959	81,202	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	22,176	
	Total 36"		\$81,202										\$22,176	
361	Collection Sewers - Gravity	1963	26,210,977	R4.0	75	53.75	72	R4.0072	0.32657	24.49	78.24	31.30%	8,204,036	
	Total Other		\$26,210,977										\$8,204,036	
361	Collection Sewers - Gravity	1963	1,664,189	R4.0	75	5.75	8	R4.0008	0.92012	69.01	74.76	92.31%	1,536,213	
361	Collection Sewers - Gravity	1963	96,657	R4.0	75	53.75	72	R4.0072	0.32657	24.49	78.24	31.30%	30,254	
361	Collection Sewers - Gravity	1976	1,176,725	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	549,531	
361	Collection Sewers - Gravity	1989	537,983	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	339,736	
361	Collection Sewers - Gravity	1999	163,896	R4.0	75	17.75	24	R4.0024	0.76111	57.08	74.83	76.28%	125,020	

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Duquesne Service Area			Development of Cost New less Depreciation (RCNLD)										
Depreciation (1)	(2)	(4)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
Account	Description	Year	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation
KLH Input	KLH Input	KLH Input	Cost New Development Col (20)	Account Parameters Lookup	Account Parameters Lookup	2016 75-Col (4)	(23)/(22)	Col (21)&(24)	IowaLookup f(Col (25))	Col (22)*(26)	Col (23)+(27)	Col (27)/(28)	Col (20)*(29)
	Total Manholes		\$3,639,450										\$2,580,754
364	Flow Measuring Devices	2011	23,918	R3.0	35	5.75	16.00	R3.0016	0.8443	29.55	35.30	83.71%	20,022
	Total Flow Meters		\$23,918										\$20,022
361	Collection Sewers - Gravity	1959	16,811	R4.0	75	2016.75	2689.00	R4.02689	0	0.00	2016.75	10.00%	1,681
	Total CSO Structures		\$16,811										\$1,681
	Total Duquesne		\$57,112,541										\$22,405,247

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Dravosburg Service Area		Determination of Cost New less Depreciation (RCNLD)											
Depreciation (1)	(2)	(4)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
Account	Description	Year	Cost New	lowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	lowa Lookup	lowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation
KLH Input	KLH Input	KLH Input	Cost New Development Col. (20)	Account Parameters Lookup	Account Parameters Lookup	2016 75-Col (4)	(23)/(22)	(21)&(24)	lowaLookup f(Col (25))	Col. (22)*(26)	Col. (23)-(27)	Col. (27)/(28)	Col. (20)*(29)
361	Collection Sewers - Gravity	1962	154,325	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	46,930
361	Collection Sewers - Gravity	1962	3,157,846	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	960,301
361	Collection Sewers - Gravity	1962	1,269,863	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	386,165
361	Collection Sewers - Gravity	1962	1,259,344	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	382,967
361	Collection Sewers - Gravity	1962	60,034	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	18,256
361	Collection Sewers - Gravity	1962	550,391	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	167,374
361	Collection Sewers - Gravity	1962	93,949	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	28,570
361	Collection Sewers - Gravity	1962	460,092	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	139,914
361	Collection Sewers - Gravity	1962	362,239	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	110,157
361	Collection Sewers - Gravity	1962	2,276,167	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	692,182
361	Collection Sewers - Gravity	1962	518,815	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	157,772
Total 1962													\$3,090,588
361	Collection Sewers - Gravity	1980	301,823	R4.0	75	36.75	49	R4.0049	0.52116	39.09	75.84	51.54%	155,560
361	Collection Sewers - Gravity	1984	216,355	R4.0	75	32.75	44	R4.0044	0.56756	42.57	75.32	56.52%	122,284
Total 8"													\$277,844
361	Collection Sewers - Gravity	1962	1,130,458	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	343,772
364	Flow Measuring Devices	2010	5,801	R3.0	35	6.75	19	R3.0019	0.81568	28.55	35.30	80.88%	4,692
361	Collection Sewers - Gravity	1962	4,202	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	1,278
Total Dravosburg			\$1,140,461										\$3,718,174

Pennsylvania American, Inc.
 The Municipal Authority of the City of McKeesport
 Wastewater
 Investor-Owned Utility
 September 2016

Port Vue Service Area		Development of Cost New less Depreciation (RCNLD)												
Depreciation	(1)	(2)	(4)	(20)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
Account	Description	Year	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	
K/LH Input	K/LH Input	AUS Input	Cost New Development Col. (20)	Account Parameters Lookup	Account Parameters Lookup	2016 75 Col (4)	22/23 Col (22)/(23)	2016(23) Col (24)	IowaLookup f(Col (24))	Col (21)*(25)	Col (22)*(26)	Col (26)/(27)	Col (20)*(28)	
361	Collection Sewers - Gravity	1955	266,099	R4.0	75	61.75	82	R4.0082	0.2538	19.04	80.79	23.57%	62,720	
361	Collection Sewers - Gravity	1955	10,824,003	R4.0	75	61.75	82	R4.0082	0.2538	19.04	80.79	23.57%	2,551,218	
361	Collection Sewers - Gravity	1955	2,271,740	R4.0	75	61.75	82	R4.0082	0.2538	19.04	80.79	23.57%	535,449	
361	Collection Sewers - Gravity	1955	1,189,423	R4.0	75	61.75	82	R4.0082	0.2538	19.04	80.79	23.57%	280,347	
361	Collection Sewers - Gravity	1955	1,624,067	R4.0	75	61.75	82	R4.0082	0.2538	19.04	80.79	23.57%	382,793	
361	Collection Sewers - Gravity	1955	305,048	R4.0	75	61.75	82	R4.0082	0.2538	19.04	80.79	23.57%	71,900	
361	Collection Sewers - Gravity	1955	1,086,873	R4.0	75	61.75	82	R4.0082	0.2538	19.04	80.79	23.57%	256,176	
361	Collection Sewers - Gravity	1955	527,234	R4.0	75	61.75	82	R4.0082	0.2538	19.04	80.79	23.57%	124,269	
361	Collection Sewers - Gravity	1955	240,177	R4.0	75	61.75	82	R4.0082	0.2538	19.04	80.79	23.57%	56,610	
													\$4,321,482	
361	Collection Sewers - Gravity	1955		R4.0	75	61.75	82	R4.0082	0.2538	19.04	80.79	23.57%	591,360	
364	Flow Measuring Devices	2016		R3.0	35	0.75	2	R3.0002	0.98032	34.31	35.06	97.86%	25,464	
360	Collection Sewers - Force	1955		R4.0	65	61.75	95	R4.0095	0.17164	11.16	72.91	15.31%	1,104	
360	Collection Sewers - Force	1960		R4.0	65	56.75	87	R4.0087	0.22007	14.30	71.05	20.13%	3,384	
													\$4,942,794	

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)				
Account										Costing					Depreciation					External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation					
	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (150) & (48)	Cost Index Lookup (150) & (2017)	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2016 75 (48)	(57)/(56)	Cols (55) & (58)	Iowa Lookup (59)	(56)*(60)	(57)+(61)	(61)/(61)	(64)*(63)	Account Parameters	(64)*(64)					
AUS Input																								
390.1 Furniture	2015	\$0	AUST-112	454	457	1.007	-	R3.0	22	1.75	8	R3.0008	0.9216	20.28	22.03	92.06%	-	0%	-					
390.3 EDP Equipment	2015	\$0	AUST-114	0.63	0.73	1.159	-	R3.0	8	1.75	22	R3.0022	0.78729	6.30	8.05	78.26%	-	0%	-					
390.1 Furniture	2015	\$0	AUST-112	454	457	1.007	-	R3.0	22	1.75	8	R3.0008	0.9216	20.28	22.03	92.06%	-	0%	-					
390.2 Office Equipment	2015	\$0	AUST-113	172	173	1.006	-	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	-	0%	-					
396.1 Communications Equipment	2015	\$12,600	USBL52	96	96	1	12,600	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	10,763	0%	10,763					
396.1 Communications Equipment	2004	\$6,000	USBL52	98	96	0.98	5,880	R3.0	12	1.75	106	R3.0106	0.17527	2.10	14.85	14.14%	831	0%	831					
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-					
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-					
354.4 Structures & Improvements - Treatment Plants	1960	\$286,202	HWW-115	53	672	12.679	3,628,755	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	362,876	0%	362,876					
354.4 Structures & Improvements - Treatment Plants	1975	\$106,080	HWW-115	127	672	5.291	561,269	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	92,441	0%	92,441					
354.4 Structures & Improvements - Treatment Plants	2008	\$160,825	HWW-115	538.3	672	1.248	200,710	R4.0	45	8.75	19	R4.0019	0.81061	36.48	45.23	80.65%	161,873	0%	161,873					
354.4 Structures & Improvements - Treatment Plants	2008	\$0	HWW-115	538.3	672	1.248	-	R4.0	45	8.75	19	R4.0019	0.81061	36.48	45.23	80.65%	-	0%	-					
354.4 Structures & Improvements - Treatment Plants	2014	\$417,812	HWW-115	630.8	672	1.065	444,970	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	417,827	0%	417,827					
380.0 Treatment & Disposal Equipment	2015	\$43,000	HWW-116	741.3	774	1.044	44,892	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	43,146	0%	43,146					
380.0 Treatment & Disposal Equipment	2015	\$43,000	HWW-116	741.3	774	1.044	44,892	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	43,146	0%	43,146					
380.0 Treatment & Disposal Equipment	2015	\$33,500	HWW-116	741.3	774	1.044	34,974	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	33,614	0%	33,614					
380.0 Treatment & Disposal Equipment	2015	\$0	HWW-116	741.3	774	1.044	-	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	-	0%	-					
380.0 Treatment & Disposal Equipment	1960	\$0	HWW-116	55	774	14.073	-	R3.0	45	56.75	126	R3.0126	0.10823	4.87	61.62	10.00%	-	0%	-					
380.0 Treatment & Disposal Equipment	1960	\$0	HWW-116	55	774	14.073	-	R3.0	45	56.75	126	R3.0126	0.10823	4.87	61.62	10.00%	-	0%	-					
395.0 Power Operated Equipment	2015	\$7,397	AUST-18	315	322	1.022	7,560	R3.0	18	1.75	10	R3.0010	0.90216	16.24	17.99	90.27%	6,824	0%	6,824					
390.2 Office Equipment	2010	\$0	AUST-113	169	173	1.024	-	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	-	0%	-					
380.0 Treatment & Disposal Equipment	2001	\$54,944	HWW-116	428	774	1.808	99,339	R3.0	45	15.75	35	R3.0035	0.66761	30.04	45.79	65.60%	65,166	0%	65,166					
380.0 Treatment & Disposal Equipment	2015	\$37,200	HWW-116	741.3	774	1.044	38,837	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	37,326	0%	37,326					
380.0 Treatment & Disposal Equipment	2001	\$142,854	HWW-116	428	774	1.808	258,280	R3.0	45	15.75	35	R3.0035	0.66761	30.04	45.79	65.60%	169,432	0%	169,432					
380.0 Treatment & Disposal Equipment	2015	\$86,000	HWW-116	741.3	774	1.044	89,784	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	86,291	0%	86,291					
396.2 SCADA Systems	2015	\$576,120	USBL52	96	96	1	576,120	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	492,122	0%	492,122					
390.1 Furniture	2015	\$0	AUST-112	454	457	1.007	-	R3.0	22	1.75	8	R3.0008	0.9216	20.28	22.03	92.06%	-	0%	-					
380.0 Treatment & Disposal Equipment	2001	\$640,705	HWW-116	428	774	1.808	1,158,395	R3.0	45	15.75	35	R3.0035	0.66761	30.04	45.79	65.60%	759,907	0%	759,907					
380.0 Treatment & Disposal Equipment	2015	\$1,800,000	HWW-116	741.3	774	1.044	1,879,200	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	1,806,099	0%	1,806,099					
390.2 Office Equipment	1990	\$0	AUST-113	154	173	1.123	-	R3.0	12	26.75	223	R3.0223	0	0.00	26.75	10.00%	-	0%	-					
380.0 Treatment & Disposal Equipment	1985	\$0	HWW-116	262	774	2.954	-	R3.0	45	31.75	71	R3.0071	0.37545	16.90	48.65	34.74%	-	0%	-					
390.2 Office Equipment	2010	\$0	AUST-113	169	173	1.024	-	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	-	0%	-					
390.2 Office Equipment	1995	\$0	AUST-113	156	173	1.109	-	R3.0	12	21.75	181	R3.0181	0	0.00	21.75	10.00%	-	0%	-					
390.2 Office Equipment	1990	\$0	AUST-113	154	173	1.123	-	R3.0	12	26.75	223	R3.0223	0	0.00	26.75	10.00%	-	0%	-					
390.3 EDP Equipment	2015	\$0	AUST-114	0.63	0.73	1.159	-	R3.0	8	1.75	22	R3.0022	0.78729	6.30	8.05	78.26%	-	0%	-					
394.0 Laboratory Equipment	2015	\$10,000	USBL51	237	243	1.025	10,250	R3.0	25	1.75	7	R3.0007	0.93135	23.28	25.03	93.01%	9,534	0%	9,534					
394.0 Laboratory Equipment	2010	\$41,985	USBL51	218	243	1.115	46,813	R3.0	25	6.75	27	R3.0027	0.74058	18.51	25.26	73.28%	34,305	0%	34,305					
394.0 Laboratory Equipment	2015	\$7,200	USBL51	237	243	1.025	7,380	R3.0	25	1.75	7	R3.0007	0.93135	23.28	25.03	93.01%	6,864	0%	6,864					
394.0 Laboratory Equipment	2010	\$0	USBL51	218	243	1.115	-	R3.0	25	6.75	27	R3.0027	0.74058	18.51	25.26	73.28%	-	0%	-					
380.0 Treatment & Disposal Equipment	1960	\$0	HWW-116	55	774	14.073	-	R3.0	45	56.75	126	R3.0126	0.10823	4.87	61.62	10.00%	-	0%	-					
380.0 Treatment & Disposal Equipment	2015	\$5,417	HWW-116	741.3	774	1.044	5,655	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	5,435	0%	5,435					
390.2 Office Equipment	1995	\$11,074	AUST-113	156	173	1.109	12,281	R3.0	12	21.75	181	R3.0181	0	0.00	21.75	10.00%	1,228	0%	1,228					

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing											Depreciation					External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (F50) & (48)	Cost Index Lookup (F50) & (2017)	(52)/(51)	(49)/(53)	Account Parameters	Account Parameters	2016 75 (48)	(57)/(56)	Col: (55) & (58)	Iowa Lookup (F59)	(55)/(60)	(57)/(61)	(61)/(62)	(54)/(64)	Account Parameters	(64)/(64)	
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%				0%	
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%				0%	
354.4 Structures & Improvements - Treatment Plants	1960	\$115,338 HWW-115		53	672	12.679	1,462,371	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	146,237		0%	146,237	
354.4 Structures & Improvements - Treatment Plants	2014	\$113,090 HWW-115		630.8	672	1.065	120,441	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	113,094		0%	113,094	
380.0 Treatment & Disposal Equipment	2015	\$25,000 HWW-116		741.3	774	1.044	26,100	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	25,085		0%	25,085	
380.0 Treatment & Disposal Equipment	2005	\$0 HWW-116		485.8	774	1.593		R3.0	45	11.75	26 R3.0026	0.74986	33.74	45.49	74.17%			0%		
380.0 Treatment & Disposal Equipment	2015	\$338,000 HWW-116		741.3	774	1.044	352,872	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	339,145		0%	339,145	
380.0 Treatment & Disposal Equipment	2015	\$229,000 HWW-116		741.3	774	1.044	239,076	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	229,776		0%	229,776	
380.0 Treatment & Disposal Equipment	2015	\$450,000 HWW-116		741.3	774	1.044	469,800	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	451,525		0%	451,525	
380.0 Treatment & Disposal Equipment	2015	\$7,500 HWW-116		741.3	774	1.044	7,830	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	7,525		0%	7,525	
380.0 Treatment & Disposal Equipment	2014	\$13,822 HWW-116		724.8	774	1.068	14,762	R3.0	45	2.75	6 R3.0006	0.94112	42.35	45.10	93.90%	13,862		0%	13,862	
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%				0%	
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%				0%	
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%				0%	
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%				0%	
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%				0%	
354.4 Structures & Improvements - Treatment Plants	1960	\$47,172 HWW-115		53	672	12.679	598,094	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	59,809		0%	59,809	
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%				0%	
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%				0%	
354.4 Structures & Improvements - Treatment Plants	1960	\$28,687 HWW-115		53	672	12.679	363,722	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	36,372		0%	36,372	
354.4 Structures & Improvements - Treatment Plants	1975	\$44,202 HWW-115		127	672	5.291	233,873	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	38,519		0%	38,519	
354.4 Structures & Improvements - Treatment Plants	2001	\$128,684 HWW-115		378	672	1.778	228,800	R4.0	45	15.75	35 R4.0035	0.65344	29.40	45.15	65.12%	148,995		0%	148,995	
354.4 Structures & Improvements - Treatment Plants	2008	\$41,895 HWW-115		538.3	672	1.248	52,285	R4.0	45	8.75	19 R4.0019	0.81061	36.48	45.23	80.65%	42,168		0%	42,168	
393.0 Tools, Shop, & Garage Equipment	1972	\$0 AUST-17		96	514	5.354		R3.0	25	44.75	179 R3.0179	0	0.00	44.75	10.00%				0%	
393.0 Tools, Shop, & Garage Equipment	1972	\$0 AUST-17		96	514	5.354		R3.0	25	44.75	179 R3.0179	0	0.00	44.75	10.00%				0%	
393.0 Tools, Shop, & Garage Equipment	1975	\$5,936 AUST-17		139	514	3.698	21,951	R3.0	25	41.75	167 R3.0167	0.00641	0.16	41.91	10.00%	2,195		0%	2,195	
395.0 Power Operated Equipment	2010	\$6,046 AUST-18		288	322	1.118	6,759	R3.0	18	6.75	38 R3.0038	0.64088	11.54	18.29	63.09%	4,264		0%	4,264	
393.0 Tools, Shop, & Garage Equipment	1970	\$0 AUST-17		90	514	5.711		R3.0	25	46.75	187 R3.0187	0	0.00	46.75	10.00%				0%	
380.0 Treatment & Disposal Equipment	1985	\$0 HWW-116		262	774	2.954		R3.0	45	31.75	71 R3.0071	0.37545	16.90	48.65	34.74%				0%	
380.0 Treatment & Disposal Equipment	2000	\$12,143 HWW-116		413	774	1.874	22,576	R3.0	45	16.75	37 R3.0037	0.64975	29.24	45.99	63.58%	14,468		0%	14,468	
395.0 Power Operated Equipment	1995	\$0 AUST-18		254	322	1.268		R3.0	18	21.75	121 R3.0121	0.12255	2.21	23.96	10.00%				0%	
380.0 Treatment & Disposal Equipment	1990	\$10,191 HWW-116		313	774	2.473	25,202	R3.0	45	26.75	59 R3.0059	0.4653	20.94	47.69	43.91%	11,066		0%	11,066	
380.0 Treatment & Disposal Equipment	1970	\$0 HWW-116		79	774	9.797		R3.0	45	46.75	104 R3.0104	0.18372	8.27	55.02	15.03%				0%	
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%				0%	
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679		R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%				0%	
354.4 Structures & Improvements - Treatment Plants	1975	\$147,294 HWW-115		127	672	5.291	779,333	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	128,356		0%	128,356	
380.0 Treatment & Disposal Equipment	2003	\$40,300 HWW-116		451.8	774	1.713	69,034	R3.0	45	13.75	31 R3.0031	0.7038	31.67	45.42	69.73%	48,137		0%	48,137	
380.0 Treatment & Disposal Equipment	1985	\$0 HWW-116		262	774	2.954		R3.0	45	31.75	71 R3.0071	0.37545	16.90	48.65	34.74%				0%	
380.0 Treatment & Disposal Equipment	2015	\$15,000 HWW-116		741.3	774	1.044	15,660	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	15,051		0%	15,051	
380.0 Treatment & Disposal Equipment	1975	\$6,101 HWW-116		134	774	5.776	35,239	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	7,168		0%	7,168	
380.0 Treatment & Disposal Equipment	1975	\$6,101 HWW-116		134	774	5.776	35,239	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	7,168		0%	7,168	
380.0 Treatment & Disposal Equipment	1975	\$12,238 HWW-116		134	774	5.776	70,687	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	14,378		0%	14,378	
380.0 Treatment & Disposal Equipment	1975	\$12,238 HWW-116		134	774	5.776	70,687	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	14,378		0%	14,378	
380.0 Treatment & Disposal Equipment	1975	\$12,238 HWW-116		134	774	5.776	70,687	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	14,378		0%	14,378	
380.0 Treatment & Disposal Equipment	1975	\$12,238 HWW-116		134	774	5.776	70,687	R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%	14,378		0%	14,378	
380.0 Treatment & Disposal Equipment	1975	\$0 HWW-116		134	774	5.776		R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%				0%	
380.0 Treatment & Disposal Equipment	1975	\$0 HWW-116		134	774	5.776		R3.0	45	41.75	93 R3.0093	0.23696	10.66	52.41	20.34%				0%	

Replacement Cost New less Depreciation

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation					External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
Account	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (50) & (48)	Cost Index Lookup (50) & (2017)	(52)*(51)	(49)*(53)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(54)	Cols (55) & (58)	Iowa Lookup (59)	(56)*(60)	(57)*(61)	(61)*(62)	(54)*(63)	Account Parameters	(64)*(64)	
380.0 Treatment & Disposal Equipment	1975	\$0	HWW-116	134	774	5.776	-	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-	
380.0 Treatment & Disposal Equipment	1975	\$20,457	HWW-116	134	774	5.776	118,160	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	24,034	0%	24,034	
380.0 Treatment & Disposal Equipment	2016	\$21,859	HWW-116	761.3	774	1.017	22,231	R3.0	45	0.75	2	R3.0002	0.98032	44.11	44.86	98.33%	21,860	0%	21,860	
390.3 EDP Equipment	2016	\$7,500	AUST-114	0.65	0.73	1.123	8,423	R3.0	8	0.75	9	R3.0009	0.91187	7.29	8.04	90.67%	7,637	0%	7,637	
380.0 Treatment & Disposal Equipment	1975	\$230,139	HWW-116	134	774	5.776	1,329,283	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	270,376	0%	270,376	
380.0 Treatment & Disposal Equipment	1975	\$9,133	HWW-116	134	774	5.776	52,752	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	10,730	0%	10,730	
380.0 Treatment & Disposal Equipment	1975	\$0	HWW-116	134	774	5.776	-	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-	
380.0 Treatment & Disposal Equipment	1975	\$0	HWW-116	134	774	5.776	-	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-	
380.0 Treatment & Disposal Equipment	1975	\$10,046	HWW-116	134	774	5.776	58,026	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	11,802	0%	11,802	
380.0 Treatment & Disposal Equipment	1975	\$10,046	HWW-116	134	774	5.776	58,026	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	11,802	0%	11,802	
380.0 Treatment & Disposal Equipment	1975	\$10,046	HWW-116	134	774	5.776	58,026	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	11,802	0%	11,802	
380.0 Treatment & Disposal Equipment	1975	\$0	HWW-116	134	774	5.776	-	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-	
380.0 Treatment & Disposal Equipment	1975	\$0	HWW-116	134	774	5.776	-	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	2014	\$4,043,354	HWW-115	630.8	672	1.065	4,306,172	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	4,043,496	0%	4,043,496	
380.0 Treatment & Disposal Equipment	2015	\$975,000	HWW-116	741.3	774	1.044	1,017,900	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	978,304	0%	978,304	
380.0 Treatment & Disposal Equipment	2015	\$0	HWW-116	741.3	774	1.044	-	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	-	0%	-	
380.0 Treatment & Disposal Equipment	2015	\$6,000	HWW-116	741.3	774	1.044	6,264	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	6,020	0%	6,020	
390.2 Office Equipment	2015	\$0	AUST-113	172	173	1.006	-	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	-	0%	-	
380.0 Treatment & Disposal Equipment	2015	\$452,000	HWW-116	741.3	774	1.044	471,888	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	453,532	0%	453,532	
380.0 Treatment & Disposal Equipment	2015	\$500,000	HWW-116	741.3	774	1.044	522,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	501,694	0%	501,694	
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	1960	\$0	HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4 Structures & Improvements - Treatment Plants	2014	\$378,778	HWW-115	630.8	672	1.065	403,399	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	378,792	0%	378,792	
380.0 Treatment & Disposal Equipment	2015	\$57,500	HWW-116	741.3	774	1.044	60,030	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695	
380.0 Treatment & Disposal Equipment	2015	\$57,500	HWW-116	741.3	774	1.044	60,030	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695	

Replacement Cost New less Depreciation

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing											Depreciation					External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Low Lookup	Low Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (50) & (48)	Cost Index Lookup (50) & (2017)	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(56)	Cost (55) & (58)	Low Lookup (59)	(56)*(60)	(57)*(61)	(61)/(62)	(54)*(63)	Account Parameters	(64)*(64)	
380.0	Treatment & Disposal Equipment	2015	\$57,500 HWW-116	741.3	774	1.044	60,030	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695	
380.0	Treatment & Disposal Equipment	2015	\$57,500 HWW-116	741.3	774	1.044	60,030	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695	
380.0	Treatment & Disposal Equipment	2015	\$57,500 HWW-116	741.3	774	1.044	60,030	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	57,695	0%	57,695	
380.0	Treatment & Disposal Equipment	2015	\$6,000 HWW-116	741.3	774	1.044	6,264	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	6,020	0%	6,020	
380.0	Treatment & Disposal Equipment	2015	\$18,600 HWW-116	741.3	774	1.044	19,418	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	18,663	0%	18,663	
380.0	Treatment & Disposal Equipment	2015	\$154,675 HWW-116	741.3	774	1.044	161,481	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	155,199	0%	155,199	
380.0	Treatment & Disposal Equipment	2015	\$175,000 HWW-116	741.3	774	1.044	182,700	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	175,593	0%	175,593	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	2014	\$227,300 HWW-115	630.8	672	1.065	242,075	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	227,308	0%	227,308	
380.0	Treatment & Disposal Equipment	2015	\$6,500 HWW-116	741.3	774	1.044	6,786	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	6,522	0%	6,522	
380.0	Treatment & Disposal Equipment	2015	\$10,000 HWW-116	741.3	774	1.044	10,440	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	10,034	0%	10,034	
380.0	Treatment & Disposal Equipment	2015	\$18,500 HWW-116	741.3	774	1.044	19,314	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	18,563	0%	18,563	
380.0	Treatment & Disposal Equipment	2015	\$12,000 HWW-116	741.3	774	1.044	12,528	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	12,041	0%	12,041	
380.0	Treatment & Disposal Equipment	2015	\$0 HWW-116	741.3	774	1.044	-	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	-	0%	-	
380.0	Treatment & Disposal Equipment	2015	\$35,000 HWW-116	741.3	774	1.044	36,540	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	35,119	0%	35,119	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	2014	\$575,000 HWW-115	630.8	672	1.065	612,375	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	575,020	0%	575,020	
380.0	Treatment & Disposal Equipment	2015	\$43,500 HWW-116	741.3	774	1.044	45,414	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	43,647	0%	43,647	
380.0	Treatment & Disposal Equipment	2015	\$43,500 HWW-116	741.3	774	1.044	45,414	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	43,647	0%	43,647	
380.0	Treatment & Disposal Equipment	2015	\$43,500 HWW-116	741.3	774	1.044	45,414	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	43,647	0%	43,647	
380.0	Treatment & Disposal Equipment	2015	\$43,500 HWW-116	741.3	774	1.044	45,414	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	43,647	0%	43,647	
380.0	Treatment & Disposal Equipment	2015	\$12,400 HWW-116	741.3	774	1.044	12,946	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	12,442	0%	12,442	
380.0	Treatment & Disposal Equipment	2015	\$160,000 HWW-116	741.3	774	1.044	167,040	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	160,542	0%	160,542	
380.0	Treatment & Disposal Equipment	2015	\$183,100 HWW-116	741.3	774	1.044	191,156	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	183,720	0%	183,720	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1999	\$0 HWW-115	343	672	1.959	-	R4.0	45	17.75	39	R4.0039	0.61495	27.67	45.42	60.92%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1960	\$0 HWW-115	53	672	12.679	-	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-	
354.4	Structures & Improvements - Treatment Plants	1975	\$1,733,304 HWW-115	127	672	5.291	9,170,911	R4.0	45	41.75	93	R3.0093	0.1829	8.23	49.98	16.47%	1,510,449	0%	1,510,449	
380.0	Treatment & Disposal Equipment	2013	\$21,542 HWW-116	699	774	1.107	23,847	R3.0	45	3.75	8	R3.0008	0.9216	41.47	45.22	91.71%	21,870	0%	21,870	
380.0	Treatment & Disposal Equipment	2013	\$21,542 HWW-116	699	774	1.107	23,847	R3.0	45	3.75	8	R3.0008	0.9216	41.47	45.22	91.71%	21,870	0%	21,870	
380.0	Treatment & Disposal Equipment	2003	\$0 HWW-116	451.8	774	1.713	-	R3.0	45	13.75	31	R3.0031	0.7038	31.67	45.42	69.73%	-	0%	-	
380.0	Treatment & Disposal Equipment	2015	\$20,000 HWW-116	741.3	774	1.044	20,880	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	20,068	0%	20,068	
380.0	Treatment & Disposal Equipment	2003	\$0 HWW-116	451.8	774	1.713	-	R3.0	45	13.75	31	R3.0031	0.7038	31.67	45.42	69.73%	-	0%	-	
380.0	Treatment & Disposal Equipment	2003	\$5,992 HWW-116	451.8	774	1.713	10,264	R3.0	45	13.75	31	R3.0031	0.7038	31.67	45.42	69.73%	7,157	0%	7,157	
380.0	Treatment & Disposal Equipment	2015	\$127,200 HWW-116	741.3	774	1.044	132,797	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	127,631	0%	127,631	
380.0	Treatment & Disposal Equipment	1975	\$1,922,449 HWW-116	134	774	5.776	11,104,065	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	2,258,567	0%	2,258,567	
380.0	Treatment & Disposal Equipment	2015	\$87,420 HWW-116	741.3	774	1.044	91,266	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	87,716	0%	87,716	
380.0	Treatment & Disposal Equipment	1975	\$302,268 HWW-116	134	774	5.776	1,745,900	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	355,116	0%	355,116	
380.0	Treatment & Disposal Equipment	1999	\$530,970 HWW-116	401	774	1.93	1,024,772	R3.0	45	17.75	39	R3.0039	0.63205	28.44	46.19	61.57%	630,952	0%	630,952	

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation						External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New Less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup f(50) & (48)	Cost Index Lookup f(50) & (2017)	(52)/(53)	(49)*(53)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(56)	Costs (55) & (58)	Iowa Lookup f(59)	(56)*(60)	(57)*(61)	(61)/(62)	(54)*(63)	Account Parameters	(64)*(64)	
380.0 Treatment & Disposal Equipment	2007	\$98,988 HWW-116		537	774	1.441	142,642	R3.0	45	9.75	22 R3.0022	0.78729	35.43	45.18	78.42%	111,860	0%	111,860		
380.0 Treatment & Disposal Equipment	2007	\$98,988 HWW-116		537	774	1.441	142,642	R3.0	45	9.75	22 R3.0022	0.78729	35.43	45.18	78.42%	111,860	0%	111,860		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1975	\$393,386 HWW-115		127	672	5.291	2,081,405	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	342,807	0%	342,807		
380.0 Treatment & Disposal Equipment	2008	\$413,155 HWW-116		586	774	1.321	545,778	R3.0	45	8.75	19 R3.0019	0.81568	36.71	45.46	80.75%	440,716	0%	440,716		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1975	\$395,941 HWW-115		127	672	5.291	2,094,924	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	345,034	0%	345,034		
380.0 Treatment & Disposal Equipment	2008	\$413,155 HWW-116		586	774	1.321	545,778	R3.0	45	8.75	19 R3.0019	0.81568	36.71	45.46	80.75%	440,716	0%	440,716		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1975	\$335,807 HWW-115		127	672	5.291	1,776,755	R4.0	45	41.75	93 R4.0093	0.1829	8.23	49.98	16.47%	292,632	0%	292,632		
364.0 Flow Measuring Devices	2011	\$0 HWW-140		379	404	1.066	-	R3.0	35	5.75	16 R3.0016	0.8443	29.55	35.30	83.71%	-	0%	-		
380.0 Treatment & Disposal Equipment	2015	\$28,500 HWW-116		741.3	774	1.044	29,754	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	28,597	0%	28,597		
380.0 Treatment & Disposal Equipment	2015	\$28,500 HWW-116		741.3	774	1.044	29,754	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	28,597	0%	28,597		
390.2 Office Equipment	1995	\$0 AUST-113		156	173	1.109	-	R3.0	12	21.75	181 R3.0181	0	0.00	21.75	10.00%	-	0%	-		
380.0 Treatment & Disposal Equipment	1960	\$18,880 HWW-116		55	774	14.073	265,698	R3.0	45	56.75	126 R3.0126	0.10823	4.87	61.62	10.00%	26,570	0%	26,570		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$280,787 HWW-115		53	672	12.679	3,560,098	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	356,010	0%	356,010		
354.4 Structures & Improvements - Treatment Plants	2014	\$110,000 HWW-115		630.8	672	1.065	117,150	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	110,004	0%	110,004		
380.0 Treatment & Disposal Equipment	2015	\$51,000 HWW-116		741.3	774	1.044	53,244	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	51,173	0%	51,173		
380.0 Treatment & Disposal Equipment	2015	\$51,000 HWW-116		741.3	774	1.044	53,244	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	51,173	0%	51,173		
380.0 Treatment & Disposal Equipment	2015	\$51,000 HWW-116		741.3	774	1.044	53,244	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	51,173	0%	51,173		
380.0 Treatment & Disposal Equipment	2015	\$51,000 HWW-116		741.3	774	1.044	53,244	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	51,173	0%	51,173		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	2014	\$6,497,100 HWW-115		630.8	672	1.065	6,919,412	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	6,497,328	0%	6,497,328		
380.0 Treatment & Disposal Equipment	2015	\$2,698,000 HWW-116		741.3	774	1.044	2,816,712	R3.0	45	1.75	4 R3.0004	0.96069	43.23	44.98	96.11%	2,707,142	0%	2,707,142		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	1960	\$0 HWW-115		53	672	12.679	-	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	0%	-		
354.4 Structures & Improvements - Treatment Plants	2014	\$1,348,050 HWW-115		630.8	672	1.065	1,435,673	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	1,348,097	0%	1,348,097		

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
		Costing										Depreciation				External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (I50) & (48)	Cost Index Lookup (I50) & (2017)	(52)/(51)	(49)/(53)	Account Parameters	Account Parameters	2016 75 (48)	(57)/(56)	Col's (55) & (58)	Iowa Lookup (I59)	(56)/(60)	(57)/(61)	(61)/(62)	(54)/(63)	Account Parameters	(64)/(64)	
354 4 Structures & Improvements - Treatment Plants	2010	\$3,800,000	HWW-115	559.8	672	1.2	4,560,000	R4.0	45	6.75	15	R4.0015	0.85036	38.27	45.02	85.01%	3,876,456	0%	3,876,456	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
390.1 Furniture	1963	\$0	AUST-112	71	457	6.437	-	R3.0	22	53.75	244	R3.0244	0	0.00	53.75	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	2014	\$6,911	HWW-116	724.8	774	1.068	7,381	R3.0	45	2.75	6	R3.0006	0.94112	42.35	45.10	93.90%	6,931	0%	6,931	
390.1 Furniture	1963	\$0	AUST-112	71	457	6.437	-	R3.0	22	53.75	244	R3.0244	0	0.00	53.75	10.00%	-	0%	-	
390.3 EDP Equipment	2013	\$0	AUST-114	0.5	0.73	1.46	-	R3.0	8	3.75	47	R3.0047	0.56303	4.50	8.25	54.55%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
355.0 Power Generating Equipment	1963	\$0	USBL54	30.2	206	6.821	-	R3.0	35	53.75	154	R3.0154	0.03593	1.26	55.01	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
390.2 Office Equipment	1963	\$0	AUST-113	90	173	1.922	-	R3.0	12	53.75	448	R3.0448	0	0.00	53.75	10.00%	-	0%	-	
394.0 Laboratory Equipment	1963	\$0	USBL51	31	243	7.839	-	R3.0	25	53.75	215	R3.0215	0	0.00	53.75	10.00%	-	0%	-	
390.1 Furniture	1963	\$0	AUST-112	71	457	6.437	-	R3.0	22	53.75	244	R3.0244	0	0.00	53.75	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
390.2 Office Equipment	1963	\$0	AUST-113	90	173	1.922	-	R3.0	12	53.75	448	R3.0448	0	0.00	53.75	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	
380.0 Treatment & Disposal Equipment	1963	\$0	HWW-116	59	774	13.119	-	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-	0%	-	

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)	
						Costing			Depreciation											External Obsolescence	
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	lowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	lowa Lookup	lowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation		
Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup (IS0) & (481)	Cost Index Lookup (IS0) & (2017)	(51) / (51)	(49) * (53)	Account Parameters	Account Parameters	2014 75 (48)	(57) / (54)	Col (55) & (58)	lowa Lookup (59)	(56) * (60)	(57) * (61)	(61) / (62)	(54) * (63)	Account Parameters	(54) * (64)			
AUS Input	AUS Input																				
353.1 Land Improvements	2014	\$0 USBL51		237	243	1.025	-	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%			0%			
353.1 Land Improvements	2014	\$0 USBL51		237	243	1.025	-	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%			0%			
355.0 Power Generating Equipment	2015	\$104,000 USBL54		206.4	206	0.998	103,792	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		98,602	0%	98,602		
396.1 Communications Equipment	2015	\$0 USBL52		96	96	1	-	R3.0	12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%		-	0%	-		
354.3 Structures & Improvements - Pump Stations	2016	\$0 HWW-115		661.3	672	1.016	-	R4.0	45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%		-	0%	-		
354.3 Structures & Improvements - Pump Stations	2016	\$0 HWW-115		661.3	672	1.016	-	R4.0	45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%		-	0%	-		
354.3 Structures & Improvements - Pump Stations	1960	\$31,290 HWW-115		53	672	12.679	396,726	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%		39,673	0%	39,673		
354.3 Structures & Improvements - Pump Stations	2014	\$2,492,500 HWW-115		630.8	672	1.065	2,654,513	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%		2,492,588	0%	2,492,588		
371.0 Pumping Equipment	2015	\$457,000 HWW-19		945	1075	1.138	520,066	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		494,063	0%	494,063		
371.0 Pumping Equipment	2015	\$31,200 HWW-19		945	1075	1.138	35,506	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		33,731	0%	33,731		
371.0 Pumping Equipment	2015	\$0 HWW-19		945	1075	1.138	-	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		-	0%	-		
371.0 Pumping Equipment	2015	\$0 HWW-19		945	1075	1.138	-	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		-	0%	-		
371.0 Pumping Equipment	2015	\$14,500 HWW-19		945	1075	1.138	16,501	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		15,676	0%	15,676		
371.0 Pumping Equipment	2012	\$212,794 HWW-19		787.5	1075	1.365	290,464	R3.0	35	4.75	14 R3.0014	0.8635	30.22	34.97	86.42%		251,019	0%	251,019		
371.0 Pumping Equipment	2015	\$38,600 HWW-19		945	1075	1.138	43,927	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		41,731	0%	41,731		
371.0 Pumping Equipment	2015	\$8,200 HWW-19		945	1075	1.138	9,332	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		8,865	0%	8,865		
354.3 Structures & Improvements - Pump Stations	2016	\$0 HWW-115		661.3	672	1.016	-	R4.0	45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%		-	0%	-		
354.3 Structures & Improvements - Pump Stations	2016	\$0 HWW-115		661.3	672	1.016	-	R4.0	45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%		-	0%	-		
354.3 Structures & Improvements - Pump Stations	1968	\$61,843 HWW-115		64	672	10.5	649,352	R4.0	45	48.75	108 R4.0108	0.11375	5.12	53.87	10.00%		64,935	0%	64,935		
355.0 Power Generating Equipment	2015	\$152,500 USBL54		206.4	206	0.998	152,195	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		144,585	0%	144,585		
396.2 SCADA Systems	2015	\$86,500 USBL52		96	96	1	86,500	R3.0	12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%		73,888	0%	73,888		
371.0 Pumping Equipment	2015	\$373,000 HWW-19		945	1075	1.138	424,474	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		403,250	0%	403,250		
353.1 Land Improvements	2016	\$0 USBL51		240	243	1.013	-	R4.0	45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%		-	0%	-		
353.1 Land Improvements	2015	\$10,500 USBL51		237	243	1.025	10,763	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%		10,344	0%	10,344		
353.1 Land Improvements	2015	\$0 USBL51		237	243	1.025	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%		-	0%	-		
353.1 Land Improvements	2015	\$0 USBL51		237	243	1.025	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%		-	0%	-		
353.1 Land Improvements	2015	\$8,500 USBL51		237	243	1.025	8,713	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%		8,374	0%	8,374		
353.1 Land Improvements	2015	\$7,000 USBL51		237	243	1.025	7,175	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%		6,896	0%	6,896		
354.3 Structures & Improvements - Pump Stations	2006	\$0 HWW-115		466.3	672	1.441	-	R4.0	45	10.75	24 R4.0024	0.76111	34.25	45.00	76.11%		-	0%	-		
354.3 Structures & Improvements - Pump Stations	2006	\$0 HWW-115		466.3	672	1.441	-	R4.0	45	10.75	24 R4.0024	0.76111	34.25	45.00	76.11%		-	0%	-		
354.3 Structures & Improvements - Pump Stations	1960	\$9,740 HWW-115		53	672	12.679	123,493	R4.0	45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%		12,349	0%	12,349		
354.3 Structures & Improvements - Pump Stations	2005	\$34,000 HWW-115		448	672	1.5	51,000	R4.0	45	11.75	26 R4.0026	0.74138	33.36	45.11	73.95%		37,715	0%	37,715		
354.3 Structures & Improvements - Pump Stations	2004	\$148,000 HWW-115		420.8	672	1.597	236,356	R4.0	45	12.75	28 R4.0028	0.72172	32.48	45.23	71.81%		169,727	0%	169,727		
371.0 Pumping Equipment	2004	\$55,263 HWW-19		572.3	1075	1.878	103,784	R3.0	35	12.75	36 R3.0036	0.65866	23.05	35.80	64.39%		66,827	0%	66,827		
371.0 Pumping Equipment	2004	\$0 HWW-19		572.3	1075	1.878	-	R3.0	35	12.75	36 R3.0036	0.65866	23.05	35.80	64.39%		-	0%	-		
355.0 Power Generating Equipment	2004	\$26,215 USBL54		145.8	206	1.413	37,042	R3.0	35	12.75	36 R3.0036	0.65866	23.05	35.80	64.39%		23,851	0%	23,851		
354.3 Structures & Improvements - Pump Stations	2006	\$0 HWW-115		466.3	672	1.441	-	R4.0	45	10.75	24 R4.0024	0.76111	34.25	45.00	76.11%		-	0%	-		
354.3 Structures & Improvements - Pump Stations	2006	\$0 HWW-115		466.3	672	1.441	-	R4.0	45	10.75	24 R4.0024	0.76111	34.25	45.00	76.11%		-	0%	-		
371.0 Pumping Equipment	2006	\$27,591 HWW-19		624.3	1075	1.722	47,512	R3.0	35	10.75	31 R3.0031	0.7038	24.63	35.38	69.62%		33,078	0%	33,078		
371.0 Pumping Equipment	2016	\$9,840 HWW-19		1022.8	1075	1.051	10,342	R3.0	35	0.75	2 R3.0002	0.98032	34.31	35.06	97.86%		10,121	0%	10,121		
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%		-	0%	-		
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%		-	0%	-		
354.3 Structures & Improvements - Pump Stations	2014	\$5,046,922 HWW-115		630.8	672	1.065	5,374,972	R4.0	45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%		5,047,099	0%	5,047,099		
371.0 Pumping Equipment	2015	\$20,000 HWW-19		945	1075	1.138	22,760	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		21,622	0%	21,622		
371.0 Pumping Equipment	2015	\$0 HWW-19		945	1075	1.138	-	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		-	0%	-		
371.0 Pumping Equipment	2015	\$390,000 HWW-19		945	1075	1.138	443,820	R3.0	35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%		421,629	0%	421,629		
371.0 Pumping Equipment	2012	\$382,744 HWW-19		787.5	1075	1.365	522,446	R3.0	35	4.75	14 R3.0014	0.8635	30.22	34.97	86.42%		451,498	0%	451,498		
371.0 Pumping Equipment	2012	\$428,445 HWW-19		787.5	1075	1.365	584,827	R3.0	35	4.75	14 R3.0014	0.8635	30.22	34.97	86.42%		505,407	0%	505,407		

Replacement Cost New less Depreciation

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing											Depreciation					External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup # (50) & (48)	Cost Index Lookup # (50) & (2017)	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(56)	Col# (55) & (58)	Iowa Lookup # (59)	(56)*(60)	(57)/(63)	(61)/(62)	(54)*(63)	Account Parameters	(64)*(64)	
371.0 Pumping Equipment	2015	\$350,000 HWW-19		945	1075	1.138	398,300	R3.0	35	1.75	5	R3 0005	0.9509	33.28	35.03	95.00%	378,385	0%	378,385	
371.0 Pumping Equipment	2015	\$6,300 HWW-19		945	1075	1.138	7,169	R3.0	35	1.75	5	R3 0005	0.9509	33.28	35.03	95.00%	6,811	0%	6,811	
371.0 Pumping Equipment	2015	\$10,300 HWW-19		945	1075	1.138	11,721	R3.0	35	1.75	5	R3 0005	0.9509	33.28	35.03	95.00%	11,135	0%	11,135	
396.2 SCADA Systems	2015	\$86,500 USBL52		96	96	1	86,500	R3.0	12	1.75	15	R3 0015	0.85389	10.25	12.00	85.42%	73,888	0%	73,888	
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4	R4 0004	0.96005	43.20	44.95	96.11%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4	R4 0004	0.96005	43.20	44.95	96.11%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	2014	\$79,528 HWW-115		630.8	672	1.065	84,697	R4.0	45	2.75	6	R4 0006	0.94008	42.30	45.05	93.90%	79,530	0%	79,530	
371.0 Pumping Equipment	2015	\$26,000 HWW-19		945	1075	1.138	29,588	R3.0	35	1.75	5	R3 0005	0.9509	33.28	35.03	95.00%	28,109	0%	28,109	
371.0 Pumping Equipment	2015	\$21,000 HWW-19		945	1075	1.138	23,898	R3.0	35	1.75	5	R3 0005	0.9509	33.28	35.03	95.00%	22,703	0%	22,703	
353.1 Land Improvements	2015	\$0 USBL51		237	243	1.025	-	R4.0	45	1.75	4	R4 0004	0.96005	43.20	44.95	96.11%	-	0%	-	
353.1 Land Improvements	2014	\$23,880 USBL51		237	243	1.025	24,477	R4.0	45	2.75	6	R4 0006	0.94008	42.30	45.05	93.90%	22,984	0%	22,984	
353.1 Land Improvements	2014	\$0 USBL51		237	243	1.025	-	R4.0	45	2.75	6	R4 0006	0.94008	42.30	45.05	93.90%	-	0%	-	
353.1 Land Improvements	2014	\$11,107 USBL51		237	243	1.025	11,385	R4.0	45	2.75	6	R4 0006	0.94008	42.30	45.05	93.90%	10,691	0%	10,691	
353.1 Land Improvements	2014	\$0 USBL51		237	243	1.025	-	R4.0	45	2.75	6	R4 0006	0.94008	42.30	45.05	93.90%	-	0%	-	
353.1 Land Improvements	2014	\$0 USBL51		237	243	1.025	-	R4.0	45	2.75	6	R4 0006	0.94008	42.30	45.05	93.90%	-	0%	-	
355.0 Power Generating Equipment	2012	\$380,840 USBL54		201.2	206	1.024	389,980	R3.0	35	4.75	14	R3 0014	0.8635	30.22	34.97	86.42%	337,021	0%	337,021	
354.3 Structures & Improvements - Pump Stations	2013	\$0 HWW-115		613.8	672	1.095	-	R4.0	45	3.75	8	R4 0008	0.92012	41.41	45.16	91.70%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	2013	\$0 HWW-115		613.8	672	1.095	-	R4.0	45	3.75	8	R4 0008	0.92012	41.41	45.16	91.70%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	2013	\$93,416 HWW-115		613.8	672	1.095	102,291	R4.0	45	3.75	8	R4 0008	0.92012	41.41	45.16	91.70%	93,801	0%	93,801	
371.0 Pumping Equipment	2013	\$255,963 HWW-19		836	1075	1.286	329,168	R3.0	35	3.75	11	R3 0011	0.89247	31.24	34.99	89.28%	293,881	0%	293,881	
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4	R4 0004	0.96005	43.20	44.95	96.11%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4	R4 0004	0.96005	43.20	44.95	96.11%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	2014	\$1,001,446 HWW-115		630.8	672	1.065	1,066,540	R4.0	45	2.75	6	R4 0006	0.94008	42.30	45.05	93.90%	1,001,481	0%	1,001,481	
371.0 Pumping Equipment	2015	\$22,000 HWW-19		945	1075	1.138	25,036	R3.0	35	1.75	5	R3 0005	0.9509	33.28	35.03	95.00%	23,784	0%	23,784	
371.0 Pumping Equipment	2015	\$77,000 HWW-19		945	1075	1.138	87,626	R3.0	35	1.75	5	R3 0005	0.9509	33.28	35.03	95.00%	83,245	0%	83,245	
364.0 Flow Measuring Devices	2015	\$10,000 HWW-140		400.8	404	1.008	10,080	R3.0	35	1.75	5	R3 0005	0.9509	33.28	35.03	95.00%	9,576	0%	9,576	
371.0 Pumping Equipment	2015	\$155,600 HWW-19		945	1075	1.138	177,073	R3.0	35	1.75	5	R3 0005	0.9509	33.28	35.03	95.00%	168,219	0%	168,219	
396.1 Communications Equipment	2011	\$0 USBL52		96	96	1	-	R3.0	12	5.75	48	R3 0048	0.55461	6.66	12.41	53.67%	-	0%	-	
371.0 Pumping Equipment	2011	\$84,925 HWW-19		752	1075	1.43	121,443	R3.0	35	5.75	16	R3 0016	0.8443	29.55	35.30	83.71%	101,660	0%	101,660	
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4	R4 0004	0.96005	43.20	44.95	96.11%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	2015	\$0 HWW-115		647.3	672	1.038	-	R4.0	45	1.75	4	R4 0004	0.96005	43.20	44.95	96.11%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	2014	\$375,850 HWW-115		630.8	672	1.065	400,280	R4.0	45	2.75	6	R4 0006	0.94008	42.30	45.05	93.90%	375,863	0%	375,863	
355.0 Power Generating Equipment	2015	\$82,500 USBL54		206.4	206	0.998	82,335	R3.0	35	1.75	5	R3 0005	0.9509	33.28	35.03	95.00%	78,218	0%	78,218	
396.2 SCADA Systems	2015	\$86,500 USBL52		96	96	1	86,500	R3.0	12	1.75	15	R3 0015	0.85389	10.25	12.00	85.42%	73,888	0%	73,888	
371.0 Pumping Equipment	2015	\$112,500 HWW-19		945	1075	1.138	128,025	R3.0	35	1.75	5	R3 0005	0.9509	33.28	35.03	95.00%	121,624	0%	121,624	
353.1 Land Improvements	2015	\$0 USBL51		237	243	1.025	-	R4.0	45	1.75	4	R4 0004	0.96005	43.20	44.95	96.11%	-	0%	-	
353.1 Land Improvements	2013	\$16,316 USBL51		233	243	1.043	17,018	R4.0	45	3.75	8	R4 0008	0.92012	41.41	45.16	91.70%	15,606	0%	15,606	
371.0 Pumping Equipment	1991	\$14,268 HWW-19		355	1075	3.028	43,204	R3.0	35	25.75	74	R3 0074	0.35439	12.40	38.15	32.50%	14,041	0%	14,041	
355.0 Power Generating Equipment	1991	\$12,971 USBL54		129.7	206	1.588	20,598	R3.0	35	25.75	74	R3 0074	0.35439	12.40	38.15	32.50%	6,694	0%	6,694	
371.0 Pumping Equipment	1991	\$5,765 HWW-19		355	1075	3.028	17,456	R3.0	35	25.75	74	R3 0074	0.35439	12.40	38.15	32.50%	5,673	0%	5,673	
354.3 Structures & Improvements - Pump Stations	1970	\$0 HWW-115		75	672	8.96	-	R4.0	45	46.75	104	R4 0104	0.12895	5.80	52.55	11.04%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	1970	\$0 HWW-115		75	672	8.96	-	R4.0	45	46.75	104	R4 0104	0.12895	5.80	52.55	11.04%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	1970	\$6,521 HWW-115		75	672	8.96	58,428	R4.0	45	46.75	104	R4 0104	0.12895	5.80	52.55	11.04%	6,450	0%	6,450	
354.3 Structures & Improvements - Pump Stations	1995	\$0 HWW-115		316	672	2.127	-	R4.0	45	21.75	48	R4 0048	0.53035	23.87	45.62	52.32%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	1995	\$0 HWW-115		316	672	2.127	-	R4.0	45	21.75	48	R4 0048	0.53035	23.87	45.62	52.32%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	1995	\$40,788 HWW-115		316	672	2.127	86,756	R4.0	45	21.75	48	R4 0048	0.53035	23.87	45.62	52.32%	45,391	0%	45,391	
371.0 Pumping Equipment	2002	\$14,891 HWW-19		529	1075	2.032	30,259	R3.0	35	14.75	42	R3 0042	0.60583	21.20	35.95	58.97%	17,844	0%	17,844	
371.0 Pumping Equipment	2002	\$7,342 HWW 19		529	1075	2.032	14,919	R3.0	35	14.75	42	R3 0042	0.60583	21.20	35.95	58.97%	8,798	0%	8,798	

Replacement Cost New less Depreciation

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
					Costing						Depreciation					External Obsolescence				
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup ((50) & (48))	Cost Index Lookup ((50) & (2017))	((52)/((51))	((49)/((53))	Account Parameters	Account Parameters	2016.75 ((48))	((57)/((56))	Calc. ((55) & ((59))	Iowa Lookup ((59))	((56)/((60))	((57)/((61))	((61)/((62))	((54)/((63))	Account Parameters	((64)/((64))	
354.3 Structures & Improvements - Pump Stations	1995	\$0	HWW-115	316	672	2.127	-	R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	1995	\$0	HWW-115	316	672	2.127	-	R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%	-	0%	-	
354.3 Structures & Improvements - Pump Stations	1995	\$19,209	HWW-115	316	672	2.127	40,858	R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%	21,377	0%	21,377	
355.0 Power Generating Equipment	2002	\$13,159	USBLS4	142	206	1.451	19,094	R3.0	35	14.75	42	R3.0042	0.60583	21.20	35.95	58.97%	11,260	0%	11,260	
396.2 SCADA Systems	2002	\$0	USBLS2	105	96	0.914	-	R3.0	12	14.75	123	R3.0123	0.11668	1.40	16.15	10.00%	-	0%	-	
361.0 Collection Sewers - Gravity	2016	\$10,989	HWW-134	755.3	774	1.025	11,264	R4.0	75	0.75	1	R4.0001	0.99001	74.25	75.00	99.00%	11,151	0%	11,151	
361.0 Collection Sewers - Gravity	2007	\$2,820,000	HWW-134	530	774	1.46	4,117,200	R4.0	75	9.75	13	R4.0013	0.87027	65.27	75.02	87.00%	3,581,964	0%	3,581,964	
354.3 Structures & Improvements - Pump Stations	1955	-\$55,194	HWW-115	43	672	15.628	(862,572)	R4.0	45	61.75	137	R4.0137	0.03332	1.50	63.25	10.00%	(86,257)	0%	(86,257)	
364.0 Flow Measuring Devices	2016	\$29,451	HWW-140	403.3	404	1.002	29,510	R3.0	35	0.75	2	R3.0002	0.98032	34.31	35.06	97.86%	28,878	0%	28,878	
364.0 Flow Measuring Devices	2013	\$160,432	HWW-140	380.8	404	1.061	170,218	R3.0	35	3.75	11	R3.0011	0.89247	31.24	34.99	89.28%	151,971	0%	151,971	
371.0 Pumping Equipment	2015	\$0	HWW-19	945	1075	1.138	-	R3.0	35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	-	0%	-	
395.0 Power Operated Equipment	1987	\$13,871	AUST-18	205	322	1.571	21,791	R3.0	18	29.75	165	R3.0165	0.01039	0.19	29.94	10.00%	2,179	0%	2,179	
391.0 Transportation Equipment	2003	\$20,846	AUST-14	257	305	1.187	24,744	R3.0	12	13.75	115	R3.0115	0.14158	1.70	15.45	11.00%	2,722	0%	2,722	
391.0 Transportation Equipment	2004	\$22,675	AUST-14	266	305	1.147	26,008	R3.0	12	12.75	106	R3.0106	0.17527	2.10	14.85	14.14%	3,678	0%	3,678	
395.0 Power Operated Equipment	2009	\$46,982	AUST-18	286	322	1.126	52,902	R3.0	18	7.75	43	R3.0043	0.59718	10.75	18.50	58.11%	30,741	0%	30,741	
391.0 Transportation Equipment	2009	\$20,081	AUST-14	273	305	1.117	22,430	R3.0	12	7.75	65	R3.0065	0.41931	5.03	12.78	39.36%	8,828	0%	8,828	
391.0 Transportation Equipment	2007	\$126,140	AUST-14	257	305	1.187	149,728	R3.0	12	9.75	81	R3.0081	0.30773	3.69	13.44	27.46%	41,115	0%	41,115	
391.0 Transportation Equipment	2010	\$7,500	AUST-14	269	305	1.134	8,505	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	3,956	0%	3,956	
395.0 Power Operated Equipment	2010	\$356,691	AUST-18	288	322	1.118	398,781	R3.0	18	6.75	38	R3.0038	0.64088	11.54	18.29	63.09%	251,591	0%	251,591	
391.0 Transportation Equipment	2010	\$7,000	AUST-14	269	305	1.134	7,938	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	3,692	0%	3,692	
395.0 Power Operated Equipment	2011	\$7,000	AUST-18	290	322	1.11	7,770	R3.0	18	5.75	32	R3.0032	0.69469	12.50	18.25	68.49%	5,322	0%	5,322	
395.0 Power Operated Equipment	2011	\$40,000	AUST-18	290	322	1.11	44,400	R3.0	18	5.75	32	R3.0032	0.69469	12.50	18.25	68.49%	30,410	0%	30,410	
391.0 Transportation Equipment	2011	\$9,700	AUST-14	273	305	1.117	10,835	R3.0	12	5.75	48	R3.0048	0.55461	6.66	12.41	53.67%	5,815	0%	5,815	
391.0 Transportation Equipment	2011	\$9,500	AUST-14	273	305	1.117	10,612	R3.0	12	5.75	48	R3.0048	0.55461	6.66	12.41	53.67%	5,695	0%	5,695	
395.0 Power Operated Equipment	2012	\$88,636	AUST-18	294	322	1.095	97,056	R3.0	18	4.75	26	R3.0026	0.74986	13.50	18.25	73.97%	71,792	0%	71,792	
395.0 Power Operated Equipment	2012	\$73,193	AUST-18	294	322	1.095	80,146	R3.0	18	4.75	26	R3.0026	0.74986	13.50	18.25	73.97%	59,284	0%	59,284	
395.0 Power Operated Equipment	2012	\$0	AUST-18	294	322	1.095	-	R3.0	18	4.75	26	R3.0026	0.74986	13.50	18.25	73.97%	-	0%	-	
391.0 Transportation Equipment	2012	\$34,995	AUST-14	279	305	1.093	38,250	R3.0	12	4.75	40	R3.0040	0.62327	7.48	12.23	61.16%	23,394	0%	23,394	

Replacement Cost New less Depreciation

(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Costing										Depreciation					External Obsolescence					
Account	Year	Original Cost	Cost Trend Reference	Year Index	Spot Index	Cost Translator	Cost New	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Cost New less Depreciation	External Obsolescence	Cost New less Depreciation	
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Cost Index Lookup f(50) & (48)	Cost Index Lookup f(50) & (2017)	(52)/(51)	(49)*(53)	Account Parameters	Account Parameters	2016.75 (48)	(57)/(56)	Col. (55) & (58)	Iowa Lookup f(59)	(56)*(60)	(57)+(61)	(61)/(62)	(54)*(63)	Account Parameters	(64)*(64)
391.0	Transportation Equipment	2013	\$18,502	AUST-14	282	305	1.082	20,019	R3.0	12	3.75	31	R3.0031	0.7038	8.45	12.20	69.26%	13,865	0%	13,865
391.0	Transportation Equipment	2014	\$23,917	AUST-14	287	305	1.063	25,424	R3.0	12	2.75	23	R3.0023	0.77789	9.33	12.08	77.24%	19,637	0%	19,637
391.0	Transportation Equipment	2014	\$414,614	AUST-14	287	305	1.063	440,735	R3.0	12	2.75	23	R3.0023	0.77789	9.33	12.08	77.24%	340,424	0%	340,424
391.0	Transportation Equipment	2015	\$32,443	AUST-14	295	305	1.034	33,546	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	28,655	0%	28,655
391.0	Transportation Equipment	2008	\$9,995	AUST-14	257	305	1.187	11,864	R3.0	12	8.75	73	R3.0073	0.36135	4.34	13.09	33.16%	3,934	0%	3,934
391.0	Transportation Equipment	2016	\$32,733	AUST-14	298	305	1.023	33,486	R3.0	12	0.75	6	R3.0006	0.94112	11.29	12.04	93.77%	31,400	0%	31,400
391.0	Transportation Equipment	2015	\$32,443	AUST-14	295	305	1.034	33,546	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	28,655	0%	28,655
			\$61,374,789					\$106,863,107										\$62,652,591		\$62,652,591

Replacement Cost New less Depreciation

**The City of McKeesport, Pennsylvania
And
The Municipal Authority of the City McKeesport**

**Appraisal Work Papers
As of September 2016**

**Cost Approach
Depreciated Original Cost**

**AUS Consultants
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J. Weinert's E-Mail: weinertj@auswest.net**

**Pennsylvania American, Inc.
 The Municipal Authority of the City of McKeesport
 Wastewater
 Investor-Owned Utility
 September 2016**

Summary of Cost Approach

Service Area	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	Cost New less Depreciation adjusted for External Obsolescence
McKeesport	35,663,314.30	24,781,311	125,338,615	61,696,103	61,696,103
Duquesne	8,488,374.00	4,009,366	57,112,541	22,405,247	22,405,247
Dravosburg	1,188,766.76	398,682	11,821,704	3,718,174	3,718,174
Port Vue	1,455,194.00	362,190	20,893,663	4,942,794	4,942,794
Summary	46,795,649.06	29,551,549	215,166,523	92,762,318	92,762,318
Treatment & Pumping Plant	61,374,789	50,472,921	106,863,107	62,652,591	62,652,591
Subtotal	108,170,438.06	80,024,470	322,029,630	155,414,909	155,414,909
Land	61,132	61,132	1,110,000		1,110,000
Total	108,231,570.06	80,085,602	323,139,630	155,414,909	156,524,909

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

McKeesport Service Area		Development of Original Cost less Depreciation (OCLD)											
(1)	(2)	(4)	(6)	Depreciation (7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
KLH Input	KLH Input	KLH Input	OC Development Col (6)	Account Parameters Lookup	Account Parameters Lookup	2016 75-Col (4)	(9)/(8)	Cols (7)&(10)	IowaLookup f(Col (11))	Cols (8)*(12)	Cols (9)*(13)	Cols (13)/(14)	Cols (6)*(15)
361	Collection Sewers - Gravity	1959	\$591,400.16	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	161,511
361	Collection Sewers - Gravity	1976	\$2,755,719.59	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	1,286,921
361	Collection Sewers - Gravity	1989	\$4,016,793.99	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	2,536,605
361	Collection Sewers - Gravity	1999	\$1,244,735.64	R4.0	75	17.75	24	R4.0024	0.76111	57.08	74.83	76.28%	949,484
361	Collection Sewers - Gravity	2008	\$24,209.58	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	21,377
361	Collection Sewers - Gravity	2010	\$2,774,260.00	R4.0	75	6.75	9	R4.0009	0.91014	68.26	75.01	91.00%	2,524,577
Total 8"			\$11,407,118.96										\$7,480,475
361	Collection Sewers - Gravity	1959	\$412,210.80	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	112,575
361	Collection Sewers - Gravity	1976	\$321,030.08	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	149,921
361	Collection Sewers - Gravity	1989	\$1,038,003.12	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	655,499
361	Collection Sewers - Gravity	1999	\$327,759.32	R4.0	75	17.75	24	R4.0024	0.76111	57.08	74.83	76.28%	250,015
Total 10"			\$2,099,003.32										\$1,168,010
361	Collection Sewers - Gravity	1959	\$891,447.70	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	243,454
361	Collection Sewers - Gravity	1976	\$773,353.71	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	361,156
361	Collection Sewers - Gravity	2008	\$22,375.82	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	19,758
Total 12"			\$1,687,177.23										\$624,368
361	Collection Sewers - Gravity	1959	\$418,540.50	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	114,303
361	Collection Sewers - Gravity	1976	\$66,429.60	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	31,023
361	Collection Sewers - Gravity	1989	\$129,897.33	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	82,030
361	Collection Sewers - Gravity	2008	\$9,405.00	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	8,305
Total 15"			\$624,272.43										\$235,661
361	Collection Sewers - Gravity	1959	\$43,469.00	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	11,871
361	Collection Sewers - Gravity	1976	\$397,223.28	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	185,503
Total 16"			\$440,692.28										\$197,374
361	Collection Sewers - Gravity	1959	\$173,805.20	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	47,466
361	Collection Sewers - Gravity	1999	\$2,278,563.60	R4.0	75	17.75	24	R4.0024	0.76111	57.08	74.83	76.28%	1,738,088
Total 18"			\$2,452,368.80										\$1,785,554
361	Collection Sewers - Gravity	1959	\$21,449.89	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	5,858
361	Collection Sewers - Gravity	2008	\$6,145.13	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	5,426
Total 20"			\$27,595.02										\$11,284
361	Collection Sewers - Gravity	2008	\$158,687.30	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	140,121
Total 21"			\$158,687										\$140,121
361	Collection Sewers - Gravity	1959	\$663,479.07	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	181,196
361	Collection Sewers - Gravity	1976	\$822,087.24	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	383,915
361	Collection Sewers - Gravity	1989	\$1,247,533.65	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	787,817
361	Collection Sewers - Gravity	2008	\$393,918.33	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	347,830
361	Collection Sewers - Gravity	2011	\$231,361.55	R4.0	75	5.75	8	R4.0008	0.92012	69.01	74.76	92.31%	213,570
Total 24"			\$3,358,379.84										\$1,914,328
361	Collection Sewers - Gravity	1959	\$402,636.60	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	109,960
361	Collection Sewers - Gravity	1976	\$319,621.76	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	149,263
361	Collection Sewers - Gravity	2009	\$743,130.00	R4.0	75	7.75	10	R4.0010	0.90017	67.51	75.26	89.70%	666,588
361	Collection Sewers - Gravity	2011	\$398,629.00	R4.0	75	5.75	8	R4.0008	0.92012	69.01	74.76	92.31%	367,974
Total 30"			\$1,864,017.36										\$1,293,785
361	Collection Sewers - Gravity	1959	\$9,355.50	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	2,555
361	Collection Sewers - Gravity	2008	\$143,689.30	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	126,878

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

McKeesport Service Area		Development of Original Cost less Depreciation (OCLD)											
(1)	(2)	(4)	(6)	Depreciation (7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	Account Parameters Lookup	Account Parameters Lookup	2016 75 Col. (4)	(9)/(8)	Col. (7)&(10)	IowaLookup f(Col. (11))	Col. (8)*(12)	Col. (9)+(13)	Col. (13)/(14)	Col. (6)*(15)
361	Collection Sewers - Gravity Total 36"	2009	\$6,284,480.00 \$6,437,524.80	R4.0	75	7.75	10	R4.0010	0.90017	67.51	75.26	89.70%	5,637,179 \$5,766,612
361	Collection Sewers - Gravity Total 42"	2008	\$111,600.72 \$111,600.72	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	98,543 \$98,543
361	Collection Sewers - Gravity Total 48"	2008	\$235,425.96 \$235,425.96	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	207,881 \$207,881
361	Collection Sewers - Gravity Total 54"	2011	\$151,156.18 \$151,156	R4.0	75	5.75	8	R4.0008	0.92012	69.01	74.76	92.31%	139,532 \$139,532
361	Collection Sewers - Gravity Total 60"	2008	\$311,864.70 \$311,864.70	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	275,377 \$275,377
361	Collection Sewers - Gravity	2008	\$170,044.74	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	150,150
361	Collection Sewers - Gravity	2011	\$1,679,719.47	R4.0	75	5.75	8	R4.0008	0.92012	69.01	74.76	92.31%	1,550,549
	Total 72"		\$1,849,764.21										\$1,700,699
361	Collection Sewers - Gravity	1959	\$878,795.70	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	239,999
361	Collection Sewers - Gravity	2008	\$162,824.13	R4.0	75	8.75	12	R4.0012	0.88023	66.02	74.77	88.30%	143,774
361	Collection Sewers - Gravity	2011	\$45,739.33	R4.0	75	5.75	8	R4.0008	0.92012	69.01	74.76	92.31%	42,222
	Total Manholes		\$1,087,359.16										\$425,995
364	Flow Measuring Devices	1960	\$6,474.93	R3.0	35	56.75	162	R3.0162	0.01699	0.59	57.34	10.00%	647
364	Flow Measuring Devices	2008	\$81,438.72	R3.0	35	8.75	25	R3.0025	0.75917	26.57	35.32	75.23%	61,266
	Total Flow Meters		\$87,913.65										\$61,913
360	Collection Sewers - Force Total Force Mains	2015	\$1,263,672.93 \$1,263,672.93	R4.0	65	1.75	3	R4.0003	0.97003	63.05	64.80	97.30%	1,229,554 \$1,229,554
360	Collection Sewers - Force Total Air Release	2015	\$85,664.16 \$85,664.16	R4.0	65	1.75	3	R4.0003	0.97003	63.05	64.80	97.30%	83,351 \$83,351
361	Collection Sewers - Gravity Total CSO Structures	1960	\$9,968.94 \$9,968.94	R4.0	75	56.75	76	R4.0076	0.29658	22.24	78.99	28.16%	2,807 \$2,807
	Total McKeesport		\$35,663,314.30										\$24,781,311

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

Duquesne Service Area

Development of Original Cost less Depreciation (OCLD)

(1)	(2)	(4)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Description	Year	Original Cost	lowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	lowa Lookup	lowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
KLH Input	KLH Input	KLH Input	OC Development Col. Per Foot	Account Parameters Lookup	Account Parameters Lookup	2016 75-Col. (4)	(9)/(8)	Cols (7)&(10)	lowaLookup (Col. (11))	Cols (8)*(12)	Cols (9)+(13)	Cols (13)/(14)	Cols (6)*(15)
361	Collection Sewers - Gravity	1959	\$238,640.00	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	65,173
361	Collection Sewers - Gravity	1976	\$744,785.86	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	347,815
361	Collection Sewers - Gravity	1989	\$1,085,623.08	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	685,571
361	Collection Sewers - Gravity	1999	\$336,409.38	R4.0	75	17.75	24	R4.0024	0.76111	57.08	74.83	76.28%	256,613
Total 8"			\$2,405,458.32										\$1,355,172
361	Collection Sewers - Gravity	1959	\$111,407.60	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	30,425
361	Collection Sewers - Gravity	1976	\$86,768.32	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	40,521
361	Collection Sewers - Gravity	1989	\$280,547.96	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	177,166
361	Collection Sewers - Gravity	1999	\$88,583.60	R4.0	75	17.75	24	R4.0024	0.76111	57.08	74.83	76.28%	67,572
Total 10"			\$567,307.48										\$315,684
361	Collection Sewers - Gravity	1959	\$241,598.50	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	65,981
361	Collection Sewers - Gravity	1976	\$209,011.77	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	97,608
Total 12"			\$450,610.27										\$163,589
361	Collection Sewers - Gravity	1959	\$113,400.00	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	30,970
361	Collection Sewers - Gravity	1976	\$17,950.92	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	8,383
361	Collection Sewers - Gravity	1989	\$35,101.59	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	22,167
Total 15"			\$166,452.51										\$61,520
361	Collection Sewers - Gravity	1959	\$11,747.00	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	3,208
361	Collection Sewers - Gravity	1976	\$107,359.82	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	50,137
Total 16"			\$119,106.82										\$53,345
361	Collection Sewers - Gravity	1959	\$46,971.75	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	12,828
361	Collection Sewers - Gravity	1999	\$615,828.00	R4.0	75	17.75	24	R4.0024	0.76111	57.08	74.83	76.28%	469,754
Total 18"			\$662,799.75										\$482,582
361	Collection Sewers - Gravity	1959	\$5,981.43	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	1,634
Total 20"			\$5,981.43										\$1,634
361	Collection Sewers - Gravity	1959	\$197,361.48	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	53,899
361	Collection Sewers - Gravity	1976	\$222,177.15	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	103,757
361	Collection Sewers - Gravity	1989	\$337,181.13	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	212,930
Total 24"			\$756,719.76										\$370,586
361	Collection Sewers - Gravity	1959	\$119,255.40	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	32,569
361	Collection Sewers - Gravity	1976	\$86,388.64	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	40,343
Total 30"			\$205,644.04										\$72,912
361	Collection Sewers - Gravity	1959	\$6,819.12	R4.0	75	57.75	77	R4.0077	0.28927	21.70	79.45	27.31%	1,862
Total 36"			\$6,819.12										\$1,862
361	Collection Sewers - Gravity	1963	\$2,438,230.41	R4.0	75	53.75	72	R4.0072	0.32657	24.49	78.24	31.30%	763,166
Total Other			\$2,438,230.41										\$763,166
361	Collection Sewers - Gravity	1963	\$154,808.28	R4.0	75	53.75	72	R4.0072	0.32657	24.49	78.24	31.30%	48,455
361	Collection Sewers - Gravity	1963	\$8,991.39	R4.0	75	53.75	72	R4.0072	0.32657	24.49	78.24	31.30%	2,814
361	Collection Sewers - Gravity	1976	\$234,127.60	R4.0	75	40.75	54	R4.0054	0.47598	35.70	76.45	46.70%	109,338
361	Collection Sewers - Gravity	1989	\$205,024.00	R4.0	75	27.75	37	R4.0037	0.63414	47.56	75.31	63.15%	129,473
361	Collection Sewers - Gravity	1999	\$76,443.90	R4.0	75	17.75	24	R4.0024	0.76111	57.08	74.83	76.28%	58,311
Total Manholes			\$679,395.17										\$348,391
364	Flow Measuring Devices	2011	\$22,437.20	R3.0	35	5.75	16	R3.0016	0.8443	29.55	35.30	83.71%	18,782

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

Duquesne Service Area

		Development of Original Cost less Depreciation (OCLD)											
(1)	(2)	(4)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
KLM Input	KLM Input	KLM Input	OC Development Col Per Foot	Account Parameters Lookup	Account Parameters Lookup	2016.75-Col (4)	(9)/(8)	Cols (7)&(10)	IowaLookup f(Col (11))	Cols (8)*(12)	Cols (9)+(13)	Cols (13)/(14)	Cols (6)*(15)
	Total Flow Meters		\$22,437.20										\$18,782
361	Collection Sewers - Gravity	1959	\$1,411.72	R4.0	75	2016.75	2689	R4.02689	0	0.00	2016.75	10.00%	141
	Total CSO Structures		\$1,411.72										\$141.00
	Total Duquesne		\$8,488,374.00										\$4,009,366

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

Dravosburg Service Area

Determination of Original Cost less Depreciation (OCLD)

(1)	(2)	(4)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
KLH Input	KLH Input	KLH Input	OC Development Col. (6)	Account Parameters Lookup	Account Parameters Lookup	2016.75 Col. (4)	(9)/(8)	Col. (7)&(10)	IowaLookup f(Col (11))	Col. (6)*(12)	Col. (9)+(13)	Col. (13)/(14)	Col. (6)*(15)
361	Collection Sewers - Gravity	1962	\$14,157.00	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	4,305
361	Collection Sewers - Gravity	1962	\$289,684.08	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	88,093
361	Collection Sewers - Gravity	1962	\$116,490.48	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	35,425
361	Collection Sewers - Gravity	1962	\$115,525.52	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	35,131
361	Collection Sewers - Gravity	1962	\$5,507.20	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	1,675
361	Collection Sewers - Gravity	1962	\$50,490.00	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	15,354
361	Collection Sewers - Gravity	1962	\$8,618.40	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	2,621
361	Collection Sewers - Gravity	1962	\$42,206.40	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	12,835
361	Collection Sewers - Gravity	1962	\$33,229.92	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	10,105
361	Collection Sewers - Gravity	1962	\$208,803.52	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	63,497
361	Collection Sewers - Gravity	1962	\$47,593.32	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	14,473
Total 1962			\$932,305.84										\$283,514
361	Collection Sewers - Gravity	1980	\$78,763.85	R4.0	75	36.75	49	R4.0049	0.52116	39.09	75.84	51.54%	40,595
361	Collection Sewers - Gravity	1984	\$68,207.82	R4.0	75	32.75	44	R4.0044	0.56756	42.57	75.32	56.52%	38,551
Total 8"			\$146,971.67										\$79,146
361	Collection Sewers - Gravity	1962	\$103,702.19	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	31,536
354	Flow Measuring Devices	2010	\$5,401.55	R3.0	35	6.75	19	R3.0019	0.81568	28.55	35.30	80.88%	4,369
361	Collection Sewers - Gravity	1962	\$385.51	R4.0	75	54.75	73	R4.0073	0.31896	23.92	78.67	30.41%	117
Total Dravosburg			\$1,188,766.76										\$398,682

(31)	(32)	(33)	(34)	&	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016 75-(33)	(37)/(36)	Cols (35) & (38)	Iowa Lookup f((39))	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
354.4	Structures & Improvements - Treatment Plants	1926	\$0	R4.0	45	90.75	202	R4.0202	0	0.00	90.75	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1926	\$0	R4.0	45	90.75	202	R4.0202	0	0.00	90.75	10.00%	-
354.4	Structures & Improvements - Treatment Plants	2008	\$110,000	R4.0	45	8.75	19	R4.0019	0.81061	36.48	45.23	80.65%	88,715
354.4	Structures & Improvements - Treatment Plants	2009	\$9,000	R4.0	45	7.75	17	R4.0017	0.83047	37.37	45.12	82.82%	7,454
354.0	Structures & Improvements	2011	\$6,000	R4.0	45	5.75	13	R4.0013	0.87027	39.16	44.91	87.20%	5,232
354.4	Structures & Improvements - Treatment Plants	2014	\$0	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	-
390.1	Furniture	2009	\$8,261	R3.0	22	7.75	35	R3.0035	0.66761	14.69	22.44	65.46%	5,408
396.1	Communications Equipment	2013	\$14,688	R3.0	12	3.75	31	R3.0031	0.7038	8.45	12.20	69.26%	10,173
390.2	Office Equipment	2009	\$21,954	R3.0	12	7.75	65	R3.0065	0.41931	5.03	12.78	39.36%	8,641
390.2	Office Equipment	2010	\$6,269	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	2,916
390.3	EDP Equipment	2013	\$14,606	R3.0	8	3.75	47	R3.0047	0.56303	4.50	8.25	54.55%	7,968
396.1	Communications Equipment	2010	\$10,232	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	4,759
390.1	Furniture	2013	\$0	R3.0	22	3.75	17	R3.0017	0.83474	18.36	22.11	83.04%	-
395.0	Power Operated Equipment	2009	\$8,995	R3.0	18	7.75	43	R3.0043	0.59718	10.75	18.50	58.11%	5,227
390.1	Furniture	2005	\$5,901	R3.0	22	11.75	53	R3.0053	0.51325	11.29	23.04	49.00%	2,891
390.3	EDP Equipment	2013	\$0	R3.0	8	3.75	47	R3.0047	0.56303	4.50	8.25	54.55%	-
354.4	Structures & Improvements - Treatment Plants	1926	\$0	R4.0	45	90.75	202	R4.0202	0	0.00	90.75	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1926	\$0	R4.0	45	90.75	202	R4.0202	0	0.00	90.75	10.00%	-
354.4	Structures & Improvements - Treatment Plants	2012	\$115,000	R4.0	45	4.75	11	R4.0011	0.8902	40.06	44.81	89.40%	102,810
354.4	Structures & Improvements - Treatment Plants	2012	\$45,000	R4.0	45	4.75	11	R4.0011	0.8902	40.06	44.81	89.40%	40,230
354.4	Structures & Improvements - Treatment Plants	2012	\$30,000	R4.0	45	4.75	11	R4.0011	0.8902	40.06	44.81	89.40%	26,820
354.4	Structures & Improvements - Treatment Plants	2012	\$35,000	R4.0	45	4.75	11	R4.0011	0.8902	40.06	44.81	89.40%	31,290
393.0	Tools, Shop, & Garage Equipment	2015	\$7,136	R3.0	25	1.75	7	R3.0007	0.93135	23.28	25.03	93.01%	6,637
353.1	Land Improvements	1926	\$0	R4.0	45	90.75	202	R4.0202	0	0.00	90.75	10.00%	-
353.1	Land Improvements	2009	\$0	R4.0	45	7.75	17	R4.0017	0.83047	37.37	45.12	82.82%	-
353.1	Land Improvements	1926	\$0	R4.0	45	90.75	202	R4.0202	0	0.00	90.75	10.00%	-
353.1	Land Improvements	1980	\$10,039	R4.0	45	36.75	82	R4.0082	0.2538	11.42	48.17	23.71%	2,380
353.1	Land Improvements	1926	\$0	R4.0	45	90.75	202	R4.0202	0	0.00	90.75	10.00%	-
353.1	Land Improvements	2013	\$17,854	R4.0	45	3.75	8	R4.0008	0.92012	41.41	45.16	91.70%	16,372
353.1	Land Improvements	1926	\$0	R4.0	45	90.75	202	R4.0202	0	0.00	90.75	10.00%	-
353.1	Land Improvements	2012	\$0	R4.0	45	4.75	11	R4.0011	0.8902	40.06	44.81	89.40%	-
353.1	Land Improvements	1926	\$0	R4.0	45	90.75	202	R4.0202	0	0.00	90.75	10.00%	-
353.1	Land Improvements	2009	\$0	R4.0	45	7.75	17	R4.0017	0.83047	37.37	45.12	82.82%	-
353.1	Land Improvements	1962	\$0	R4.0	45	54.75	122	R4.0122	0.07122	3.20	57.95	10.00%	-
353.1	Land Improvements	2012	\$0	R4.0	45	4.75	11	R4.0011	0.8902	40.06	44.81	89.40%	-
353.1	Land Improvements	1990	\$35,528	R4.0	45	26.75	59	R4.0059	0.43225	19.45	46.20	42.10%	14,957
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-

(31)	(32)	(33)	(34)	&	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016 75-(33)	(37)/(36)	Cols. (35) & (38)	Iowa Lookup f((39))	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$50,569	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	5,057
354.4	Structures & Improvements - Treatment Plants	1975	\$131,479	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	21,655
354.4	Structures & Improvements - Treatment Plants	2008	\$0	R4.0	45	8.75	19	R4.0019	0.81061	36.48	45.23	80.65%	-
354.4	Structures & Improvements - Treatment Plants	2008	\$46,870	R4.0	45	8.75	19	R4.0019	0.81061	36.48	45.23	80.65%	37,801
354.4	Structures & Improvements - Treatment Plants	2014	\$1,202,000	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	1,128,678
390.2	Office Equipment	2015	\$0	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	-
390.1	Furniture	2015	\$0	R3.0	22	1.75	8	R3.0008	0.9216	20.28	22.03	92.06%	-
390.2	Office Equipment	1998	\$0	R3.0	12	18.75	156	R3.0156	0.03105	0.37	19.12	10.00%	-
390.2	Office Equipment	2010	\$9,588	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	4,459
390.2	Office Equipment	2013	\$0	R3.0	12	3.75	31	R3.0031	0.7038	8.45	12.20	69.26%	-
390.1	Furniture	2000	\$0	R3.0	22	16.75	76	R3.0076	0.34069	7.50	24.25	30.93%	-
390.3	EDP Equipment	2013	\$5,254	R3.0	8	3.75	47	R3.0047	0.56303	4.50	8.25	54.55%	2,866
390.1	Furniture	1995	\$0	R3.0	22	21.75	99	R3.0099	0.20649	4.54	26.29	17.27%	-
390.1	Furniture	2015	\$5,100	R3.0	22	1.75	8	R3.0008	0.9216	20.28	22.03	92.06%	4,695
390.3	EDP Equipment	2015	\$0	R3.0	8	1.75	22	R3.0022	0.78729	6.30	8.05	78.26%	-
390.1	Furniture	1998	\$5,428	R3.0	22	18.75	85	R3.0085	0.28276	6.22	24.97	24.91%	1,352
390.1	Furniture	2015	\$0	R3.0	22	1.75	8	R3.0008	0.9216	20.28	22.03	92.06%	-
390.2	Office Equipment	2015	\$0	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	-
390.3	EDP Equipment	2015	\$0	R3.0	8	1.75	22	R3.0022	0.78729	6.30	8.05	78.26%	-
390.1	Furniture	1985	\$0	R3.0	22	31.75	144	R3.0144	0.06124	1.35	33.10	10.00%	-
390.1	Furniture	2015	\$0	R3.0	22	1.75	8	R3.0008	0.9216	20.28	22.03	92.06%	-
390.3	EDP Equipment	2015	\$0	R3.0	8	1.75	22	R3.0022	0.78729	6.30	8.05	78.26%	-
390.1	Furniture	2015	\$0	R3.0	22	1.75	8	R3.0008	0.9216	20.28	22.03	92.06%	-
390.2	Office Equipment	2015	\$0	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	-
396.1	Communications Equipment	2015	\$12,600	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	10,763
396.1	Communications Equipment	2004	\$6,000	R3.0	12	12.75	106	R3.0106	0.17527	2.10	14.85	14.14%	848
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$286,202	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	28,620
354.4	Structures & Improvements - Treatment Plants	1975	\$106,080	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	17,471
354.4	Structures & Improvements - Treatment Plants	2008	\$160,825	R4.0	45	8.75	19	R4.0019	0.81061	36.48	45.23	80.65%	129,705
354.4	Structures & Improvements - Treatment Plants	2008	\$0	R4.0	45	8.75	19	R4.0019	0.81061	36.48	45.23	80.65%	-
354.4	Structures & Improvements - Treatment Plants	2014	\$417,812	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	392,325
380.0	Treatment & Disposal Equipment	2015	\$43,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	41,327

(31)	(32)	(33)	(34)	&	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75-(33)	(37)/(36)	Cols. (35) & (38)	Iowa Lookup f((39))	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
380.0	Treatment & Disposal Equipment	2015	\$43,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	41,327
380.0	Treatment & Disposal Equipment	2015	\$33,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	32,197
380.0	Treatment & Disposal Equipment	2015	\$0	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	-
380.0	Treatment & Disposal Equipment	1960	\$0	R3.0	45	56.75	126	R3.0126	0.10823	4.87	61.62	10.00%	-
380.0	Treatment & Disposal Equipment	1960	\$0	R3.0	45	56.75	126	R3.0126	0.10823	4.87	61.62	10.00%	-
395.0	Power Operated Equipment	2015	\$7,397	R3.0	18	1.75	10	R3.0010	0.90216	16.24	17.99	90.27%	6,677
390.2	Office Equipment	2010	\$0	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	-
380.0	Treatment & Disposal Equipment	2001	\$54,944	R3.0	45	15.75	35	R3.0035	0.66761	30.04	45.79	65.60%	36,043
380.0	Treatment & Disposal Equipment	2015	\$37,200	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	35,753
380.0	Treatment & Disposal Equipment	2001	\$142,854	R3.0	45	15.75	35	R3.0035	0.66761	30.04	45.79	65.60%	93,712
380.0	Treatment & Disposal Equipment	2015	\$86,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	82,655
396.2	SCADA Systems	2015	\$576,120	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	492,122
390.1	Furniture	2015	\$0	R3.0	22	1.75	8	R3.0008	0.9216	20.28	22.03	92.06%	-
380.0	Treatment & Disposal Equipment	2001	\$640,705	R3.0	45	15.75	35	R3.0035	0.66761	30.04	45.79	65.60%	420,302
380.0	Treatment & Disposal Equipment	2015	\$1,800,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	1,729,980
390.2	Office Equipment	1990	\$0	R3.0	12	26.75	223	R3.0223	0	0.00	26.75	10.00%	-
380.0	Treatment & Disposal Equipment	1985	\$0	R3.0	45	31.75	71	R3.0071	0.37545	16.90	48.65	34.74%	-
390.2	Office Equipment	2010	\$0	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	-
390.2	Office Equipment	1995	\$0	R3.0	12	21.75	181	R3.0181	0	0.00	21.75	10.00%	-
390.2	Office Equipment	1990	\$0	R3.0	12	26.75	223	R3.0223	0	0.00	26.75	10.00%	-
390.3	EDP Equipment	2015	\$0	R3.0	8	1.75	22	R3.0022	0.78729	6.30	8.05	78.26%	-
394.0	Laboratory Equipment	2015	\$10,000	R3.0	25	1.75	7	R3.0007	0.93135	23.28	25.03	93.01%	9,301
394.0	Laboratory Equipment	2010	\$41,985	R3.0	25	6.75	27	R3.0027	0.74058	18.51	25.26	73.28%	30,767

(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75 (33)	(37)/(36)	Cols. (35) & (38)	Iowa Lookup f(39)	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
394.0	Laboratory Equipment	2015	\$7,200	R3.0	25	1.75	7	R3.0007	0.93135	23.28	25.03	93.01%	6,697
394.0	Laboratory Equipment	2010	\$0	R3.0	25	6.75	27	R3.0027	0.74058	18.51	25.26	73.28%	-
380.0	Treatment & Disposal Equipment	1960	\$0	R3.0	45	56.75	126	R4.0126	0.10823	4.87	61.62	10.00%	-
380.0	Treatment & Disposal Equipment	2015	\$5,417	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	5,206
390.2	Office Equipment	1995	\$11,074	R3.0	12	21.75	181	R3.0181	0	0.00	21.75	10.00%	1,107
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$115,338	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	11,534
354.4	Structures & Improvements - Treatment Plants	2014	\$113,090	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	106,192
380.0	Treatment & Disposal Equipment	2015	\$25,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	24,028
380.0	Treatment & Disposal Equipment	2005	\$0	R3.0	45	11.75	26	R3.0026	0.74986	33.74	45.49	74.17%	-
380.0	Treatment & Disposal Equipment	2015	\$338,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	324,852
380.0	Treatment & Disposal Equipment	2015	\$229,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	220,092
380.0	Treatment & Disposal Equipment	2015	\$450,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	432,495
380.0	Treatment & Disposal Equipment	2015	\$7,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	7,208
380.0	Treatment & Disposal Equipment	2014	\$13,822	R3.0	45	2.75	6	R3.0006	0.94112	42.35	45.10	93.90%	12,979
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$47,172	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	4,717
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$28,687	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	2,869
354.4	Structures & Improvements - Treatment Plants	1975	\$44,202	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	7,280
354.4	Structures & Improvements - Treatment Plants	2001	\$128,684	R4.0	45	15.75	35	R4.0035	0.65344	29.40	45.15	65.12%	83,799
354.4	Structures & Improvements - Treatment Plants	2008	\$41,895	R4.0	45	8.75	19	R4.0019	0.81061	36.48	45.23	80.65%	33,788
393.0	Tools, Shop, & Garage Equipment	1972	\$0	R3.0	25	44.75	179	R3.0179	0	0.00	44.75	10.00%	-
393.0	Tools, Shop, & Garage Equipment	1972	\$0	R3.0	25	44.75	179	R3.0179	0	0.00	44.75	10.00%	-
393.0	Tools, Shop, & Garage Equipment	1975	\$5,936	R3.0	25	41.75	167	R3.0167	0.00641	0.16	41.91	10.00%	594
395.0	Power Operated Equipment	2010	\$6,046	R3.0	18	6.75	38	R3.0038	0.64088	11.54	18.29	63.09%	3,814
393.0	Tools, Shop, & Garage Equipment	1970	\$0	R3.0	25	46.75	187	R3.0187	0	0.00	46.75	10.00%	-
380.0	Treatment & Disposal Equipment	1985	\$0	R3.0	45	31.75	71	R3.0071	0.37545	16.90	48.65	34.74%	-
380.0	Treatment & Disposal Equipment	2000	\$12,143	R3.0	45	16.75	37	R3.0037	0.64975	29.24	45.99	63.58%	7,721

(31)	(32)	(33)	(34)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	
		Depreciation											
Account	Account Description	Year	Original Cost	lowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	lowa Lookup	lowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75-(33)	(37)/(36)	Cols. (35) & (38)	lowa Lookup ((39))	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
395.0	Power Operated Equipment	1995	\$0	R3.0	18	21.75	121	R3.0121	0.12255	2.21	23.96	10.00%	-
380.0	Treatment & Disposal Equipment	1990	\$10,191	R3.0	45	26.75	59	R3.0059	0.4653	20.94	47.69	43.91%	4,475
380.0	Treatment & Disposal Equipment	1970	\$0	R3.0	45	46.75	104	R3.0104	0.18372	8.27	55.02	15.03%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1975	\$147,294	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	24,259
380.0	Treatment & Disposal Equipment	2003	\$40,300	R3.0	45	13.75	31	R3.0031	0.7038	31.67	45.42	69.73%	28,101
380.0	Treatment & Disposal Equipment	1985	\$0	R3.0	45	31.75	71	R3.0071	0.37545	16.90	48.65	34.74%	-
380.0	Treatment & Disposal Equipment	2015	\$15,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	14,417
380.0	Treatment & Disposal Equipment	1975	\$6,101	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	1,241
380.0	Treatment & Disposal Equipment	1975	\$6,101	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	1,241
380.0	Treatment & Disposal Equipment	1975	\$12,238	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	2,489
380.0	Treatment & Disposal Equipment	1975	\$12,238	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	2,489
380.0	Treatment & Disposal Equipment	1975	\$12,238	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	2,489
380.0	Treatment & Disposal Equipment	1975	\$0	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-
380.0	Treatment & Disposal Equipment	1975	\$0	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-
380.0	Treatment & Disposal Equipment	1975	\$0	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-
380.0	Treatment & Disposal Equipment	1975	\$20,457	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	4,161
380.0	Treatment & Disposal Equipment	2016	\$21,859	R3.0	45	0.75	2	R3.0002	0.98032	44.11	44.86	98.33%	21,494
390.3	EDP Equipment	2016	\$7,500	R3.0	8	0.75	9	R3.0009	0.91187	7.29	8.04	90.67%	6,800
380.0	Treatment & Disposal Equipment	1975	\$230,139	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	46,810
380.0	Treatment & Disposal Equipment	1975	\$9,133	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	1,858

(31)	(32)	(33)	(34)	& Depreciation	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016 75 (33)	(37)/(36)	Cols (35) & (38)	Iowa Lookup f(39)	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
380.0	Treatment & Disposal Equipment	1975	\$0	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-
380.0	Treatment & Disposal Equipment	1975	\$0	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-
380.0	Treatment & Disposal Equipment	1975	\$10,046	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	2,043
380.0	Treatment & Disposal Equipment	1975	\$10,046	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	2,043
380.0	Treatment & Disposal Equipment	1975	\$10,046	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	2,043
380.0	Treatment & Disposal Equipment	1975	\$0	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-
380.0	Treatment & Disposal Equipment	1975	\$0	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	2014	\$4,043,354	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	3,796,709
380.0	Treatment & Disposal Equipment	2015	\$975,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	937,073

(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75-(33)	(37)/(36)	Cols. (35) & (38)	Iowa Lookup ((39))	(36)*((40))	(37)+((41))	(41)/(42)	(34)*((43))
380.0	Treatment & Disposal Equipment	2015	\$0	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	-
380.0	Treatment & Disposal Equipment	2015	\$6,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	5,767
390.2	Office Equipment	2015	\$0	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	-
380.0	Treatment & Disposal Equipment	2015	\$452,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	434,417
380.0	Treatment & Disposal Equipment	2015	\$500,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	480,550
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	2014	\$378,778	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	355,673
380.0	Treatment & Disposal Equipment	2015	\$57,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	55,263
380.0	Treatment & Disposal Equipment	2015	\$57,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	55,263
380.0	Treatment & Disposal Equipment	2015	\$57,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	55,263
380.0	Treatment & Disposal Equipment	2015	\$57,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	55,263
380.0	Treatment & Disposal Equipment	2015	\$57,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	55,263
380.0	Treatment & Disposal Equipment	2015	\$6,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	5,767
380.0	Treatment & Disposal Equipment	2015	\$18,600	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	17,876
380.0	Treatment & Disposal Equipment	2015	\$154,675	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	148,658
380.0	Treatment & Disposal Equipment	2015	\$175,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	168,193
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	2014	\$227,300	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	213,435
380.0	Treatment & Disposal Equipment	2015	\$6,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	6,247
380.0	Treatment & Disposal Equipment	2015	\$10,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	9,611
380.0	Treatment & Disposal Equipment	2015	\$18,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	17,780
380.0	Treatment & Disposal Equipment	2015	\$12,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	11,533
380.0	Treatment & Disposal Equipment	2015	\$0	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	-
380.0	Treatment & Disposal Equipment	2015	\$35,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	33,639
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-

Depreciated Original Cost

(31)	(32)	(33)	(34)	&	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
		Depreciation											
Account	Account Description	Year	Original Cost	lowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	lowa Lookup	lowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75-(33)	(37)/(36)	Cols. (35) & (38)	lowa Lookup f((39))	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
354.4	Structures & Improvements - Treatment Plants	2014	\$575,000	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	539,925
380.0	Treatment & Disposal Equipment	2015	\$43,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	41,808
380.0	Treatment & Disposal Equipment	2015	\$43,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	41,808
380.0	Treatment & Disposal Equipment	2015	\$43,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	41,808
380.0	Treatment & Disposal Equipment	2015	\$43,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	41,808
380.0	Treatment & Disposal Equipment	2015	\$12,400	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	11,918
380.0	Treatment & Disposal Equipment	2015	\$160,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	153,776
380.0	Treatment & Disposal Equipment	2015	\$183,100	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	175,977
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1999	\$0	R4.0	45	17.75	39	R4.0039	0.61495	27.67	45.42	60.92%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1975	\$1,733,304	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	285,475
380.0	Treatment & Disposal Equipment	2013	\$21,542	R3.0	45	3.75	8	R3.0008	0.9216	41.47	45.22	91.71%	19,756
380.0	Treatment & Disposal Equipment	2013	\$21,542	R3.0	45	3.75	8	R3.0008	0.9216	41.47	45.22	91.71%	19,756
380.0	Treatment & Disposal Equipment	2003	\$0	R3.0	45	13.75	31	R3.0031	0.7038	31.67	45.42	69.73%	-
380.0	Treatment & Disposal Equipment	2015	\$20,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	19,222
380.0	Treatment & Disposal Equipment	2003	\$0	R3.0	45	13.75	31	R3.0031	0.7038	31.67	45.42	69.73%	-
380.0	Treatment & Disposal Equipment	2003	\$5,992	R3.0	45	13.75	31	R3.0031	0.7038	31.67	45.42	69.73%	4,178
380.0	Treatment & Disposal Equipment	2015	\$127,200	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	122,252
380.0	Treatment & Disposal Equipment	1975	\$1,922,449	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	391,026
380.0	Treatment & Disposal Equipment	2015	\$87,420	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	84,019
380.0	Treatment & Disposal Equipment	1975	\$302,268	R3.0	45	41.75	93	R3.0093	0.23696	10.66	52.41	20.34%	61,481
380.0	Treatment & Disposal Equipment	1999	\$530,970	R3.0	45	17.75	39	R3.0039	0.63205	28.44	46.19	61.57%	326,918
380.0	Treatment & Disposal Equipment	2007	\$98,988	R3.0	45	9.75	22	R3.0022	0.78729	35.43	45.18	78.42%	77,626
380.0	Treatment & Disposal Equipment	2007	\$98,988	R3.0	45	9.75	22	R3.0022	0.78729	35.43	45.18	78.42%	77,626

(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	lowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	lowa Lookup	lowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75-(33)	(37)/(36)	Cols (35) & (38)	lowa Lookup f(39)	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1975	\$393,386	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	64,791
380.0	Treatment & Disposal Equipment	2008	\$413,155	R3.0	45	8.75	19	R3.0019	0.81568	36.71	45.46	80.75%	333,623
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1975	\$395,941	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	65,211
380.0	Treatment & Disposal Equipment	2008	\$413,155	R3.0	45	8.75	19	R3.0019	0.81568	36.71	45.46	80.75%	333,623
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1975	\$335,807	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	55,307
364.0	Flow Measuring Devices	2011	\$0	R3.0	35	5.75	16	R3.0016	0.8443	29.55	35.30	83.71%	-
380.0	Treatment & Disposal Equipment	2015	\$28,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	27,391
380.0	Treatment & Disposal Equipment	2015	\$28,500	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	27,391
390.2	Office Equipment	1995	\$0	R3.0	12	21.75	181	R3.0181	0	0.00	21.75	10.00%	-
380.0	Treatment & Disposal Equipment	1960	\$18,880	R3.0	45	56.75	126	R3.0126	0.10823	4.87	61.62	10.00%	1,888
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$280,787	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	28,079
354.4	Structures & Improvements - Treatment Plants	2014	\$110,000	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	103,290
380.0	Treatment & Disposal Equipment	2015	\$51,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	49,016
380.0	Treatment & Disposal Equipment	2015	\$51,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	49,016
380.0	Treatment & Disposal Equipment	2015	\$51,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	49,016

Depreciated Original Cost

(31)	(32)	(33)	(34)	&	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016 75-(33)	(37)/(36)	Cols. (35) & (38)	Iowa Lookup f(39)	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
380.0	Treatment & Disposal Equipment	2015	\$51,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	49,016
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	2014	\$6,497,100	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	6,100,777
380.0	Treatment & Disposal Equipment	2015	\$2,698,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	2,593,048
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	2014	\$1,348,050	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	1,265,819
380.0	Treatment & Disposal Equipment	2015	\$1,047,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	1,006,272
380.0	Treatment & Disposal Equipment	2015	\$50,000	R3.0	45	1.75	4	R3.0004	0.96069	43.23	44.98	96.11%	48,055
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	2014	\$54,904	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	51,555
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	2014	\$54,904	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	51,555
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	2014	\$22,689	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	21,305
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
354.4	Structures & Improvements - Treatment Plants	2014	\$49,801	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	46,763
353.1	Land Improvements	1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-

(31)	(32)	(33)	(34)	&	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Iowa													
Account	Account Description	Year	Original Cost	Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75-(33)	(37)/(36)	Cols (35) & (38)	Iowa Lookup ((39))	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
353.1 Land Improvements		2014	\$93,936	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	88,206
353.1 Land Improvements		1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
353.1 Land Improvements		2014	\$140,410	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	131,845
353.1 Land Improvements		1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
353.1 Land Improvements		1960	\$0	R4.0	45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	-
353.1 Land Improvements		2014	\$24,718	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	23,210
353.1 Land Improvements		1975	\$0	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	-
353.1 Land Improvements		2000	\$11,577	R4.0	45	16.75	37	R4.0037	0.63414	28.54	45.29	63.02%	7,296
353.1 Land Improvements		2014	\$18,314	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	17,197
353.1 Land Improvements		2000	\$24,140	R4.0	45	16.75	37	R4.0037	0.63414	28.54	45.29	63.02%	15,213
353.1 Land Improvements		2014	\$98,730	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	92,707
353.1 Land Improvements		1975	\$0	R4.0	45	41.75	93	R4.0093	0.1829	8.23	49.98	16.47%	-
353.1 Land Improvements		2000	\$60,350	R4.0	45	16.75	37	R4.0037	0.63414	28.54	45.29	63.02%	38,033
353.1 Land Improvements		2014	\$14,831	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	13,926
353.1 Land Improvements		1990	\$11,362	R4.0	45	26.75	59	R4.0059	0.43225	19.45	46.20	42.10%	4,783
353.1 Land Improvements		2014	\$0	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	-
354.4 Structures & Improvements - Treatment Plants		1965	\$0	R4.0	45	51.75	115	R4.0115	0.09103	4.10	55.85	10.00%	-
354.4 Structures & Improvements - Treatment Plants		1965	\$0	R4.0	45	51.75	115	R4.0115	0.09103	4.10	55.85	10.00%	-
354.4 Structures & Improvements - Treatment Plants		2011	\$330,000	R4.0	45	5.75	13	R4.0013	0.87027	39.16	44.91	87.20%	287,760
354.4 Structures & Improvements - Treatment Plants		2014	\$5,500	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	5,165
393.0 Tools, Shop, & Garage Equipment		1980	\$0	R3.0	25	36.75	147	R3.0147	0.05355	1.34	38.09	10.00%	-
380.0 Treatment & Disposal Equipment		1965	\$0	R3.0	45	51.75	115	R3.0115	0.14158	6.37	58.12	10.96%	-
390.1 Furniture		1980	\$0	R3.0	22	36.75	167	R3.0167	0.00641	0.14	36.89	10.00%	-
380.0 Treatment & Disposal Equipment		2006	\$0	R3.0	45	10.75	24	R3.0024	0.76851	34.58	45.33	76.29%	-
380.0 Treatment & Disposal Equipment		2006	\$7,252	R3.0	45	10.75	24	R3.0024	0.76851	34.58	45.33	76.29%	5,533
380.0 Treatment & Disposal Equipment		1995	\$0	R3.0	45	21.75	48	R3.0048	0.55461	24.96	46.71	53.44%	-
380.0 Treatment & Disposal Equipment		2002	\$11,636	R3.0	45	14.75	33	R3.0033	0.68563	30.85	45.60	67.65%	7,872
390.1 Furniture		1980	\$0	R3.0	22	36.75	167	R3.0167	0.00641	0.14	36.89	10.00%	-
380.0 Treatment & Disposal Equipment		2012	\$6,665	R3.0	45	4.75	11	R3.0011	0.89247	40.16	44.91	89.42%	5,960
390.3 EDP Equipment		2013	\$0	R3.0	8	3.75	47	R3.0047	0.56303	4.50	8.25	54.55%	-
394.0 Laboratory Equipment		1995	\$7,268	R3.0	25	21.75	87	R3.0087	0.27078	6.77	28.52	23.74%	1,725
394.0 Laboratory Equipment		2010	\$11,162	R3.0	25	6.75	27	R3.0027	0.74058	18.51	25.26	73.28%	8,180
380.0 Treatment & Disposal Equipment		2010	\$8,558	R3.0	45	6.75	15	R3.0015	0.85389	38.43	45.18	85.06%	7,279
353.1 Land Improvements		1965	\$0	R4.0	45	51.75	115	R4.0115	0.09103	4.10	55.85	10.00%	-
353.1 Land Improvements		1965	\$0	R4.0	45	51.75	115	R4.0115	0.09103	4.10	55.85	10.00%	-
353.1 Land Improvements		1965	\$0	R4.0	45	51.75	115	R4.0115	0.09103	4.10	55.85	10.00%	-

Depreciated Original Cost

(31)	(32)	(33)	(34)	&	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75 (33)	{37}/(36)	Cols (35) & (38)	Iowa Lookup f(39)	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
354.4	Structures & Improvements - Treatment Plants	1963	\$0	R4.0	45	53.75	119	R4.0119	0.07948	3.58	57.33	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1963	\$0	R4.0	45	53.75	119	R4.0119	0.07948	3.58	57.33	10.00%	-
354.4	Structures & Improvements - Treatment Plants	2010	\$3,800,000	R4.0	45	6.75	15	R4.0015	0.85036	38.27	45.02	85.01%	3,230,380
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
390.1	Furniture	1963	\$0	R3.0	22	53.75	244	R3.0244	0	0.00	53.75	10.00%	-
380.0	Treatment & Disposal Equipment	2014	\$6,911	R3.0	45	2.75	6	R3.0006	0.94112	42.35	45.10	93.90%	6,489
390.1	Furniture	1963	\$0	R3.0	22	53.75	244	R3.0244	0	0.00	53.75	10.00%	-
390.3	EDP Equipment	2013	\$0	R3.0	8	3.75	47	R3.0047	0.56303	4.50	8.25	54.55%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
355.0	Power Generating Equipment	1963	\$0	R3.0	35	53.75	154	R3.0154	0.03593	1.26	55.01	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
390.2	Office Equipment	1963	\$0	R3.0	12	53.75	448	R3.0448	0	0.00	53.75	10.00%	-
394.0	Laboratory Equipment	1963	\$0	R3.0	25	53.75	215	R3.0215	0	0.00	53.75	10.00%	-

(31)	(32)	(33)	(34)	&	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75 (33)	(37)/(36)	Cols. (35) & (38)	Iowa Lookup f((39))	(36)*(40)	(37)*(41)	(41)/(42)	(34)*(43)
390.1	Furniture	1963	\$0	R3.0	22	53.75	244	R3.0244	0	0.00	53.75	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
390.2	Office Equipment	1963	\$0	R3.0	12	53.75	448	R3.0448	0	0.00	53.75	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1963	\$0	R4.0	45	53.75	119	R4.0119	0.07948	3.58	57.33	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1963	\$0	R4.0	45	53.75	119	R4.0119	0.07948	3.58	57.33	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1963	\$0	R4.0	45	53.75	119	R4.0119	0.07948	3.58	57.33	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1963	\$0	R4.0	45	53.75	119	R4.0119	0.07948	3.58	57.33	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1963	\$0	R4.0	45	53.75	119	R4.0119	0.07948	3.58	57.33	10.00%	-
354.4	Structures & Improvements - Treatment Plants	1963	\$0	R4.0	45	53.75	119	R4.0119	0.07948	3.58	57.33	10.00%	-
380.0	Treatment & Disposal Equipment	1963	\$0	R3.0	45	53.75	119	R3.0119	0.12864	5.79	59.54	10.00%	-

Depreciated Original Cost

(31)	(32)	(33)	(34)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	
Depreciation													
Account	Account Description	Year	Original Cost	lowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	lowa Lookup	lowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75-(33)	(37)/(36)	Col. (35) & (38)	lowa Lookup f((39))	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
380.0	Treatment & Disposal Equipment	1963	\$0 R3.0		45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	
380.0	Treatment & Disposal Equipment	1963	\$0 R3.0		45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	
380.0	Treatment & Disposal Equipment	1963	\$0 R3.0		45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	
380.0	Treatment & Disposal Equipment	1963	\$0 R3.0		45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	
380.0	Treatment & Disposal Equipment	1963	\$0 R3.0		45	53.75	119 R3.0119	0.12864	5.79	59.54	10.00%	-	
353.1	Land Improvements	1963	\$0 R4.0		45	53.75	119 R4.0119	0.07948	3.58	57.33	10.00%	-	
353.1	Land Improvements	1963	\$0 R4.0		45	53.75	119 R4.0119	0.07948	3.58	57.33	10.00%	-	
354.3	Structures & Improvements - Pump Stations	1960	\$0 R4.0		45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	
354.3	Structures & Improvements - Pump Stations	1960	\$0 R4.0		45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	
354.3	Structures & Improvements - Pump Stations	1960	\$83,533 R4.0		45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	8,353	
354.3	Structures & Improvements - Pump Stations	2014	\$68,849 R4.0		45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	64,649	
371.0	Pumping Equipment	2012	\$14,282 R3.0		35	4.75	14 R3.0014	0.8635	30.22	34.97	86.42%	12,343	
364.0	Flow Measuring Devices	2015	\$14,500 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	13,775	
371.0	Pumping Equipment	2015	\$121,000 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	114,950	
371.0	Pumping Equipment	2015	\$130,000 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	123,500	
371.0	Pumping Equipment	2015	\$211,000 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	200,450	
371.0	Pumping Equipment	2015	\$7,200 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	6,840	
396.2	SCADA Systems	2015	\$86,500 R3.0		12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	73,888	
371.0	Pumping Equipment	2015	\$0 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	-	
353.1	Land Improvements	1960	\$0 R4.0		45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	
353.1	Land Improvements	1960	\$0 R4.0		45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	
353.1	Land Improvements	2014	\$0 R4.0		45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	-	
353.1	Land Improvements	2014	\$0 R4.0		45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	-	
355.0	Power Generating Equipment	2015	\$74,000 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	70,300	
396.1	Communications Equipment	2012	\$0 R3.0		12	4.75	40 R3.0040	0.62327	7.48	12.23	61.16%	-	
354.3	Structures & Improvements - Pump Stations	1960	\$0 R4.0		45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	
354.3	Structures & Improvements - Pump Stations	1960	\$0 R4.0		45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	
354.3	Structures & Improvements - Pump Stations	1960	\$51,484 R4.0		45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	5,148	
354.3	Structures & Improvements - Pump Stations	2014	\$37,203 R4.0		45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	34,934	
371.0	Pumping Equipment	2015	\$15,000 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	14,250	
371.0	Pumping Equipment	2015	\$155,000 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	147,250	
364.0	Flow Measuring Devices	2015	\$14,500 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	13,775	
371.0	Pumping Equipment	2015	\$130,000 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	123,500	
371.0	Pumping Equipment	2015	\$259,000 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	246,050	

(31)	(32)	(33)	(34)	&	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75-(33)	(37)/(36)	Cols. (35) & (38)	Iowa Lookup f((39))	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
371.0 Pumping Equipment		2015	\$7,200 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	6,840	
371.0 Pumping Equipment		2015	\$0 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	-	
396.2 SCADA Systems		2015	\$86,500 R3.0		12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	73,888	
390.2 Office Equipment		2012	\$0 R3.0		12	4.75	40 R3.0040	0.62327	7.48	12.23	61.16%	-	
353.1 Land Improvements		1960	\$0 R4.0		45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	
353.1 Land Improvements		2014	\$10,036 R4.0		45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	9,424	
353.1 Land Improvements		1960	\$0 R4.0		45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	
353.1 Land Improvements		2014	\$5,438 R4.0		45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	5,106	
353.1 Land Improvements		1960	\$0 R4.0		45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	-	
353.1 Land Improvements		2014	\$0 R4.0		45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	-	
353.1 Land Improvements		2014	\$0 R4.0		45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	-	
355.0 Power Generating Equipment		2015	\$104,000 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	98,800	
396.1 Communications Equipment		2015	\$0 R3.0		12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	-	
354.3 Structures & Improvements - Pump Stations		2016	\$0 R4.0		45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%	-	
354.3 Structures & Improvements - Pump Stations		2016	\$0 R4.0		45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%	-	
354.3 Structures & Improvements - Pump Stations		1960	\$31,290 R4.0		45	56.75	126 R4.0126	0.06056	2.73	59.48	10.00%	3,129	
354.3 Structures & Improvements - Pump Stations		2014	\$2,492,500 R4.0		45	2.75	6 R4.0006	0.94008	42.30	45.05	93.90%	2,340,458	
371.0 Pumping Equipment		2015	\$457,000 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	434,150	
371.0 Pumping Equipment		2015	\$31,200 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	29,640	
371.0 Pumping Equipment		2015	\$0 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	-	
371.0 Pumping Equipment		2015	\$0 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	-	
371.0 Pumping Equipment		2015	\$14,500 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	13,775	
371.0 Pumping Equipment		2012	\$212,794 R3.0		35	4.75	14 R3.0014	0.8635	30.22	34.97	86.42%	183,897	
371.0 Pumping Equipment		2015	\$38,600 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	36,670	
371.0 Pumping Equipment		2015	\$8,200 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	7,790	
354.3 Structures & Improvements - Pump Stations		2016	\$0 R4.0		45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%	-	
354.3 Structures & Improvements - Pump Stations		2016	\$0 R4.0		45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%	-	
354.3 Structures & Improvements - Pump Stations		1968	\$61,843 R4.0		45	48.75	108 R4.0108	0.11375	5.12	53.87	10.00%	6,184	
355.0 Power Generating Equipment		2015	\$152,500 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	144,875	
396.2 SCADA Systems		2015	\$86,500 R3.0		12	1.75	15 R3.0015	0.85389	10.25	12.00	85.42%	73,888	
371.0 Pumping Equipment		2015	\$373,000 R3.0		35	1.75	5 R3.0005	0.9509	33.28	35.03	95.00%	354,350	
353.1 Land Improvements		2016	\$0 R4.0		45	0.75	2 R4.0002	0.98002	44.10	44.85	98.33%	-	
353.1 Land Improvements		2015	\$10,500 R4.0		45	1.75	4 R4.0004	0.96005	43.20	44.95	96.11%	10,092	

Depreciated Original Cost

(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	lowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	lowa Lookup	lowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75 (33)	(37)/(36)	Cols. (35) & (38)	lowa Lookup f((39))	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
353.1 Land Improvements		2015	\$0 R4.0		45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	-
353.1 Land Improvements		2015	\$0 R4.0		45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	-
353.1 Land Improvements		2015	\$8,500 R4.0		45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	8,169
353.1 Land Improvements		2015	\$7,000 R4.0		45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	6,728
354.3 Structures & Improvements - Pump Stations		2006	\$0 R4.0		45	10.75	24	R4.0024	0.76111	34.25	45.00	76.11%	-
354.3 Structures & Improvements - Pump Stations		2006	\$0 R4.0		45	10.75	24	R4.0024	0.76111	34.25	45.00	76.11%	-
354.3 Structures & Improvements - Pump Stations		1960	\$9,740 R4.0		45	56.75	126	R4.0126	0.06056	2.73	59.48	10.00%	974
354.3 Structures & Improvements - Pump Stations		2005	\$34,000 R4.0		45	11.75	26	R4.0026	0.74138	33.36	45.11	73.95%	25,143
354.3 Structures & Improvements - Pump Stations		2004	\$148,000 R4.0		45	12.75	28	R4.0028	0.72172	32.48	45.23	71.81%	106,279
371.0 Pumping Equipment		2004	\$55,263 R3.0		35	12.75	36	R3.0036	0.65866	23.05	35.80	64.39%	35,584
371.0 Pumping Equipment		2004	\$0 R3.0		35	12.75	36	R3.0036	0.65866	23.05	35.80	64.39%	-
355.0 Power Generating Equipment		2004	\$26,215 R3.0		35	12.75	36	R3.0036	0.65866	23.05	35.80	64.39%	16,880
354.3 Structures & Improvements - Pump Stations		2006	\$0 R4.0		45	10.75	24	R4.0024	0.76111	34.25	45.00	76.11%	-
354.3 Structures & Improvements - Pump Stations		2006	\$0 R4.0		45	10.75	24	R4.0024	0.76111	34.25	45.00	76.11%	-
371.0 Pumping Equipment		2006	\$27,591 R3.0		35	10.75	31	R3.0031	0.7038	24.63	35.38	69.62%	19,209
371.0 Pumping Equipment		2016	\$9,840 R3.0		35	0.75	2	R3.0002	0.98032	34.31	35.06	97.86%	9,629
354.3 Structures & Improvements - Pump Stations		2015	\$0 R4.0		45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	-
354.3 Structures & Improvements - Pump Stations		2015	\$0 R4.0		45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	-
354.3 Structures & Improvements - Pump Stations		2014	\$5,046,922 R4.0		45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	4,739,060
371.0 Pumping Equipment		2015	\$20,000 R3.0		35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	19,000
371.0 Pumping Equipment		2015	\$0 R3.0		35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	-
371.0 Pumping Equipment		2015	\$390,000 R3.0		35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	370,500
371.0 Pumping Equipment		2012	\$382,744 R3.0		35	4.75	14	R3.0014	0.8635	30.22	34.97	86.42%	330,767
371.0 Pumping Equipment		2012	\$428,445 R3.0		35	4.75	14	R3.0014	0.8635	30.22	34.97	86.42%	370,262
371.0 Pumping Equipment		2015	\$350,000 R3.0		35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	332,500
371.0 Pumping Equipment		2015	\$6,300 R3.0		35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	5,985
371.0 Pumping Equipment		2015	\$10,300 R3.0		35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	9,785
396.2 SCADA Systems		2015	\$86,500 R3.0		12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	73,888
354.3 Structures & Improvements - Pump Stations		2015	\$0 R4.0		45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	-

(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75-(33)	(37)/(36)	Cols. (35) & (38)	Iowa Lookup ((39))	(36)*(40)	(37)*(41)	(41)/(42)	(34)*(43)
354.3	Structures & Improvements - Pump Stations	2015	\$0	R4.0	45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	-
354.3	Structures & Improvements - Pump Stations	2014	\$79,528	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	74,677
371.0	Pumping Equipment	2015	\$26,000	R3.0	35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	24,700
371.0	Pumping Equipment	2015	\$21,000	R3.0	35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	19,950
353.1	Land Improvements	2015	\$0	R4.0	45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	-
353.1	Land Improvements	2014	\$23,880	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	22,423
353.1	Land Improvements	2014	\$0	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	-
353.1	Land Improvements	2014	\$11,107	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	10,429
353.1	Land Improvements	2014	\$0	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	-
353.1	Land Improvements	2014	\$0	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	-
355.0	Power Generating Equipment	2012	\$380,840	R3.0	35	4.75	14	R3.0014	0.8635	30.22	34.97	86.42%	329,122
354.3	Structures & Improvements - Pump Stations	2013	\$0	R4.0	45	3.75	8	R4.0008	0.92012	41.41	45.16	91.70%	-
354.3	Structures & Improvements - Pump Stations	2013	\$0	R4.0	45	3.75	8	R4.0008	0.92012	41.41	45.16	91.70%	-
354.3	Structures & Improvements - Pump Stations	2013	\$93,416	R4.0	45	3.75	8	R4.0008	0.92012	41.41	45.16	91.70%	85,662
371.0	Pumping Equipment	2013	\$255,963	R3.0	35	3.75	11	R3.0011	0.89247	31.24	34.99	89.28%	228,524
354.3	Structures & Improvements - Pump Stations	2015	\$0	R4.0	45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	-
354.3	Structures & Improvements - Pump Stations	2015	\$0	R4.0	45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	-
354.3	Structures & Improvements - Pump Stations	2014	\$1,001,446	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	940,358
371.0	Pumping Equipment	2015	\$22,000	R3.0	35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	20,900
371.0	Pumping Equipment	2015	\$77,000	R3.0	35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	73,150
364.0	Flow Measuring Devices	2015	\$10,000	R3.0	35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	9,500
371.0	Pumping Equipment	2015	\$155,600	R3.0	35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	147,820
396.1	Communications Equipment	2011	\$0	R3.0	12	5.75	48	R3.0048	0.55461	6.66	12.41	53.67%	-
371.0	Pumping Equipment	2011	\$84,925	R3.0	35	5.75	16	R3.0016	0.8443	29.55	35.30	83.71%	71,091
354.3	Structures & Improvements - Pump Stations	2015	\$0	R4.0	45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	-
354.3	Structures & Improvements - Pump Stations	2015	\$0	R4.0	45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	-
354.3	Structures & Improvements - Pump Stations	2014	\$375,850	R4.0	45	2.75	6	R4.0006	0.94008	42.30	45.05	93.90%	352,923
355.0	Power Generating Equipment	2015	\$82,500	R3.0	35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	78,375
396.2	SCADA Systems	2015	\$86,500	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	73,888
371.0	Pumping Equipment	2015	\$112,500	R3.0	35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	106,875
353.1	Land Improvements	2015	\$0	R4.0	45	1.75	4	R4.0004	0.96005	43.20	44.95	96.11%	-
353.1	Land Improvements	2013	\$16,316	R4.0	45	3.75	8	R4.0008	0.92012	41.41	45.16	91.70%	14,962

Depreciated Original Cost

(31)	(32)	(33)	(34)	&	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Depreciation													
Account	Account Description	Year	Original Cost	lowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	lowa Lookup	lowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016 75-(33)	(37)/(36)	Cols (35) & (38)	lowa Lookup f((39))	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
371.0	Pumping Equipment	1991	\$14,268	R3.0	35	25.75	74	R3.0074	0.35439	12.40	38.15	32.50%	4,637
355.0	Power Generating Equipment	1991	\$12,971	R3.0	35	25.75	74	R3.0074	0.35439	12.40	38.15	32.50%	4,216
371.0	Pumping Equipment	1991	\$5,765	R3.0	35	25.75	74	R3.0074	0.35439	12.40	38.15	32.50%	1,874
354.3	Structures & Improvements - Pump Stations	1970	\$0	R4.0	45	46.75	104	R4.0104	0.12895	5.80	52.55	11.04%	-
354.3	Structures & Improvements - Pump Stations	1970	\$0	R4.0	45	46.75	104	R4.0104	0.12895	5.80	52.55	11.04%	-
354.3	Structures & Improvements - Pump Stations	1970	\$6,521	R4.0	45	46.75	104	R4.0104	0.12895	5.80	52.55	11.04%	720
354.3	Structures & Improvements - Pump Stations	1995	\$0	R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%	-
354.3	Structures & Improvements - Pump Stations	1995	\$0	R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%	-
354.3	Structures & Improvements - Pump Stations	1995	\$40,788	R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%	21,340
371.0	Pumping Equipment	2002	\$14,891	R3.0	35	14.75	42	R3.0042	0.60583	21.20	35.95	58.97%	8,781
371.0	Pumping Equipment	2002	\$7,342	R3.0	35	14.75	42	R3.0042	0.60583	21.20	35.95	58.97%	4,330
354.3	Structures & Improvements - Pump Stations	1995	\$0	R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%	-
354.3	Structures & Improvements - Pump Stations	1995	\$0	R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%	-
354.3	Structures & Improvements - Pump Stations	1995	\$19,209	R4.0	45	21.75	48	R4.0048	0.53035	23.87	45.62	52.32%	10,050
355.0	Power Generating Equipment	2002	\$13,159	R3.0	35	14.75	42	R3.0042	0.60583	21.20	35.95	58.97%	7,760
396.2	SCADA Systems	2002	\$0	R3.0	12	14.75	123	R3.0123	0.11668	1.40	16.15	10.00%	-
361.0	Collection Sewers - Gravity	2016	\$10,989	R4.0	75	0.75	1	R4.0001	0.99001	74.25	75.00	99.00%	10,879
361.0	Collection Sewers - Gravity	2007	\$2,820,000	R4.0	75	9.75	13	R4.0013	0.87027	65.27	75.02	87.00%	2,453,400
354.3	Structures & Improvements - Pump Stations	1955	-\$55,194	R4.0	45	61.75	137	R4.0137	0.03332	1.50	63.25	10.00%	(5,519)
364.0	Flow Measuring Devices	2016	\$29,451	R3.0	35	0.75	2	R3.0002	0.98032	34.31	35.06	97.86%	28,821
364.0	Flow Measuring Devices	2013	\$160,432	R3.0	35	3.75	11	R3.0011	0.89247	31.24	34.99	89.28%	143,234
371.0	Pumping Equipment	2015	\$0	R3.0	35	1.75	5	R3.0005	0.9509	33.28	35.03	95.00%	-
395.0	Power Operated Equipment	1987	\$13,871	R3.0	18	29.75	165	R3.0165	0.01039	0.19	29.94	10.00%	1,387
391.0	Transportation Equipment	2003	\$20,846	R3.0	12	13.75	115	R3.0115	0.14158	1.70	15.45	11.00%	2,293
391.0	Transportation Equipment	2004	\$22,675	R3.0	12	12.75	106	R3.0106	0.17527	2.10	14.85	14.14%	3,206
395.0	Power Operated Equipment	2009	\$46,982	R3.0	18	7.75	43	R3.0043	0.59718	10.75	18.50	58.11%	27,301

(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
		Depreciation											
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016-75-(33)	(37)/(36)	Cols (35) & (38)	Iowa Lookup f(39)	(36)*(40)	(37)*(41)	(41)/(42)	(34)*(43)
391.0	Transportation Equipment	2009	\$20,081	R3.0	12	7.75	65	R3.0065	0.41931	5.03	12.78	39.36%	7,904
391.0	Transportation Equipment	2007	\$126,140	R3.0	12	9.75	81	R3.0081	0.30773	3.69	13.44	27.46%	34,638
391.0	Transportation Equipment	2010	\$7,500	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	3,488
395.0	Power Operated Equipment	2010	\$356,691	R3.0	18	6.75	38	R3.0038	0.64088	11.54	18.29	63.09%	225,036
391.0	Transportation Equipment	2010	\$7,000	R3.0	12	6.75	56	R3.0056	0.48904	5.87	12.62	46.51%	3,256
395.0	Power Operated Equipment	2011	\$7,000	R3.0	18	5.75	32	R3.0032	0.69469	12.50	18.25	68.49%	4,794
395.0	Power Operated Equipment	2011	\$40,000	R3.0	18	5.75	32	R3.0032	0.69469	12.50	18.25	68.49%	27,396
391.0	Transportation Equipment	2011	\$9,700	R3.0	12	5.75	48	R3.0048	0.55461	6.66	12.41	53.67%	5,206
391.0	Transportation Equipment	2011	\$9,500	R3.0	12	5.75	48	R3.0048	0.55461	6.66	12.41	53.67%	5,099
395.0	Power Operated Equipment	2012	\$88,636	R3.0	18	4.75	26	R3.0026	0.74986	13.50	18.25	73.97%	65,564
395.0	Power Operated Equipment	2012	\$73,193	R3.0	18	4.75	26	R3.0026	0.74986	13.50	18.25	73.97%	54,141
395.0	Power Operated Equipment	2012	\$0	R3.0	18	4.75	26	R3.0026	0.74986	13.50	18.25	73.97%	-
391.0	Transportation Equipment	2012	\$34,995	R3.0	12	4.75	40	R3.0040	0.62327	7.48	12.23	61.16%	21,403
391.0	Transportation Equipment	2013	\$18,502	R3.0	12	3.75	31	R3.0031	0.7038	8.45	12.20	69.26%	12,814

(31)	(32)	(33)	(34)	& Depreciation	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
Account	Account Description	Year	Original Cost	Iowa Survival / Retirement Curve	Service Life	Age	Age as % of Service Life	Iowa Lookup	Iowa Condition	Remaining Life Expectancy	Total Life	Condition Percent	Original Cost less Depreciation
AUS Input	AUS Input	Municipal Records	Municipal Records	Account Parameters	Account Parameters	2016.75-(33)	(37)/(36)	Cols. (35) & (38)	Iowa Lookup f((39))	(36)*(40)	(37)+(41)	(41)/(42)	(34)*(43)
391.0	Transportation Equipment	2014	\$23,917	R3.0	12	2.75	23	R3.0023	0.77789	9.33	12.08	77.24%	18,473
391.0	Transportation Equipment	2014	\$414,614	R3.0	12	2.75	23	R3.0023	0.77789	9.33	12.08	77.24%	320,248
391.0	Transportation Equipment	2015	\$32,443	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	27,713
391.0	Transportation Equipment	2008	\$9,995	R3.0	12	8.75	73	R3.0073	0.36135	4.34	13.09	33.16%	3,314
391.0	Transportation Equipment	2016	\$32,733	R3.0	12	0.75	6	R3.0006	0.94112	11.29	12.04	93.77%	30,694
391.0	Transportation Equipment	2015	\$32,443	R3.0	12	1.75	15	R3.0015	0.85389	10.25	12.00	85.42%	27,713
			\$61,374,789										\$50,472,921

**The City of McKeesport, Pennsylvania
And
The Municipal Authority of the City McKeesport**

**Appraisal Work Papers
As of September 2016**

**Cost Approach
Cost Indices**

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**Cost Approach
Handy Whitman Index of Public Utility Construction Costs
Water Industry – Northeastern United States**

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Cost Trends Of

**Water Utility
Construction**

**COST TREND TABLES
1912 to July 1, 2016**

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COST TRENDS OF ELECTRIC UTILITY CONSTRUCTION

Cost Trend Tables - 1912 to July 1, 2916		
North Atlantic Region	E-1	E-1-1
South Atlantic Region	E-2	E-2-1
North Central Region	E-3	E-3-1
South Central Region	E-4	E-4-1
Plateau Region	E-5	E-5-1
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COST TRENDS OF GAS UTILITY CONSTRUCTION

Cost Trend Tables - 1912 to July 1, 2916		
North Atlantic Region	G-1	G-1-1
South Atlantic Region	G-2	G-2-1
North Central Region	G-3	G-3-1
South Central Region	G-4	G-4-1
Plateau Region	G-5	G-5-1
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COST TRENDS OF WATER UTILITY CONSTRUCTION

Cost Trend Tables - 1912 to July 1, 2916		
North Atlantic Region	W-1	W-1-1
South Atlantic Region	W-2	W-2-1
North Central Region	W-3	W-3-1
South Central Region	W-4	W-4-1
Plateau Region	W-5	W-5-1
Pacific Region	W-6	W-6-1

TRENDS OF PUBLIC UTILITY CONSTRUCTION COSTS

GEOGRAPHIC REGIONS



Tradition of Quality

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

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

Whitman, Requardt and Associates, LLP

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

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

Tradition of Quality Continued

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

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

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

Methods of Preparation of Indexes

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

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

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

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

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

NORTH ATLANTIC REGION (1973=100)

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

W-1

COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

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

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

**COST TRENDS OF WATER UTILITY CONSTRUCTION
NORTH ATLANTIC REGION (1973=100)**

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

COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

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

BULLETIN NO. 185

1912 to January 1, 2017

THE
HANDY WHITMAN INDEX
OF
Public Utility
Construction Costs.

TRENDS OF
CONSTRUCTION COSTS

Preliminaries

Compiled and Published by

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HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 185

WATER INDEXES 1/1/17

LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
2	512	448	523	447	484	518
8	672	558	640	549	625	669
9	1075	1075	1075	1075	1075	1075
15	672	558	640	549	625	669
16	774	683	740	688	700	790
17	881	806	856	815	825	901
23	784	784	784	784	784	784
24	1161	1161	1161	1161	1161	1161
27	793	752	779	764	773	815
28	723	653	694	678	667	724
29	601	540	580	545	552	603
34	774	705	740	686	701	761
35	832	800	825	778	792	831
36	751	609	664	591	617	644
37	697	592	652	591	603	701
38	387	337	369	335	341	377
39	638	494	584	507	509	622
40	404	404	404	404	404	404
41	722	584	673	597	609	713
42	980	919	945	928	927	1003
46	2198	173	2193	2217	2193	2253
47	1302	1199	1287	1321	1254	1317
48	772	628	730	663	706	816

**The City of McKeesport, Pennsylvania
And
The Municipal Authority of the City McKeesport**

**Appraisal Work Papers
As of September 2016**

**Cost Approach
AUS Consultants Index of General Plant Costs
Northeastern United States**

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AUS Telephone Plant Index

Cost Trend Tables from 1946 to January 1, 2017

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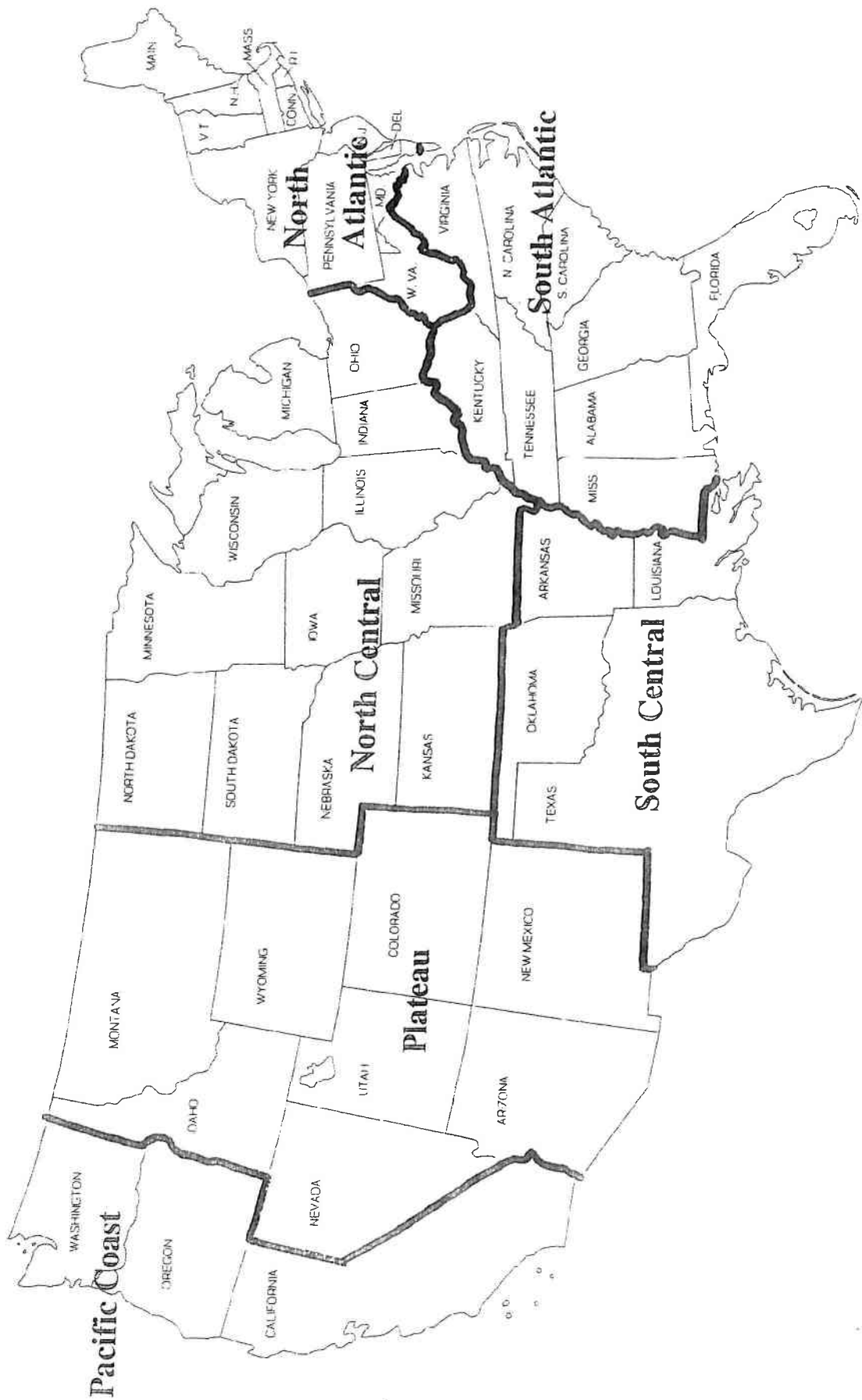
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Telephone Plant Index

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iv.

FOREWORD

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

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

Telephone Plant Index Description

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

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

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

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

Index History

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

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

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

Index Design

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

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

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

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

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

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

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

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

Index Functions

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

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

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

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

North Atlantic