EXHIBIT R

FAIR MARKET VALUE APPRAISAL
AUS CONSULTANTS, INC.

Jerome C. Weinert
Principal & Director

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

June 30, 2019

Mr. David Crist
Finance Director
East Norriton Township PA
2501 Standbridge Street
East Norriton, PA

RE: East Norriton Sanitary Wastewater Collection System Fair Market Value Appraisal

Dear Mr. Crist:

Enclosed is AUS Consultants' fair market value appraisal report for East Norriton Township's sanitary wastewater collection system as of October 29, 2018 prepared for East Norriton Township. The report was prepared based on the 2018-2019 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated Statues (PA CS) Paragraph 1329 "Valuation of acquired water and wastewater systems", collectively referred to as Act 12 of the 2016 Pennsylvania legislative session (Act 12). The intended users of this appraisal are East Norriton Township, Pennsylvania and the Pennsylvania Public Utility Commission.

Based on our appraisal the Fair Market Value of East Norriton Township's sanitary wastewater collection system's property, plant, and equipment operating as Pennsylvania rate regulated wastewater utility is $25,064,594 determined based on the cost, income, and market approaches to value, as detailed in the following table:

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Fair Market Value Appraisal

Appraisal Approach		Investor-owned Utility	Weight	Wtd Valuation Indications
Cost Approach				
Financials' Net Book (12-31-2016)				
Gross Book		8,545,000	2017	
Accumulated Depreciatiomn		(7,110,000)	2017	
Net Book		1,435,000	2017	
Inventory of Assets (10-29-2018)				
Original Cost ($OC)		16,246,828		
Depreciated Original Cost ($OCLD)		8,407,007		
Replacement Cost (10-29-2018)				
Replacement Cost New (COR)		70,770,233		
Depreciated Replacement Cost New (CORLD)	$	**27,461,356**		
Cost Approach Conclusion		**27,461,356**	**50%**	**13,730,678**
Income Approach				
Required Rate Increases: 15% period 3; 12% period 6; 10% period 9; 6% period 12; 6% period 15; 6% period 18 (Input 6)		21,729,647		
Income Approach Conclusion		**21,729,647**	**40%**	**8,691,859**
Market Approach				
Market Comparables (to)				
OCLD		15,275,532		
CORLD		26,420,570		
Market Financials (to)				
OCLD		15,973,314		
Market Approach Conclusion		**26,420,570**	**10%**	**2,642,057**
Appraisal Conclusion	$	**25,064,594**	**100%**	**25,064,594**
Conclusion (cost approach)	$	**27,461,356**		

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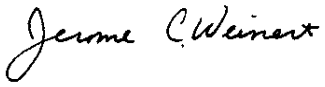
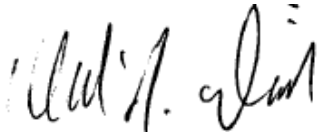
As the purpose of this appraisal was to fulfill the requirements of Act 12 in the establishment of value for rate making of East Norriton's sanitary wastewater collection system's property, plant and equipment the appraisal's conclusion of $25,064,594 is consistent with the purpose of this appraisal. As the cost approach work papers details our value conclusion by National Association of Regulatory Utility Commissioners' (NARUC) Uniform System of Accounts (USOA) for the wastewater industry account classifications and the installation year of the property this detail it can be used to allocate the appraisal conclusion to establish the booked value for future accounting and rate making.

Respectfully Submitted,
AUS Consultants, Depreciation & Valuation
By:

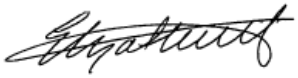


Jerome C. Weinert, AM, P.E., CDP
Principal and Director

David A. Sheffer
Principal



Michael J. Diedrich, ASA, P.E., CDP
Certified General Appraiser
Principal



Elizabeth A. Weinert
Associate

June 30, 2019

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

Enclosures

AUS CONSULTANTS

East Norriton Township's (Pennsylvania) Sanitary Wastewater Collection System

Fair Market Value Appraisal Report
As of October 29, 2018
for
East Norriton Township, Pennsylvania

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

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East Norriton Township, Pennsylvania
East Norriton, Pennsylvania

AUS Consultants
Depreciation and Valuation
8555 West Forest Home Avenue
Suite 201
Greenfield, WI 53228
Telephone 414-529-5755
Fax 414-529-5750
Cell 414-698-8371
E-Mail weinertj@auswest.net

RE: Fair Market Value Appraisal of East Norriton Township's (Pennsylvania) Sanitary Wastewater Collection System

Enclosed is AUS Consultant's fair market value appraisal report of East Norriton Township's (Pennsylvania) sanitary wastewater collection system as of October 29, 2018 prepared for our client East Norriton Township, Pennsylvania. The report was prepared based on the 2018-2019 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated (PA CS) Statues Section 1329 "Valuation of acquired water and wastewater systems", collectively referred to as Act 12 of the 2016 Pennsylvania legislative session (Act 12). The intended users of this appraisal are East Norriton Township, Pennsylvania and the Pennsylvania Public Utility Commission.

Based on our appraisal, the Fair Market Value of the East Norriton Township's sanitary wastewater collection system's property, plant, and equipment operating as Pennsylvania rate regulated wastewater utility is $25,064,594 determined based on the cost, income, and market approaches to value, as detailed in the following table:

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East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Fair Market Value Appraisal

Appraisal Approach		Investor-owned Utility	Weight	Wtd Valuation Indications
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Conclusion (cost approach)	**$**	**27,461,356**		

AUS CONSULTANTS

As the purpose of this appraisal was to fulfill the requirements of Section 1329 of the PA CS in the establishment of value for rate making of East Norriton Township's wastewater collection system property, plant and equipment this appraisal's conclusion of $25,064,594 is consistent with the purpose of the appraisal. As the cost approach work papers details our value conclusion by National Association of Regulatory Utility Commissioners' (NARUC) Uniform System of Accounts (USOA) for the wastewater industry account classifications and the installation year of the property this detail it can be used to allocate the appraisal conclusion to establish the booked value for future accounting and rate making.

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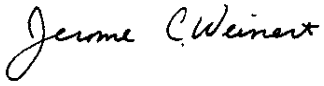
AUS Consultants, Depreciation & Valuation
By:



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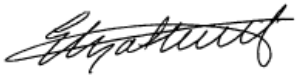

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Junel 30, 2019

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APPRAISAL CERTIFICATION
for the Fair Market Appraisal of
East Norriton Township, Pennsylvania's Sanitary Wastewater Collection System
As of October 29, 2018
Prepared for
East Norriton Township, Pennsylvania

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.

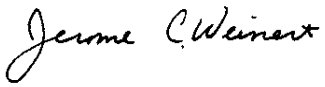
- Our analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice 2018-2019 Edition.

- The signers of this report have made personal inspections of the property that is the subject of this report.

- No individuals provided significant professional assistance to the persons signing this report. However, Scott Shearer of PFM Financial Advisors, LLC - Public Financial Management, Inc. provided assistance in obtained information and data from East Norriton Township, Pennsylvania and the Engineer's Assessment report prepared by Carroll Engineering Corporation which was the inventory starting point of the Cost Approach.

AUS CONSULTANTS

AUS Consultants, Depreciation & Valuation
By:



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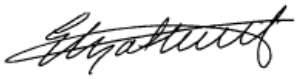

Elizabeth A. Weinert
Associate

June 30, 2019

AUS CONSULTANTS

NARRATIVE REPORT

AUS CONSULTANTS

EXECUTIVE SUMMARY

The purpose of this value appraisal is the determination of the fair market value of the property plant and equipment of East Norriton Township, Pennsylvania's wastewater collection system for our client East Norriton Township, Pennsylvania. The report was prepared based on the 2018-2019 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated Statues Paragraph 1329: "Valuation of acquired water and wastewater systems", collectively referred to as Act 12 of the 2016 Pennsylvania legislative session (Act 12) and the Pennsylvania Public Utility Commission's Final Implementation Order M-2016-2543193 adopted October 27, 2016. The intended users of this appraisal are East Norriton Township, Pennsylvania and the Pennsylvania Public Utility Commission (PA PUC).

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

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

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

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

Reproduction cost and replacement cost are defined as:

> Reproduction cost – "Reproduction cost is the estimated cost to construct, as of the effective appraisal date, an exact duplicate or replica of the building [property] being appraised, insofar as possible, using the same materials, construction standards, design, layout, and quality of workmanship and embodying all the deficiencies, super-adequacies, and obsolescence of the subject improvements [property]."[1]
>
> Replacement cost – "Replacement cost is the estimated cost to construct, as of the effective appraisal date, a substitute for the building [property] being appraised using contemporary materials, standards, design and layout. When this cost basis is used, some existing obsolescence in the property may be cured. Replacement cost may be the only alternative if reproduction cost cannot be estimated"[2]
>
> In the wastewater industry the property's reproduction costs and replacement costs are quite similar; therefore, the property's cost new was determined based on its replacement cost new estimated by the trended original cost and the inventory-unit cost methods.

The trended original cost method was utilized in preparing the replacement cost new. "Trending is a method of estimating a property's replacement cost new in which an *index* or *trend factor* is applied to the property's *historical costs* to convert the known historical costs into an indication of current (appraisal date) costs. Simply put, trending reflects the movement of price over time."[3] In the trended original cost method, East Norriton's investment in wastewater collection plant and equipment is restated to costs reflective of the appraisal date, by the application of cost trends to the property's original investment. AUS Consultants utilized the Engineer's Assessment performed by Carroll Engineering Corporation (Engineer's Assessment tab) as the starting point of the Cost Approach. Utilizing the Engineer's Assessment AUS Consultant developed East Norriton's original cost less depreciation (OCLD) and replacement cost less depreciation (CORLD) in property, plant and equipment at October 29, 2018 (Cost Approach tab).

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[1] The Appraisal of Real Estate, 14th Edition. pages 569-570
[2] Ibid, page 570
[3] Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Third Edition. Page 50

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
October 29, 2018

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

(1)	(2)	(3)				
		(3a)	(3b)	(3c)	(3d)	(3e)
Account Number	Description	Costing Parameters				Reproduction to Replacement Cost Factor
		Index Series	Table	Line Reference	Lookup	AUS Input
353.10	Land & Land Rights - Pumping Station	USBLS	PPI	3	USBLS3	1.00
354.10	Stuctures & Improvements - Pumping	HW	W-1	8	HWW-18	1.00
360.10	Collection Sewers - Force - Mains - CIP	HW	W-1	35	HWW-135	1.00
360.20	Collection Sewers - Force - Mains - PVC	HW	W-1	38	HWW-138	1.00
360.30	Collection Sewers - Force - Mains - DIP	HW	W-1	35	HWW-135	1.00
361.10	Collection Sewers - Gravity - Mains - VCP	HW	W-1	36	HWW-136	1.00
361.20	Collection Sewers - Gravity - Mains - CIP	HW	W-1	35	HWW-135	1.00
361.30	Collection Sewers - Gravity - Mains - PVC	HW	W-1	38	HWW-138	1.00
361.40	Collection Sewers - Gravity - Mains - DIP	HW	W-1	35	HWW-135	1.00
361.50	Collection Sewers - Gravity - Mains - RCP	HW	W-1	35	HWW-135	1.00
361.60	Collection Sewers - Gravity - Mains Unknown Material	HW	W-1	44	HWW-144	1.00
361.70	Collection Sewers - Gravity - Manholes	HW	W-1	45	HWW-145	1.00
363.00	Service Laterals	HW	W-1	39	HWW-139	1.00
364.00	Flow Measuring Devices	HW	W-1	40	HWW-140	1.00
371.00	Pumping Equipment	HW	W-1	9	HWW-19	1.00
396.00	Communications Equipment	USBLS	PPI	2	USBLS2	1.00

Using the trended original cost method, East Norriton's investment in plant, property and equipment of $16,246,828 was determined to have a replacement cost new of $70,770,233 as summarized in the following table:

East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
353.1	353.1	Pump Station Land/Land Rights			275.00	USBLS3			7.012	1,928	1.000	1,928
354.1	354.1	Pump Station Structures & Improvements			2,350,000.00	HWW-18			3.210	7,544,669	1.000	7,544,669
355.0	355.0	Pump Station Power Generator Equipment			472,449.00	USBLS4			1.842	870,384	1.000	870,384
360.0	360.0	Collection Mains - Force			757,848.13	HWW-144			5.164	3,913,629	1.000	3,913,629
361.0	361.0	Collection Mains - Gravity			8,084,501.49	HWW-144			4.893	39,557,426	1.000	39,557,426
363.0	363.0	Service Laterals			1,790,221.75	HWW-139			6.196	11,092,344	1.000	11,092,344
364.0	364.0	Flow Meters			201,724.00	HWW-140			2.211	446,027	1.000	446,027
371.0	371.0	Pumping Equipment			2,388,085.00	HWW-19			2.989	7,138,499	1.000	7,138,499
396.0	396.0	Communication Equipment			201,724.00	USBLS2			1.018	205,326	1.000	205,326
		Grand Total			**16,246,828.38**				**4.356**	**70,770,233**	**1.000**	**70,770,233**

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

> Normal depreciation/deterioration, akin to physical deterioration, is "loss in value caused by wear, tear, age and use."[4]
>
> Functional obsolescence is "the loss in value or usefulness of a property caused by inefficiencies or inadequacies of the property itself, when compared to a more efficient of less costly replacement property that new technology has developed."[5]
>
> Economic, or external, obsolescence is defined as "a loss in value caused by factors outside a property"[6] and is most often indicated by insufficient earning.

Based on our experience in regard to water and wastewater depreciation studies and our analysis of East Norriton's sanitary wastewater collection system operating

[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.

performance; we found that East Norriton's sanitary wastewater utility's property experiences normal depreciation but not any significant functional or economic obsolescence (see Income Approach).

In order to ascertain the service lives of the various types of East Norriton's property, plant and equipment, we considered AUS Consultants' past water and wastewater depreciation studies and documentation provided by East Norriton Township. Through our experience and the above described information, the following normal depreciation parameters of survival/retirement characteristics and service lives were determined for East Norriton's wastewater collection system property:

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
October 29, 2018

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

(1)	(2)	(4)		(5)	(6)	
		(4a)	(4b)		(6a)	(6b)
Account Number	Description	Iowa Survivor / Retirement Curve	Normal Service Life	Economic Obsolescence	Tax Depreciation	
			years	years	Table	Life
353.10	Land & Land Rights - Pumping Station	Non-Depr	0.00	23.53%	Non-Depr	0.00
354.10	Stuctures & Improvements - Pumping	R4.0	45.00	23.53%	MACRS	25.00
360.10	Collection Sewers - Force - Mains - CIP	R3.0	60.00	23.53%	MACRS	25.00
360.20	Collection Sewers - Force - Mains - PVC	R3.0	60.00	23.53%	MACRS	25.00
360.30	Collection Sewers - Force - Mains - DIP	R3.0	60.00	23.53%	MACRS	25.00
361.10	Collection Sewers - Gravity - Mains - VCP	R3.0	80.00	23.53%	MACRS	25.00
361.20	Collection Sewers - Gravity - Mains - CIP	R3.0	80.00	23.53%	MACRS	25.00
361.30	Collection Sewers - Gravity - Mains - PVC	R3.0	80.00	23.53%	MACRS	25.00
361.40	Collection Sewers - Gravity - Mains - DIP	R3.0	80.00	23.53%	MACRS	25.00
361.50	Collection Sewers - Gravity - Mains - RCP	R3.0	80.00	23.53%	MACRS	25.00
361.60	Collection Sewers - Gravity - Mains Unknown Material	R3.0	90.00	23.53%	MACRS	25.00
361.70	Collection Sewers - Gravity - Manholes	R3.0	80.00	23.53%	MACRS	25.00
363.00	Service Laterals	R3.0	55.00	23.53%	MACRS	25.00
364.00	Flow Measuring Devices	R3.0	35.00	23.53%	MACRS	25.00
371.00	Pumping Equipment	R3.0	35.00	23.53%	MACRS	25.00
396.00	Communications Equipment	R3.0	12.00	23.53%	MACRS	12.00

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

Depreciation (%) = $\frac{\text{Age (years) x100\%}}{\text{Service Life (years)}}$

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

where: the property's Service Life = Age + Remaining Life

When the above depreciation lives are used to quantify the property's depreciation is applied to the replacement cost new (COR) of $70,770,233 the resultant COR less normal depreciation (CORLD) was found to be $27,461,356 detailed as follows:

East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New less Depreciation (RCNLD)

(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)
Account	Description	Placement Year	Age at October 29, 2018 Appraisal Date	Replacement Cost New (COR)	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 (COR less Normal Depreciation)
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation
Eng Assmnt	Eng Assmnt	Eng Assmnt	2019-[(20)+0.5]	Col (16)	AUS Input	AUS Input	Col (21) / (24)	Col (23) & (25)	Lookup Iowa Curves Life Tables @ col (26)	Col (24) * (27)	Col (21) + (28)	Col (28) / (29)	Col (22) * (30)
Account	Description	Year1	Age	RCN	Iowa	NL	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	CORLD
353.1	Pump Station Land/Land Rights		47.50	1,928	Non-Depr	0.00				47.50	47.50	100.00%	1,928
354.1	Pump Station Structures & Improvements		40.12	7,544,669	R4.0	45.00				13.76	53.88	29.44%	2,221,446
355.0	Pump Station Power Generator Equipment		29.95	870,384	R3.0	35.00				12.82	42.77	34.83%	303,180
360.0	Collection Mains - Force		46.49	3,913,629	R3.0	60.00				20.72	67.21	31.72%	1,241,357
361.0	Collection Mains - Gravity		46.90	39,557,426	R3.0	97.50				38.09	103.39	45.12%	17,849,870
363.0	Service Laterals		45.33	11,092,344	R3.0	55.00				16.76	62.09	27.23%	3,020,156
364.0	Flow Meters		26.82	446,027	R3.0	35.00				13.74	40.57	37.07%	165,327
371.0	Pumping Equipment		25.79	7,138,499	R3.0	35.00				13.79	39.57	36.92%	2,635,628
396.0	Communication Equipment		26.34	205,326	R3.0	12.00				1.37	27.72	10.94%	22,464
	Grand Total		**43.38**	**70,770,233**		75.45				**28.17**	**81.84**	**38.80%**	**27,461,356**

The preliminary cost approach to value of East Norriton's sanitary wastewater collection system property was found to $27,461,356.

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

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

In preparing this appraisal's DCF analysis (Income Approach tab) first the results from Eat Norriton's wastewater utility's operations were evaluated based on an analysis of historical operating performances over the period 2010 through budgetary 2018 resulting in operating statistics such as revenues and their growth, various operating expenses stated as function of their typical drivers (revenues, plant investment, income from operations, etc.). Next, the results of future periods operations were forecast based on the migration of East Norriton's historical operations over time to operations of the East Norriton's wastewater operation similar to a public investor-owned water/wastewater utility. Finally, the resultant cash flows from future period operations on the East Norriton sanitary 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 details the market discount rate developed using the weighted cost of capital (WACC) of the Market debt and equity:

Water and Wastewater Cost of Capital
Third Quarter 2018 (10-1-2018)

As a Investor-Owned Utility

Weighted Cost of Capital (Discount Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3)*(4a)
Debt	30%	Market	4.45%	Market	28.89%	71.11%	0.95%
Equity	70%	Market	9.95%	Market	0.0%	100.0%	6.97%
Total Capital r	**100.0%**						**7.92%**
Growth (g)							**1.52%**
Rate without Growth: [(1+r)/(1+g)]-1							**6.31%**

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Potential Purchaser: Investor-Owned Utility
As of October 29, 2018
Discounted Cash Flow Analysis

Discount Rate: 7.92%
Capitalization Rate: 6.31%

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Period	Age	Revenues	O&M Expenses	Tax Depreciation	Cash Flow from Operations	Taxable Income before State & Federal Taxes	State and Federal Taxes @ 28.89%	Capital Expenditures	Change in Working Capital	Net Cash Flows	Period Present Worth Factor (PW)	PW of Cashflow	Accumulated PW of Cashflows
					(3)-(4)	(6)-(5)	(7) *28.89%			(3)-(4)-(8)-(9)-(10)		(11)*(12)	Sum (13)
1	0.5	3,397,875	2,472,398	851,685	925,477	73,792	21,318	325,506	415	578,238	0.963	556,843	556,843
2	1.5	3,482,822	2,546,780	863,065	936,042	72,977	21,083	330,588	424	583,947	0.892	520,881	1,077,724
3	2.5	4,092,316	2,624,599	874,835	1,467,717	592,882	171,284	335,756	3,047	957,630	0.827	791,960	1,869,684
4	3.5	4,194,624	2,705,974	887,005	1,488,650	601,645	173,815	341,015	512	973,308	0.766	745,554	2,615,238
5	4.5	4,299,490	2,791,030	899,584	1,508,460	608,876	175,904	346,357	525	985,674	0.710	699,829	3,315,067
6	5.5	4,910,018	2,884,460	912,585	2,025,558	1,112,973	321,538	351,793	3,052	1,349,175	0.658	887,757	4,202,824
7	6.5	5,018,038	2,981,657	925,757	2,036,381	1,110,624	320,859	356,351	540	1,358,631	0.609	827,406	5,030,230
8	7.5	5,128,435	3,082,768	939,603	2,045,667	1,106,064	319,542	361,965	552	1,363,608	0.565	770,439	5,800,669
9	8.5	5,754,104	3,187,947	953,905	2,566,157	1,612,252	465,780	367,677	3,128	1,729,572	0.523	904,566	6,705,235
10	9.5	5,880,694	3,297,354	968,671	2,583,340	1,614,669	466,478	373,484	634	1,742,744	0.485	845,231	7,550,466
11	10.5	6,010,069	3,411,155	983,914	2,598,914	1,615,000	466,574	379,390	646	1,752,304	0.449	786,784	8,337,250
12	11.5	6,502,895	3,529,526	999,645	2,973,369	1,973,724	570,209	385,394	2,465	2,015,301	0.416	838,365	9,175,615
13	12.5	6,645,959	3,652,643	1,014,485	2,993,316	1,978,831	571,684	391,503	715	2,029,414	0.386	783,354	9,958,969
14	13.5	6,792,170	3,780,697	1,031,224	3,011,473	1,980,249	572,094	397,713	730	2,040,936	0.357	728,614	10,687,583
15	14.5	7,349,128	3,913,880	1,048,492	3,435,248	2,386,756	689,534	404,031	2,786	2,338,897	0.331	774,175	11,461,758
16	15.5	7,349,128	4,060,649	1,009,636	3,288,479	2,278,843	658,358	321,918	-	2,308,203	0.307	708,618	12,170,376
17	16.5	7,349,128	4,213,126	1,022,508	3,136,002	2,113,494	610,588	325,573	-	2,199,841	0.284	624,755	12,795,131
18	17.5	7,790,076	4,371,535	1,035,679	3,418,541	2,382,862	688,409	329,273	2,205	2,398,654	0.263	630,846	13,425,977
19	18.5	7,790,076	4,536,109	1,049,154	3,253,967	2,204,813	636,970	333,017	-	2,283,980	0.244	557,291	13,983,268
20 and beyond	19.5	7,790,076	4,707,095	1,062,939	3,082,981	2,020,042	583,590	336,806	-	2,162,585	3.582	7,746,379	21,729,647
			68,751,382					7,095,110					
Age									19.5				
PW(Age) = 1/(1+Discount Rate)$^{(Age)}$									0.226				
PW to Perpetuity = 1/Capitalization Rate									15.848				

$PW_{(20and\ Beyond)}$ = PW to Perpetuity * PW Factor$_{(19.5)}$ 3.582

Based on the above described discounted cash flow analysis, the Income Approach to value of the East Norriton's sanitary wastewater collection system's property and its operations was determined to be $21,729,647.

Market Approach

The market or comparable sales approach to value looks to market sales of comparable properties in order to arrive at value. In this appraisal, the market approach was addressed from a comparable sales approach of Pennsylvania wastewater systems and market value to book value ratios based on investor owned water utilities financial performance as 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. As the purpose of this appraisal is to define the value of East Norriton's wastewater collection system under Section 1329 of the PA CS the market comparable sales were limited to sales subsequent to the passage of Section 1329 in 2016. In the comparable sale market approach the sales of Pennsylvania municipal wastewater systems to investor owned water/wastewater utilities were used to insure comparability all subsequent to the passage of Act 12 in 2016. The sales of the City of McKeesport wastewater system, Sadsbury wastewater collection system, Exeter wastewater collection system, and Steelton water system to Pennsylvania American Water and the sales of New Garden Township's sewer utility, Limerick wastewater system, East Bradford wastewater collection system, and Cheltenham wastewater collection system to Aqua Pennsylvania, Inc. were analyzed in relationship to those properties depreciated original cost and depreciated replacement cost (Market Approach tab).

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

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Market Approach Summary

Comparable Sales	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Depreciated Original Cost (AUS Consultants) OCLD	**8,407,007.17**	1.817	15,275,532
Replacement Cost New less Depreciation RCNLD	**27,461,355.67**	0.9621	26,420,570
Average			20,848,051
Use (RCNLD)			26,420,570

Financial Markets	Market Value per Share to Book Value per Share	
Market to Book (equity)	2.97	
Market to Book (equity and debt)	1.90	
Use (equity and debt)	1.90	Input

Market Conclusion	Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)		
East Norriton Sanitary Sewer System	East Norriton Sanitary Sewer System		
AUS Depreciated Original Cost	8,407,007	1.90	15,973,314

Market Value	Indicated Valus $s
Minimum	15,275,532
Mean	19,223,139
Median	15,973,314
Maximum	26,420,570
Use (RCNLD)	**26,420,570**

The market approach conclusion of this appraisal was determined to be $26,420,570.

Cost Approach Revisited – Before concluding this appraisal's fair market value the preliminary cost approach conclusion of $27,461,356 needs to be reviewed in light of the

above described income and market analyses in order to evaluate if external obsolescence exists in the preliminary replacement cost new less depreciation conclusion. The appraisal literature in regard to developing a cost approach states:

> "The last step in the implementation of the cost approach is to estimate *economic obsolescence*. Economic obsolescence (sometimes called "external obsolescence") has been previously defined as the loss in value or usefulness of a property caused by factors external to the asset. These factors include increased cost of raw materials, labor, utilities (without an offsetting increase in product price); reduced demand for the product; increased competition; environmental or other regulations; or similar factors.
>
> The difficulty in measuring the full effect of economic obsolescence is one of the weaknesses of the cost approach. Because economic obsolescence is usually a function of outside influences that affect an entire business (i.e., all tangible and intangible assets) rather than individual assets or isolated groups of assets, it is sometimes measured using the income approach or by using the income approach to help identify the existence of economic influences on value. However, the cost approach can be used to measure some forms of economic obsolescence."[7]

The above described income approach value conclusion of $21,729,647 and the market approach conclusion of $26,420,570 for the East Norriton's future wastewater system compared to the preliminary cost approach conclusion of $27,461,356 indicates no significant external obsolescence exists in the cost approach conclusion of $27,461,356; however, according to Section 1329 the fair market (FMV) rate base for ratemaking will be $21,000,000, i.e., the lesser of the purchase price ($21,000,000) or the appraised value ($24,064,594) detailed as follows:

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

East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Fair Market Value

(36)	(37)	(38)	(39)	(40)	(41)
Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
Account	Description	Year	Prelim CORLD	EO%	FMV
353.1	Pump Station Land/Land Rights		1,928	23.53%	1,475
354.1	Pump Station Structures & Improvements		2,221,446	23.53%	1,698,764
355.0	Pump Station Power Generator Equipment		303,180	23.53%	231,845
360.0	Collection Mains - Force		1,241,357	23.53%	949,279
361.0	Collection Mains - Gravity		17,849,870	23.53%	13,649,991
363.0	Service Laterals		3,020,156	23.53%	2,309,546
364.0	Flow Meters		165,327	23.53%	126,428
371.0	Pumping Equipment		2,635,628	23.53%	2,015,493
396.0	Communication Equipment		22,464	23.53%	17,179
	Grand Total		**27,461,356**	23.53%	**21,000,000**

Value Conclusion

The Fair Market Value of East Norriton's sanitary wastewater collection system's property, plant and equipment and its operation was determined to be $25,420,570 as follows:

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Fair Market Value Appraisal

Appraisal Approach		Investor-owned Utility	Weight	Wtd Valuation Indications
Cost Approach				
Financials' Net Book (12-31-2016)				
Gross Book		8,545,000	2017	
Accumulated Depreciatiomn		(7,110,000)	2017	
Net Book		1,435,000	2017	
Inventory of Assets (10-29-2018)				
Original Cost ($OC)		16,246,828		
Depreciated Original Cost ($OCLD)		8,407,007		
Replacement Cost (10-29-2018)				
Replacement Cost New (COR)		70,770,233		
Depreciated Replacement Cost New (CORLD)	$	**27,461,356**		
Cost Approach Conclusion		**27,461,356**	**50%**	**13,730,678**
Income Approach				
Required Rate Increases: 15% period 3; 12% period 6; 10% period 9; 6% period 12; 6% period 15; 6% period 18 (Input 6)		21,729,647		
Income Approach Conclusion		**21,729,647**	**40%**	**8,691,859**
Market Approach				
Market Comparables (to)				
OCLD		15,275,532		
CORLD		26,420,570		
Market Financials (to)				
OCLD		15,973,314		
Market Approach Conclusion		**26,420,570**	**10%**	**2,642,057**
Appraisal Conclusion	$	**25,064,594**	**100%**	**25,064,594**
Conclusion (cost approach)	$	**27,461,356**		

As the purpose of this appraisal was to fulfill the requirements of Section 1329 of the PA CS in the establishment of value for rate making of East Norriton's property, plant and equipment this appraisal's conclusion of $25,064,594 is consistent with the purpose of the appraisal. As the cost approach work papers details our value conclusion by National Association of Regulatory Utility Commissioners' (NARUC) Uniform System of Accounts (USOA) for the wastewater industry account classifications and the installation year of the property this detail it can be used to allocate the appraisal conclusion to establish the booked value for future accounting and rate making.

PURPOSE AND SCOPE OF WORK

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

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

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

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

- Annual (year-end) East Norriton Township, Pennsylvania sanitary wastewater operational financial statements cover the period 2010 through budgetary 2018 results.

- The Carroll Engineering Corporation consulting engineers' Engineer's Assessment and inventory of Eat Norriton Township's sanitary wastewater collection system's property at October 29, 2018.

- The Handy-Whitman (water industry) Index of Public Utilities Construction Costs for northeastern United States, AUS Consultant General Plant Cost Indexes for

general plant, and various cost indexes published by the United States Bureau of Labor Statistics (US BLS).

In preparing this fair market value appraisal of the East Norriton Township, Pennsylvania's sanitary wastewater collection 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 EAST NORRITON TOWNSHIP PENNSYLVANIA WASTEWATER COLLECTION SYSTEM FACILITIES

Water/wastewater Industry

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

Pennsylvania Water / Wastewater Industry

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

East Norriton Township, Pennsylvania's Sanitary Wastewater Collection System Facilities, its Property and Operations[8]

East Norriton Township, Montgomery County, PA is bordered by Plymouth Township to the east, Whitpain Township to the north, Worcester and Lower Providence Townships to the west and West Norriton Township and the Norristown Borough to the south. The Township covers an area of approximately 6.1 square miles and has a population of 13,590 as of the 2010 Census.

The wastewater system in the Township consists of approximately 59 miles of gravity sewer collection mains and interceptors in sizes ranging from eight (8) to twenty-four (24) inches. There are nine (9) dedicated pump stations and approximately four (4) miles of force mains, sized four (4) to sixteen (16) inches. A surge tank is located at the Einstein Pump Station to assist with managing flows during wet weather.

The majority of the sewer system was constructed under two phases in the 1960s and 1970s. These phases are shown on the enclosed map as Sewer System Phase I and Sewer System Phase 2. Phase I was completed by 1965, and Phase II was completed by the mid-1970s. The remainder of the sewer system was built over the intervening years mostly as new developments were built in the Township. An inventory of the physical assets of the sewer system is included in Section 3 of this report. The sewer mains have been categorized by development and the inventory includes street, pipe size, material and approximate age. The index also includes estimated original construction costs. These costs are based on 2018-unit prices indexed to the Installation Year using the Engineering News-Record's Construction Cost Index. The Construction Cost Index and details on the 2018 Unit Costs are included in Engineer's Assessment Appendix A. The pump station inventory includes a description of each pump station, any available construction costs, and a list of equipment identified at each pump station.

[8] Extracted from Engineer's Assessment

Sewage flows from the Township are conveyed to the East Norriton-Plymouth-Whitpain Joint Sewer Authority (ENPWJSA) via a single connection at ENPWJSA's Sawmill Pump Station, located in the southeast corner of the Township. Flows are ultimately treated at the East Norriton-Plymouth-Whitpain Wastewater Treatment Plant. A map of the system is included in Engineer's Assessment Appendix B.

APPRAISAL PROCEDURES AND RESULTS

The purpose of this appraisal of East Norriton Township, Pennsylvania's sanitary wastewater collection system is the determination of the fair market value of the wastewater's property plant and equipment as of October 29, 2018. The report was prepared based on the 2018-2019 Uniform Standards of Professional Practices (USPAP) and is intended to meet the criteria established with Title 66 (Public Utilities) of the Pennsylvania Consolidated Statues (PS CS) Section 1329: Valuation of acquired water and wastewater systems, collectively referred to as Act 12 of the Pennsylvania legislator's 2016 legislative session (Act 12). The intended users of this appraisal are East Norriton Township, Pennsylvania and the Pennsylvania Public Utility Commission (PA PUC).

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

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

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

- Annual (year-end) East Norriton Township, Pennsylvania sanitary wastewater collection system's operational financial statements cover the period 2010 through budgetary 2018.

- The Carroll Engineering Corporation consulting engineers: East Norriton Township, Pennsylvania sanitary wastewater collection system facilities' inventory and original cost study at October 29, 2018.

- The Handy-Whitman (water industry) Index of Public Utilities Construction Costs for northeastern United States, AUS Consultant General Plant Cost Indexes for

general plant, and various cost indexes published by the United States Bureau of Labor Statistics (US BLS).

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

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

Reproduction cost and replacement cost are defined as:

> Reproduction cost – "The estimated cost to construct, at current prices as of the effective date of the appraisal, an exact duplicate or replica of the [property] being appraised, using the same materials, construction standards, design, layout, and quality of workmanship and embodying all the deficiencies, super-adequacies, and obsolescence of the subject [property]."[9]
>
> Replacement cost – "The estimated cost to construct, at current prices as of the effective appraisal date, a substitute for the [property] being appraised using modern materials and current standards, design and layout."[10]
>
> In the wastewater industry the property's reproduction costs and replacement costs are quite similar; therefore, the property's cost new was determined based on its replacement cost new.

The trended original cost method was utilized in preparing the replacement cost new. "Trending is a method of estimating a property's replacement cost new in which an *index*

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

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."[11] In the trended original cost method, East Norriton's investment in wastewater plant and equipment is restated to costs reflective of the appraisal date, by the application of cost trends to the property's original investment. AUS Consultants utilized the Engineer's Assessment performed by Carroll Engineering Corporation (Engineer's Assessment tab) as the starting point of the Cost Approach. Utilizing the Engineer's Assessment of East Norriton's original cost in property, plant and equipment AUS Consultants developed the plant's depreciated original cost at October 29, 2018 Cost Approach tab).

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, the AUS Consultants of General Plant Indexes, and various United States Bureau of Labor Statistics (US BLS) indexes. The following table details the costing parameters using in the trending costing procedures:

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
October 29, 2018

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

(1)	(2)	(3)				
		(3a)	(3b)	(3c)	(3d)	(3e)
Account Number	Description	Costing Parameters				Reproduction to Replacement Cost Factor
		Index Series	Table	Line Reference	Lookup	AUS Input
353.10	Land & Land Rights - Pumping Station	USBLS	PPI	3	USBLS3	1.00
354.10	Stuctures & Improvements - Pumping	HW	W-1	8	HWW-18	1.00
360.10	Collection Sewers - Force - Mains - CIP	HW	W-1	35	HWW-135	1.00
360.20	Collection Sewers - Force - Mains - PVC	HW	W-1	38	HWW-138	1.00
360.30	Collection Sewers - Force - Mains - DIP	HW	W-1	35	HWW-135	1.00
361.10	Collection Sewers - Gravity - Mains - VCP	HW	W-1	36	HWW-136	1.00
361.20	Collection Sewers - Gravity - Mains - CIP	HW	W-1	35	HWW-135	1.00
361.30	Collection Sewers - Gravity - Mains - PVC	HW	W-1	38	HWW-138	1.00
361.40	Collection Sewers - Gravity - Mains - DIP	HW	W-1	35	HWW-135	1.00
361.50	Collection Sewers - Gravity - Mains - RCP	HW	W-1	35	HWW-135	1.00
361.60	Collection Sewers - Gravity - Mains Unknown Material	HW	W-1	44	HWW-144	1.00
361.70	Collection Sewers - Gravity - Manholes	HW	W-1	45	HWW-145	1.00
363.00	Service Laterals	HW	W-1	39	HWW-139	1.00
364.00	Flow Measuring Devices	HW	W-1	40	HWW-140	1.00
371.00	Pumping Equipment	HW	W-1	9	HWW-19	1.00
396.00	Communications Equipment	USBLS	PPI	2	USBLS2	1.00

The following table presents the development of the cost approach for a portion of account 361 District No. 1 Collection Mains Phase II (this example will be used to describe the entire cost approach:

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Inventory Quantity	Size	Material	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
								OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	Cheltenham Wastewater Collection System's Engineer's Assessment (Eng. Asmnt)	Eng Assmnt	AUS Input	Eng Assmnt	Eng Assmnt	Eng Assmnt	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Inventory Quantity	Size	Material	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
		SEWER DISTRICT NO. 1 PHASE II													
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	1970	1970	45,148	8	VCP	700,070	HWW-136	88	784	8.909	6,236,920	1.000	6,236,920
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	1970	1970	3,280	10	VCP	58,556	HWW-136	88	784	8.909	521,674	1.000	521,674
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	1970	1970	2,712	12	VCP	23,023	HWW-136	88	784	8.909	205,110	1.000	205,110
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	1970	1970	2,803	15	VCP	59,838	HWW-136	88	784	8.909	533,099	1.000	533,099
361.7	361.7	SEWER DISTRICT NO. 1 PHASE II - Manholes	1970	1970	249			167,862	HWW-145	82	547.4	6.676	1,120,649	1.000	1,120,649
		Total 361 Phase II						1,009,349				8.538	8,617,452	1.000	8,617,452

Using the trended original cost method, East Norriton's investment in this example of account 361 District No. 1 Phase II Collection Mains of $1,009,349 was determined to

have a replacement cost new of $8,617,452. When the trended cost method is applied to each of East Norriton's investment in plant, property and equipment of $16,246,828 was determined to have a replacement cost new of $70,770,233.

East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15) Reproduction Cost New (RCN) to Replacement Cost New (COR)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)		Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
353.1	353.1	Pump Station Land/Land Rights			275.00	USBLS3			7.012	1,928	1.000	1,928
354.1	354.1	Pump Station Structures & Improvements			2,350,000.00	HWW-18			3.210	7,544,669	1.000	7,544,669
355.0	355.0	Pump Station Power Generator Equipment			472,449.00	USBLS4			1.842	870,384	1.000	870,384
360.0	360.0	Collection Mains - Force			757,848.13	HWW-144			5.164	3,913,629	1.000	3,913,629
361.0	361.0	Collection Mains - Gravity			8,084,501.49	HWW-144			4.893	39,557,426	1.000	39,557,426
363.0	363.0	Service Laterals			1,790,221.75	HWW-139			6.196	11,092,344	1.000	11,092,344
364.0	364.0	Flow Meters			201,724.00	HWW-140			2.211	446,027	1.000	446,027
371.0	371.0	Pumping Equipment			2,388,085.00	HWW-19			2.989	7,138,499	1.000	7,138,499
396.0	396.0	Communication Equipment			201,724.00	USBLS2			1.018	205,326	1.000	205,326
		Grand Total			**16,246,828.38**				**4.356**	**70,770,233**	**1.000**	**70,770,233**

Replacement Cost New less Depreciation - The replacement cost described above reflects the cost of new property; however, the East Norriton's sanitary 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."[12]
>
> Functional obsolescence is "the loss in value or usefulness of a property caused by inefficiencies or inadequacies of the property itself, when compared to a more efficient of less costly replacement property that new technology has developed."[13]

[12] The Dictionary of Real Estate Appraisal, 4th Edition
[13] Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition. Page 67.

Economic, or external, obsolescence is defined as "A loss in value caused by factors outside a property"[14] and is most often indicated by insufficient earning.

Based on our experience in regard to water and wastewater depreciation studies and our analysis of East Norriton's sanitary wastewater system operating performance: East Norriton'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 East Norriton's property, plant and equipment, we considered AUS Consultants' past water and wastewater depreciation studies, and documents provided by East Norriton. Through our experience the following normal depreciation parameters of survival/retirement characteristics and service lives were determined for East Norriton's sanitary wastewater collection system property:

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
October 29, 2018

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

(1)	(2)	(4)		(5)	(6)	
		(4a)	(4b)		(6a)	(6b)
Account Number	Description	Iowa Survivor / Retirement Curve	Normal Service Life	Economic Obsolescence	Tax Depreciation	
			years	years	Table	Life
353.10	Land & Land Rights - Pumping Station	Non-Depr	0.00	23.53%	Non-Depr	0.00
354.10	Stuctures & Improvements - Pumping	R4.0	45.00	23.53%	MACRS	25.00
360.10	Collection Sewers - Force - Mains - CIP	R3.0	60.00	23.53%	MACRS	25.00
360.20	Collection Sewers - Force - Mains - PVC	R3.0	60.00	23.53%	MACRS	25.00
360.30	Collection Sewers - Force - Mains - DIP	R3.0	60.00	23.53%	MACRS	25.00
361.10	Collection Sewers - Gravity - Mains - VCP	R3.0	80.00	23.53%	MACRS	25.00
361.20	Collection Sewers - Gravity - Mains - CIP	R3.0	80.00	23.53%	MACRS	25.00
361.30	Collection Sewers - Gravity - Mains - PVC	R3.0	80.00	23.53%	MACRS	25.00
361.40	Collection Sewers - Gravity - Mains - DIP	R3.0	80.00	23.53%	MACRS	25.00
361.50	Collection Sewers - Gravity - Mains - RCP	R3.0	80.00	23.53%	MACRS	25.00
361.60	Collection Sewers - Gravity - Mains Unknown Material	R3.0	90.00	23.53%	MACRS	25.00
361.70	Collection Sewers - Gravity - Manholes	R3.0	80.00	23.53%	MACRS	25.00
363.00	Service Laterals	R3.0	55.00	23.53%	MACRS	25.00
364.00	Flow Measuring Devices	R3.0	35.00	23.53%	MACRS	25.00
371.00	Pumping Equipment	R3.0	35.00	23.53%	MACRS	25.00
396.00	Communications Equipment	R3.0	12.00	23.53%	MACRS	12.00

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:

$$\text{Depreciation (\%)} = \frac{\text{Age (years) x100\%}}{\text{Service Life (years)}}$$

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

where: the property's Service Life = Age + Remaining Life

When the above depreciation lives are used to quantify the property's depreciation is applied to the replacement cost new of the example account 361 Sewer District No. 1 Collection Mains of $8,617,452, the replacement cost new less depreciation was determined to be $3,670,170 detailed as follows:

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)
Account	Description	Placement Year	Age at October 29, 2018 Appraisal Date	Replacement Cost New (COR)	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 (COR less Normal Depreciation)
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation
AUS Input	Eng Assmnt	Eng Assmnt	2019-[(20)+0.5]	Col (16)	AUS Input	AUS Input	Col (21) / (24)	Col (23) & (25)	Lookup Iowa Curves Life Tables @ col (26)	Col (24) * (27)	Col (21) + (28)	Col (28) / (29)	Col (22) * (30)
Account	Description	Year1	Age	RCN	Iowa	NLife	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	CORLD
361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	1970	48.50	6,236,920	R3.0	80.0	61	R3.0061	0.44974	35.98	84.48	42.589962%	2,656,301.96
361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	1970	48.50	521,674	R3.0	80.0	61	R3.0061	0.44974	35.98	84.48	42.589962%	222,180.60
361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	1970	48.50	205,110	R3.0	80.0	61	R3.0061	0.44974	35.98	84.48	42.589962%	87,356.44
361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	1970	48.50	533,099	R3.0	80.0	61	R3.0061	0.44974	35.98	84.48	42.589962%	227,046.84
361.7	SEWER DISTRICT NO. 1 PHASE II - Manholes	1970	48.50	1,120,649	R3.0	80.0	61	R3.0061	0.44974	35.98	84.48	42.589962%	477,283.82
	Total 361 Phase II			8,617,452	R3.0	80.0				36.00	84.50	42.589962%	3,670,170

When the above depreciation lives are used to quantify the property's depreciation is applied to each of East Norriton's investment in plant, property and equipment the replacement cost new (RCN) of $70,770,233 the resultant RCN less depreciation (RCNLD) was found to be $27,461,356 detailed as follows:

East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New less Depreciation (RCNLD)

(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)
Account	Description	Placement Year	Age at October 29, 2018 Appraisal Date	Replacement Cost New (COR)	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 (COR less Normal Depreciation)
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation
Eng Assmnt	Eng Assmnt	Eng Assmnt	2019-[(20)+0.5]	Col (16)	AUS Input	AUS Input	Col (21) / (24)	Col (23) & (25)	Lookup Iowa Curves Life Tables @ col (26)	Col (24) * (27)	Col (21) + (28)	Col (28) / (29)	Col (22) * (30)
Account	Description	Year1	Age	RCN	Iowa	NL	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	CORLD
353.1	Pump Station Land/Land Rights		47.50	1,928	Non-Depr	0.00				47.50	47.50	100.00%	1,928
354.1	Pump Station Structures & Improvements		40.12	7,544,669	R4.0	45.00				13.76	53.88	29.44%	2,221,446
355.0	Pump Station Power Generator Equipment		29.95	870,384	R3.0	35.00				12.82	42.77	34.83%	303,180
360.0	Collection Mains - Force		46.49	3,913,629	R3.0	60.00				20.72	67.21	31.72%	1,241,357
361.0	Collection Mains - Gravity		46.90	39,557,426	R3.0	97.50				38.09	103.39	45.12%	17,849,870
363.0	Service Laterals		45.33	11,092,344	R3.0	55.00				16.76	62.09	27.23%	3,020,156
364.0	Flow Meters		26.82	446,027	R3.0	35.00				13.74	40.57	37.07%	165,327
371.0	Pumping Equipment		25.79	7,138,499	R3.0	35.00				13.79	39.57	36.92%	2,635,628
396.0	Communication Equipment		26.34	205,326	R3.0	12.00				1.37	27.72	10.94%	22,464
	Grand Total		**43.38**	**70,770,233**		75.45				**28.17**	**81.84**	**38.80%**	**27,461,356**

The preliminary cost approach to value of East Norriton's wastewater utility property was found to $27,461,356.

Income Approach (Income Approach tabs)

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

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

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

In preparing this appraisal's DCF analysis first the results from East Norriton's wastewater utility's operations was evaluated based on an analysis of historical operating performances over the period 2010 through budgetary 2018 (Income Approach tab). In the analysis of the operating statistics such as revenues and their growth, various operating expenses those expenses were stated as function of their typical drivers (revenues, plant investment, income from operations, etc.). Details provided in Income Approach tab. Second, similar operating statistics were developed from public investor-owned water/wastewater utilities. Using the above described analyses the results of future periods operations were forecast based on the migration of East Norriton's historical operations type experience over time to operations of the East

Norriton's wastewater operation similar to a public investor-owned water/wastewater utilities. These forecasts are detailed in the Income Approach tab.

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

Water and Wastewater Cost of Capital
Third Quarter 2018 (10-1-2018)

As a Investor-Owned Utility

Weighted Cost of Capital (Discount Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3)*(4a)
Debt	30%	Market	4.45%	Market	28.89%	71.11%	0.95%
Equity	70%	Market	9.95%	Market	0.0%	100.0%	6.97%
Total Capital r	**100.0%**						**7.92%**
Growth (g)							**1.52%**
Rate without Growth: [(1+r)/(1+g)]-1							**6.31%**

The market cost of debt was developed based on market returns for utilities as reported in the Mergent Bond Guide. The market cost of equity was developed using the capital asset pricing model (CAPM) and the dividend growth model (DGM). Input to these equity costing models were developed based on Value Line Investment Surveys for the water industry published for October 2018 consisting of the following nine companies:

Company	
American States Water (NYSE-AWR)	Consolidated Water Company (NDQ-CWCO)
American Water ((NYSE-AWK)	Middlesex Water (NDQ-MSEX)
Aqua America (NYSE-WTR)	SJW Corporation (NYSE-SJW)
California Water (NYSE-CWT)	York Water (NDQ-YORW)
Connecticut Water (NDQ-CTWS)	

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

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Potential Purchaser: Investor-Owned Utility
As of October 29, 2018
Discounted Cash Flow Analysis

Discount Rate: 7.92%
Capitalization Rate: 6.31%

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Period	Age	Revenues	O&M Expenses	Tax Depreciation	Cash Flow from Operations	Taxable Income before State & Federal Taxes	State and Federal Taxes @ 28.89%	Capital Expenditures	Change in Working Capital	Net Cash Flows	Period Present Worth Factor (PW)	PW of Cashflow	Accumulated PW of Cashflows
					(3)-(4)	(6)-(5)	(7) *28.89%			(3)-(4)-(8)-(9)-(10)		(11)*(12)	Sum (13)
1	0.5	3,397,875	2,472,398	851,685	925,477	73,792	21,318	325,506	415	578,238	0.963	556,843	556,843
2	1.5	3,482,822	2,546,780	863,065	936,042	72,977	21,083	330,588	424	583,947	0.892	520,881	1,077,724
3	2.5	4,092,316	2,624,599	874,835	1,467,717	592,882	171,284	335,756	3,047	957,630	0.827	791,960	1,869,684
4	3.5	4,194,624	2,705,974	887,005	1,488,650	601,645	173,815	341,015	512	973,308	0.766	745,554	2,615,238
5	4.5	4,299,490	2,791,030	899,584	1,508,460	608,876	175,904	346,357	525	985,674	0.710	699,829	3,315,067
6	5.5	4,910,018	2,884,460	912,585	2,025,558	1,112,973	321,538	351,793	3,052	1,349,175	0.658	887,757	4,202,824
7	6.5	5,018,038	2,981,657	925,757	2,036,381	1,110,624	320,859	356,351	540	1,358,631	0.609	827,406	5,030,230
8	7.5	5,128,435	3,082,768	939,603	2,045,667	1,106,064	319,542	361,965	552	1,363,608	0.565	770,439	5,800,669
9	8.5	5,754,104	3,187,947	953,905	2,566,157	1,612,252	465,780	367,677	3,128	1,729,572	0.523	904,566	6,705,235
10	9.5	5,880,694	3,297,354	968,671	2,583,340	1,614,669	466,478	373,484	634	1,742,744	0.485	845,231	7,550,466
11	10.5	6,010,069	3,411,155	983,914	2,598,914	1,615,000	466,574	379,390	646	1,752,304	0.449	786,784	8,337,250
12	11.5	6,502,895	3,529,526	999,645	2,973,369	1,973,724	570,209	385,394	2,465	2,015,301	0.416	838,365	9,175,615
13	12.5	6,645,959	3,652,643	1,014,485	2,993,316	1,978,831	571,684	391,503	715	2,029,414	0.386	783,354	9,958,969
14	13.5	6,792,170	3,780,697	1,031,224	3,011,473	1,980,249	572,094	397,713	730	2,040,936	0.357	728,614	10,687,583
15	14.5	7,349,128	3,913,880	1,048,492	3,435,248	2,386,756	689,534	404,031	2,786	2,338,897	0.331	774,175	11,461,758
16	15.5	7,349,128	4,060,649	1,009,636	3,288,479	2,278,843	658,358	321,918	-	2,308,203	0.307	708,618	12,170,376
17	16.5	7,349,128	4,213,126	1,022,508	3,136,002	2,113,494	610,588	325,573	-	2,199,841	0.284	624,755	12,795,131
18	17.5	7,790,076	4,371,535	1,035,679	3,418,541	2,382,862	688,409	329,273	2,205	2,398,654	0.263	630,846	13,425,977
19	18.5	7,790,076	4,536,109	1,049,154	3,253,967	2,204,813	636,970	333,017	-	2,283,980	0.244	557,291	13,983,268
20 and beyond	19.5	7,790,076	4,707,095	1,062,939	3,082,981	2,020,042	583,590	336,806	-	2,162,585	3.582	7,746,379	21,729,647
			68,751,382					7,095,110					
Age									19.5				
PW(Age) = 1/(1+Discount Rate)$^{(Age)}$									0.226				
PW to Perpetuity = 1/Capitalization Rate									15.848				
$PW_{(20and Beyond)}$ = PW to Perpetuity * PW $Factor_{(19.5)}$									3.582				

Based on the above described discounted cash flow analysis, the Income Approach to value of the East Norriton's wastewater property and its operations was determined to be $21,729,647.

Market Approach (Market Approach tab)

The market or comparable sales approach to value looks to market sales of comparable properties in order to arrive at value. In this appraisal, the market approach was addressed from a comparable sales approach using Pennsylvania 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 all subsequent to the passage of Act 12 in 2016. The sales of the City of McKeesport wastewater system, Sadsbury wastewater collection system, Exeter wastewater collection system, and Steelton water system to Pennsylvania American Water and the sales of New Garden Township's sewer utility, Limerick wastewater system, East Bradford wastewater collection system, and Cheltenham wastewater collection system to Aqua Pennsylvania, Inc. were analyzed in relationship to those properties depreciated original cost and depreciated replacement cost (Market Approach tab). The following table details the market sales analysis:

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
October 29, 2018

Comparable Sales Approach

Financial Basis[1]

	Industry Averages	American & Aqua Averages	American States Water	American Water	Aqua America	California Water	Connecticut Water	Consol. Water Co.	Middlesex Water	SJW Corp	York	
Price per Share			60.01	88.35	36.9	41.93	69.28	13.51	46.97	60.28	30.36	
Book value per share			15.2	31.75	11	14.45	24.7	10.45	14.85	22.6	10	
Market to Book Equity Ratio			3.95	2.78	3.35	2.9	2.8	1.29	3.16	2.67	3.04	
Minimum	1.29	2.78										
Mean	2.88	3.065		2.78	3.35							
Standard Deviation	0.67	0.285										
Weighted Market to Debt Ratio	2.97		9,976.43	67,566.47	29,697.49	8,294.51	3,052.30	261.18	3,028.07	4,470.01	1,471.59	127,818.05
Median	2.9	3.065										
Maximum	3.95	3.35										
Debt (Total) $s millions			321.3	8,358.0	2,299.9	844.6	255.7	0.3	188.3	431.3	92.0	
Outstanding Shares (millions)			36.73	180.49	177.91	48.07	12.04	14.96	16.39	20.62	12.91	
Debt per share			8.75	46.31	12.93	17.57	21.23	0.02	11.49	20.92	7.12	
Equity (Total) $s millions			2,204.38	15,946.49	6,565.02	2,015.58	834.41	202.16	769.95	1,242.86	392.08	
Total Capital (Debt + Equity)			2,525.68	24,304.49	8,864.92	2,860.18	1,090.11	202.46	958.25	1,674.16	484.08	42,964.32
			0.06	0.57	0.21	0.07	0.03	-	0.02	0.04	0.01	1.01
Market Value per Share (Equity+Debt)			68.76	134.66	49.83	59.5	90.51	13.53	58.46	81.2	37.48	
Book Value per Share (Equity+Debt)			23.95	78.06	23.93	32.02	45.93	10.47	26.34	43.52	17.12	
Market to Book (Total Capital) Ratio			2.87	1.73	2.08	1.86	1.97	1.29	2.22	1.87	2.19	
Minimum	1.29	1.73										
Mean	2.01	1.905		1.73	2.08							
Standard Deviation	0.40	0.175										
Weighted Market to Book (Debt&Equity) Ratio	1.90		7,248.69	42,046.76	18,439.04	5,319.93	2,147.51	261.18	2,127.31	3,130.68	1,060.13	81,781.23
Variance to Wtd Mean	0.1018		0.97	(0.17)	0.18	(0.04)	0.07	(0.61)	0.32	(0.03)	0.29	
Median	1.97	1.905										
Maximum	2.87	2.08										

1. Value Line Investment Survey October 12, 2018

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 (October 2018) were analyzed. In the analysis the companies' stock (market) and debt (book) per share are compared as a ratio to the book value per share which is detailed in the following table:

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Comparable Sales Approach

Market Sales Basis

Description	New Garden Wastewater System	McKeesport Wastewater System	Limerick Wastewater System	Mahoning Water System	Mahoning Wastewater System	East Bradford Wastewater Collection System	Sadsbury Wastewater Collection System	Exeter Wastwater Collection System	Steelton Water System	Cheltenham Wastewater Collection System	Simple Average / Standard Deviation	Remove Outliers Simple Average / Standard Deviation	Weighted Average	Remove Outliers Weighted Average / Standard Deviation	Use
System Description															
Type of System	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Water Treatment & Distribution	Wastewater Collection & Treatment	Wastewater Collection Only	Wastewater Collection Only	Wastewater Collection & Treatment	Water Treatment & Distribution	Wastewater Collection Only					
System Attributes															
Purchase Price	29,500,000	159,000,000	75,100,000	4,734,800	4,765,200	5,000,000	9,250,000	96,000,000	22,500,000	50,250,000			456,100,000	441,600,000	
Proportion of Purchase Price to Total	6%	35%	16%	1%	1%	1%	2%	21%	5%	11%			100%	97%	
Proportion of Purchase Price to Outlier Adjusted Total	7%	36%	17%				2%	22%	5%	11%				100%	
Acquirer	Aqua-PA	PA-American	Aqua-PA	SUEZ PA	SUEZ PA	Aqua-PA	PA-American	PA-American	PA-American	Aqua-PA					
Date	Aug-16	Sep-16				20-Dec-17		29-May-18	14-Nov-18	Jun-18					
Customers															
Original Cost														295,350,000	
Depreciated Original Cost (AUS Consultants) OCLD	18,567,728	101,915,080	46,153,867			5,383,591	6,128,876	40,057,634	14,433,435	15,784,463			248,424,674	243,041,083	
Purchase Price to OCLD	1.5888	1.5601	1.6272			0.9287	1.5092	2.3965	1.5589	3.1835	1.7941	1.5688	1.836	1.817	1.817
Variance to Simple Mean	-0.2053	-0.234	-0.1669			-0.8654	-0.2849	0.6024	-0.2352	1.3894	0.6426	0.3105			
Variance to Wtd Mean	-0.2472	-0.2759	-0.2088			-0.9073	-0.3268	0.5605	-0.2771	1.3475					
Replacement Cost New less Depreciation RCNLD	30,615,410	160,301,491	86,086,756	8,899,336	7,991,234	9,236,581	8,517,587	99,589,819	23,921,473	49,940,486			485,100,173	458,973,022	
Purchase Price to RCNLD	0.9636	0.9919	0.8724	0.532	0.5963	0.5413	1.086	0.964	0.9406	1.0062	0.8494	0.975	0.9402	0.9621	0.9621
Variance to Simple Mean	0.1142	0.1425	0.023	-0.3174	-0.2531	-0.3081	0.2366	0.1146	0.0912	0.1568	0.1989	0.0604			
Variance to Wtd Mean	0.0234	0.0517	-0.0678	-0.4082	-0.3439	-0.3989	0.1458	0.0238	0.0004	0.066			0.0273	0.0200	
Customers	2,100	20320	5,434			1,248	984								

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Market Approach Summary

Comparable Sales	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Depreciated Original Cost (AUS Consultants) OCLD	**8,407,007.17**	1.817	15,275,532
Replacement Cost New less Depreciation RCNLD	**27,461,355.67**	0.9621	26,420,570
Average			20,848,051
Use (RCNLD)			26,420,570

Financial Markets	Market Value per Share to Book Value per Share	
Market to Book (equity)	2.97	
Market to Book (equity and debt)	1.90	
Use (equity and debt)	1.90	Input

Market Conclusion	Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)		
East Norriton Sanitary Sewer System	East Norriton Sanitary Sewer System		
AUS Depreciated Original Cost	8,407,007	1.90	15,973,314

Market Value	Indicated Valus $s
Minimum	15,275,532
Mean	19,223,139
Median	15,973,314
Maximum	26,420,570
Use (RCNLD)	**26,420,570**

The market approach conclusion of this appraisal was determined to be $26,420,570.

Cost Approach Revisited – Before concluding this appraisal's fair market value, the preliminary cost approach conclusion of $27,461,356 needs to be evaluated to determine if external obsolescence exists in the preliminary replacement cost new less

depreciation conclusion of $27,461,356. The appraisal literature regarding developing a cost approach state:

> "The last step in the implementation of the cost approach is to estimate *economic obsolescence*. Economic obsolescence (sometimes called "external obsolescence") has been previously defined as the loss in value or usefulness of a property caused by factors external to the asset. These factors include increased cost of raw materials, labor, utilities (without an offsetting increase in product price); reduced demand for the product; increased competition; environmental or other regulations; or similar factors.
>
> The difficulty in measuring the full effect of economic obsolescence is one of the weaknesses of the cost approach. Because economic obsolescence is usually a function of outside influences that affect an entire business (i.e., all tangible and intangible assets) rather than individual assets or isolated groups of assets, it is sometimes measured using the income approach or by using the income approach to help identify the existence of economic influences on value. However, the cost approach can be used to measure some forms of economic obsolescence."[15]

The above described income approach value conclusion of $21,729,647 for the East Norriton's future sewer system and the market approach conclusion of $26,420,570 compared to the preliminary cost approach conclusion of $27,461,356 indicates no significant external obsolescence exists in the cost approach conclusion of $27,461,356 however, according to Section 1329 the fair market (FMV) rate base for ratemaking will be $21,000,000, i.e., the lesser of the purchase price ($21,000,000) or the appraised value ($24,064,594). Applying 0% external obsolescence to our example account of 361 Sewer District No. 1 Phase II Collection Mains the fair market value was determined as follow:

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

(36)	(37)	(38)	(39)	(40)	(41)
Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Calculation	Input	Calculation
AUS Input	Eng Assmnt	Eng Assmnt	CORLD	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
Account	Description	Year	Prelim CORLD	EO%	FMV
361.1	SEWER DISTRICT NO. 1 P	1970	2,656,301.96	23.53%	2,031,303.26
361.1	SEWER DISTRICT NO. 1 P	1970	222,180.60	23.53%	169,903.94
361.1	SEWER DISTRICT NO. 1 P	1970	87,356.44	23.53%	66,802.43
361.1	SEWER DISTRICT NO. 1 P	1970	227,046.84	23.53%	173,625.21
361.7	SEWER DISTRICT NO. 1 P	1970	477,283.82	23.53%	364,984.17
	Total 361 Phase II		3,670,169.66	-23.53%	2,806,619.01

Therefore, the preliminary cost approach conclusion of $27,461,356 can be considered the final cost approach conclusion as follows:

East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Fair Market Value

(36)	(37)	(38)	(39)	(40)	(41)
Account	Description	Placement Year	Preliminary Cost Approach CORLD $s	Economic Obsolescence % of Preliminary Cost Approach	Fair Market Value Appraisal Date Value $s
Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
Account	Description	Year	Prelim CORLD	EO%	FMV
353.1	Pump Station Land/Land Rights		1,928	23.53%	1,475
354.1	Pump Station Structures & Improvements		2,221,446	23.53%	1,698,764
355.0	Pump Station Power Generator Equipment		303,180	23.53%	231,845
360.0	Collection Mains - Force		1,241,357	23.53%	949,279
361.0	Collection Mains - Gravity		17,849,870	23.53%	13,649,991
363.0	Service Laterals		3,020,156	23.53%	2,309,546
364.0	Flow Meters		165,327	23.53%	126,428
371.0	Pumping Equipment		2,635,628	23.53%	2,015,493
396.0	Communication Equipment		22,464	23.53%	17,179
	Grand Total		**27,461,356**	23.53%	**21,000,000**

Value Conclusion

The Fair Market Value of East Norriton's sanitary wastewater collection system's property, plant and equipment and its operation was determined to be $25,064,594 as follows:

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Fair Market Value Appraisal

Appraisal Approach		Investor-owned Utility	Weight	Wtd Valuation Indications
Cost Approach				
Financials' Net Book (12-31-2016)				
Gross Book		8,545,000	2017	
Accumulated Depreciatiomn		(7,110,000)	2017	
Net Book		1,435,000	2017	
Inventory of Assets (10-29-2018)				
Original Cost ($OC)		16,246,828		
Depreciated Original Cost ($OCLD)		8,407,007		
Replacement Cost (10-29-2018)				
Replacement Cost New (COR)		70,770,233		
Depreciated Replacement Cost New (CORLD)	**$**	**27,461,356**		
Cost Approach Conclusion		**27,461,356**	**50%**	**13,730,678**
Income Approach				
Required Rate Increases: 15% period 3; 12% period 6; 10% period 9; 6% period 12; 6% period 15; 6% period 18 (Input 6)		21,729,647		
Income Approach Conclusion		**21,729,647**	**40%**	**8,691,859**
Market Approach				
Market Comparables (to)				
OCLD		15,275,532		
CORLD		26,420,570		
Market Financials (to)				
OCLD		15,973,314		
Market Approach Conclusion		**26,420,570**	**10%**	**2,642,057**
Appraisal Conclusion	**$**	**25,064,594**	**100%**	**25,064,594**
Conclusion (cost approach)	**$**	**27,461,356**		

As the purpose of this appraisal was to fulfill the requirements of Section 1329 of the PA CS in the establishment of value for rate making of East Norriton's sanitary wastewater collection system's property, plant and equipment this appraisal's conclusion of $25,064,594 is consistent with the purpose of the appraisal. As the cost approach work papers details our value conclusion by National Association of Regulatory Utility Commissioners' (NARUC) Uniform System of Accounts (USOA) for the water industry account classifications and the installation year of the property this detail it can be used to allocate the appraisal conclusion to establish the booked value for future accounting and rate making.

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

Fulfillment of Requirements for a Personal Property Appraisal and Report

- State the identity of the client and any intended users, by name or type:
  East Norriton Township, Pennsylvania and the Pennsylvania Public Utility Commission

- State the intended use of the appraisal
  To establish the Fair Market Value of East Norriton Township's Sanitary Wastewater 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.

  East Norriton Township's wastewater collection system 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
  East Norriton Township holds approximately 275 easements necessary to access its property.

- State the type and definition of value and city the source of the definition, including whether the opinion of value is in terms of cash or of financing terms equivalent to cash, or based on non-market financing or financing with unusual conditions or incentives
  - *Market Value definition:*
    "The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress." The Appraisal of Real Estate, 12th Edition, page 22.

- State the effective date of the appraisal and the date of the report
  The effective date of the appraisal is October 29, 2018 and the appraisal report date is May 2019.

- 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) 2018-2019
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. East Norriton Township's operating experience was analyzed (2010-2018) 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.

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

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

Fulfillment of Requirements for a Personal Property Appraisal and Report

See scope of work above.

- State the use of the real estate existing as of the date of value and the use of the real estate reflected in the appraisal – when reporting an opinion of market value, describe the support and rationale for the appraiser's opinion of the highest and best use of the real estate

- State and explain any permitted departures from specific requirements of STANDARD 1 and the reason for excluding any of the usual valuation approaches. The appraisal then becomes a limited appraisal – a limited appraisal report must contain a prominent section that clearly identifies the extent of the appraisal process performed and the departures taken

  No departures for Standard 1 were made.

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

  Contained in Narrative Report.

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

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 East Norriton Township, PA's Sanitary Wastewater Collection System previously in the last three year.

- AUS Consultants, Valuation and Depreciation Services Group, nor its professional staff has any present or prospective interest in the property that is the subject of this report and has no interest or bias with respect to the parties involved.

- We have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.

- Our engagement in this assignment is not contingent upon developing or reporting predetermined results.

- Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.

- Our analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice 2018-2019.

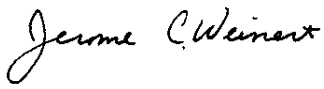
- The signers of this report have not made a personal inspection of the property that is the subject of this report.

- Individuals providing significant appraisal assistance to the person signing this certification include: Scott Shearer of PFM Financial Advisors, LLC - Public Financial Management, Inc. provided information and assistance in obtained from East Norriton Township, Pennsylvania and the Engineer's Assessment report prepared by Carroll Engineering Corporation which was the inventory starting point of the Cost Approach.

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

Fulfillment of Requirements for a Personal Property Appraisal and Report

AUS Consultants, Depreciation & Valuation
By:



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

David A. Sheffer
Principal

Michael J. Diedrich, ASA, P.E., CDP
Certified General Appraiser
Principal

Elizabeth A. Weinert
Associate

June 30, 2019

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

Fulfillment of Requirements for a Personal Property Appraisal and Report

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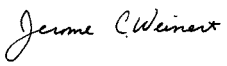
AUS Consultants, Valuation and Depreciation Services Group

By:



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

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
East Norriton Wastewater Collection System
Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Fair Market Value Appraisal

Appraisal Approach		Investor-owned Utility	Weight	Wtd Valuation Indications
Cost Approach				
Financials' Net Book (12-31-2016)				
Gross Book		8,545,000	2017	
Accumulated Depreciatiomn		(7,110,000)	2017	
Net Book		1,435,000	2017	
Inventory of Assets (10-29-2018)				
Original Cost ($OC)		16,246,828		
Depreciated Original Cost ($OCLD)		8,407,007		
Replacement Cost (10-29-2018)				
Replacement Cost New (COR)		70,770,233		
Depreciated Replacement Cost New (CORLD)	$	**27,461,356**		
Cost Approach Conclusion		**27,461,356**	**50%**	**13,730,678**
Income Approach				
Required Rate Increases: 15% period 3; 12% period 6; 10% period 9; 6% period 12; 6% period 15; 6% period 18 (Input 6)		21,729,647		
Income Approach Conclusion		**21,729,647**	**40%**	**8,691,859**
Market Approach				
Market Comparables (to)				
OCLD		15,275,532		
CORLD		26,420,570		
Market Financials (to)				
OCLD		15,973,314		
Market Approach Conclusion		**26,420,570**	**10%**	**2,642,057**
Appraisal Conclusion	$	**25,064,594**	**100%**	**25,064,594**
Conclusion (cost approach)	$	**27,461,356**		

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
East Norriton Wastewater Collection System
Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

Cost Approach

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

East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

	Column Reference in East Norriton OCLD & RCNLD	Amount in $s	
Depreciated Replacement Cost (RCNLD)			
Original Cost (OC)	(9)	16,246,828	
Replacement Cost New (RCN)	(16)	70,770,233	
Replacement Cost New less Depreciation (RCNLD)	(31)	27,461,356	
Fair Market Vaue (FMV)	(41)	21,000,000	21,000,000.00
			0.764710972
Depreciated Original Cost (OCLD)			0.235289028
Original Cost (OC)	(46)	16,246,828	
Original Cost less Depreciation (OCLD)	(57)	8,407,007	
Cost Approach Conclusion		21,000,000	

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
353.1	353.1	Pump Station Land/Land Rights			275.00	USBLS3			7.012	1,928	1.000	1,928
354.1	354.1	Pump Station Structures & Improvements			2,350,000.00	HWW-18			3.210	7,544,669	1.000	7,544,669
355.0	355.0	Pump Station Power Generator Equipment			472,449.00	USBLS4			1.842	870,384	1.000	870,384
360.0	360.0	Collection Mains - Force			757,848.13	HWW-144			5.164	3,913,629	1.000	3,913,629
361.0	361.0	Collection Mains - Gravity			8,084,501.49	HWW-144			4.893	39,557,426	1.000	39,557,426
363.0	363.0	Service Laterals			1,790,221.75	HWW-139			6.196	11,092,344	1.000	11,092,344
364.0	364.0	Flow Meters			201,724.00	HWW-140			2.211	446,027	1.000	446,027
371.0	371.0	Pumping Equipment			2,388,085.00	HWW-19			2.989	7,138,499	1.000	7,138,499
396.0	396.0	Communication Equipment			201,724.00	USBLS2			1.018	205,326	1.000	205,326
		Grand Total			**16,246,828.38**				**4.356**	**70,770,233**	**1.000**	**70,770,233**

Valuation Summary

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

(1)	(2)	(3)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
Account	Account	Asset Description	Account	Description	Placement Year	Age at October 29, 2018 Appraisal Date	Replacement Cost New (COR)	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 (COR less Normal Depreciation)	COR Weighted Age	COR Weighted Normal Remaining Life	COR Weighted Total Life Expectancy	COR Weighted Normal Service Life (NSL)
						years	COR $		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $	COR $ * Years	COR $ * Years	COR $ * Years	COR $ * Years
Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assmnt NARUC Code	Aud Input NARUC Code	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt Account	Eng Assmnt Description	Eng Assmnt Yearl	2018 (2018 FY) Age	Cst (-N) RCN	Aud Input Iowa	Aud Input NL	Col (21) / (24) AgeP	Col (22) & (25) IowaLookup	Lookup from Curves (-N-Tables) @ col (26) IowaCondition	Col (24) * (27) Rem Life	Col (21) + (28) Total Life	Col (28) / (24) Condition	Col (23) * (30) CORLD	COR * Age	COR * RL	COR * TL	COR * NL
353.1	353.1	Pump Station Land/Land Rights	353.1	Pump Station Land/Land Rights		47.50	1,928	Non-Depr	0.00				47.50	47.50	100.00%	1,928	91,604	91,604	91,604	-
354.1	354.1	Pump Station Structures & Improvements	354.1	Pump Station Structures & Improvements		40.12	7,544,669	R4.0	45.00				13.76	53.88	29.44%	2,221,446	302,692,841	103,832,167	406,525,008	339,510,105
355.0	355.0	Pump Station Power Generator Equipment	355.0	Pump Station Power Generator Equipment		29.95	870,384	R3.0	35.00				12.82	42.77	34.83%	303,180	26,071,742	11,157,746	37,229,488	30,463,447
360.0	360.0	Collection Mains - Force	360.0	Collection Mains - Force		46.49	3,913,629	R3.0	60.00				20.72	67.21	31.72%	1,241,357	181,951,637	81,090,740	263,042,376	234,817,761
361.0	361.0	Collection Mains - Gravity	361.0	Collection Mains - Gravity		46.90	30,557,426	R3.0	97.50				38.09	103.39	45.12%	17,849,870	1,855,056,840	1,506,736,103	4,089,795,310	3,857,019,019
363.0	363.0	Service Laterals	363.0	Service Laterals		45.33	11,092,344	R3.0	55.00				16.76	62.09	27.23%	3,020,159	502,785,014	185,999,377	688,684,392	610,078,937
364.0	364.0	Flow Meters	364.0	Flow Meters		26.82	446,027	R3.0	35.00				13.74	40.57	37.07%	165,327	11,963,797	6,129,625	18,093,422	15,610,960
371.0	371.0	Pumping Equipment	371.0	Pumping Equipment		25.79	7,138,499	R3.0	35.00				13.79	39.57	36.92%	2,635,639	184,086,437	98,404,300	282,490,737	249,847,452
396.0	396.0	Communication Equipment	396.0	Communication Equipment		26.34	205,329	R3.0	12.00				1.37	27.72	10.94%	22,464	5,408,938	282,154	5,691,092	2,461,913
		Grand Total		**Grand Total**		**42.38**	**70,770,251**		**25.45**				**28.17**	**41.84**	**58.80%**	**27,461,356**	**5,070,108,850**	**1,993,623,816**	**5,791,643,429**	**5,339,811,593**

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New less Depreciation (RCNLD)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

(1)	(2)	(3)
Account	Account	Asset Description
Input	Input	Input
Eng Assmnt	AUS Input	East Norriton Wastewater Collestion System's Engineer's Assessment (Eng. Assmnt)
NARUC Code	NARUC Code	Asset Description
353.1	353.1	Pump Station Land/Land Rights
354.1	354.1	Pump Station Structures & Improvements
355.0	355.0	Pump Station Power Generator Equipment
360.0	360.0	Collection Mains - Force
361.0	361.0	Collection Mains - Gravity
363.0	363.0	Service Laterals
364.0	364.0	Flow Meters
371.0	371.0	Pumping Equipment
396.0	396.0	Communication Equipment
		Grand Total

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Fair Market Value

(36)	(37)	(38)	(39)	(40)	(41)
Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
Account	Description	Year	Prelim CORLD	EO%	FMV
353.1	Pump Station Land/Land Rights		1,928	23.53%	1,475
354.1	Pump Station Structures & Improvements		2,221,446	23.53%	1,698,764
355.0	Pump Station Power Generator Equipment		303,180	23.53%	231,845
360.0	Collection Mains - Force		1,241,357	23.53%	949,279
361.0	Collection Mains - Gravity		17,849,870	23.53%	13,649,991
363.0	Service Laterals		3,020,156	23.53%	2,309,546
364.0	Flow Meters		165,327	23.53%	126,428
371.0	Pumping Equipment		2,635,628	23.53%	2,015,493
396.0	Communication Equipment		22,464	23.53%	17,179
	Grand Total		**27,461,356**	23.53%	**21,000,000**

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Determination of the Depreciated Original Cost

(1)	(2)	(3)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(54)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)
Account	Account	Asset Description	Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa type	Normal Service Life (NSL)	Age at October 29, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy	Normal Service Life (NSL)
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Orig Assmt NARUC Code	Acct Input NARUC Code	East Norriton Wastewater Collection System Engineer's Assessment (Orig. Assmt.)	Acct Input	Orig Assmt Descrip	Orig Assmt Year	Orig Assmt Original Cost	Acct Input Iowa	Acct Input Normal Life	2018 (Col I-H) age	Col (49) / (48) AgeP	Col (47) & (50) IowaLookup	Lookup Iowa Curves Life Table (E col. D1) Iowa Condition	Col (48) * (52) Rem Life	Col (48) + (53) Total Life	Col (52) / (54) Theo%	Col (48) * (55) Theo Reserve	Col (46) - (56) Net Book	Col (49) * (46) OC wtd Age	Col (53) * (57) OC wtd Rem Life	Col (54) * (57) OC wtd Total Life	Col (48) * (57) OC wtd Normal Life
353.1	353.1	Pump Station Land/Land Rights	353.1	Pump Station Land/Land Rights		275	Non-Depr	0.00	47.22				47.22	47.22	0.00000	-	275	12,987	12,987	12,987	
354.1	354.1	Pump Station Structures & Improvements	354.1	Pump Station Structures & Improvements		2,350,000	R4.0	45.00	18.52				29.14	47.66	0.35964	845,143	1,504,857	43,517,000	68,474,890	111,991,890	105,750,000
355.0	355.0	Pump Station Power Generator Equipment	355.0	Pump Station Power Generator Equipment		472,449	R3.0	35.00	20.83				17.58	38.42	0.51621	243,883	228,566	9,843,042	8,306,840	18,149,881	16,535,715
360.0	360.0	Collection Mains - Force	360.0	Collection Mains - Force		757,848	R3.0	60.00	31.89				32.28	64.17	0.48051	364,150	393,698	24,164,939	24,465,201	48,630,140	45,470,889
361.0	361.0	Collection Mains - Gravity	361.0	Collection Mains - Gravity		8,084,501	R3.0	80.12	35.65				47.74	83.39	0.42196	3,411,345	4,673,156	288,232,138	385,921,187	674,153,325	647,749,345
363.0	363.0	Service Laterals	363.0	Service Laterals		1,790,222	R3.0	55.00	42.27				18.93	61.19	0.68603	1,228,151	562,071	75,668,514	33,882,969	109,551,483	98,462,197
364.0	364.0	Flow Meters	364.0	Flow Meters		201,724	R3.0	35.00	21.43				16.88	38.31	0.00000	-	-	4,323,754	3,404,601	7,728,355	7,060,340
371.0	371.0	Pumping Equipment	371.0	Pumping Equipment		2,368,095	R3.0	12.31	21.89				15.84	13.22	0.57237	1,366,860	1,021,235	52,278,307	37,632,547	31,579,174	29,402,975
396.0	396.0	Communication Equipment	396.0	Communication Equipment		201,724	R3.0	12.00	21.43				1.44	22.88	0.88519	178,565	23,159	4,323,754	290,880	4,614,634	2,420,688
		Grand Total		Grand Total		16,246,828		58.65	30.92				34.61	61.95	0.47013	7,638,097	8,407,097	502,364,433	562,592,101	1,006,411,868	952,852,149

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
East Norriton Wastewater Collection System
Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

Income Approach

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Potential Purchaser: Investor-Owned Utility
As of October 29, 2018
Discounted Cash Flow Analysis

Discount Rate: 7.92%
Capitalization Rate: 6.31%

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Period	Age	Revenues	O&M Expenses	Tax Depreciation	Cash Flow from Operations	Taxable Income before State & Federal Taxes	State and Federal Taxes @ 28.89%	Capital Expenditures	Change in Working Capital	Net Cash Flows	Period Present Worth Factor (PW)	PW of Cashflow	Accumulated PW of Cashflows
					(3)-(4)	(6)-(5)	(7) *28.89%			(3)-(4)-(8)-(9)-(10)		(11)*(12)	Sum (13)
1	0.5	3,397,875	2,472,398	851,685	925,477	73,792	21,318	325,506	415	578,238	0.963	556,843	556,843
2	1.5	3,482,822	2,546,780	863,065	936,042	72,977	21,083	330,588	424	583,947	0.892	520,881	1,077,724
3	2.5	4,092,316	2,624,599	874,835	1,467,717	592,882	171,284	335,756	3,047	957,630	0.827	791,960	1,869,684
4	3.5	4,194,624	2,705,974	887,005	1,488,650	601,645	173,815	341,015	512	973,308	0.766	745,554	2,615,238
5	4.5	4,299,490	2,791,030	899,584	1,508,460	608,876	175,904	346,357	525	985,674	0.710	699,829	3,315,067
6	5.5	4,910,018	2,884,460	912,585	2,025,558	1,112,973	321,538	351,793	3,052	1,349,175	0.658	887,757	4,202,824
7	6.5	5,018,038	2,981,657	925,757	2,036,381	1,110,624	320,859	356,351	540	1,358,631	0.609	827,406	5,030,230
8	7.5	5,128,435	3,082,768	939,603	2,045,667	1,106,064	319,542	361,965	552	1,363,608	0.565	770,439	5,800,669
9	8.5	5,754,104	3,187,947	953,905	2,566,157	1,612,252	465,780	367,677	3,128	1,729,572	0.523	904,566	6,705,235
10	9.5	5,880,694	3,297,354	968,671	2,583,340	1,614,669	466,478	373,484	634	1,742,744	0.485	845,231	7,550,466
11	10.5	6,010,069	3,411,155	983,914	2,598,914	1,615,000	466,574	379,390	646	1,752,304	0.449	786,784	8,337,250
12	11.5	6,502,895	3,529,526	999,645	2,973,369	1,973,724	570,209	385,394	2,465	2,015,301	0.416	838,365	9,175,615
13	12.5	6,645,959	3,652,643	1,014,485	2,993,316	1,978,831	571,684	391,503	715	2,029,414	0.386	783,354	9,958,969
14	13.5	6,792,170	3,780,697	1,031,224	3,011,473	1,980,249	572,094	397,713	730	2,040,936	0.357	728,614	10,687,583
15	14.5	7,349,128	3,913,880	1,048,492	3,435,248	2,386,756	689,534	404,031	2,786	2,338,897	0.331	774,175	11,461,758
16	15.5	7,349,128	4,060,649	1,009,636	3,288,479	2,278,843	658,358	321,918	-	2,308,203	0.307	708,618	12,170,376
17	16.5	7,349,128	4,213,126	1,022,508	3,136,002	2,113,494	610,588	325,573	-	2,199,841	0.284	624,755	12,795,131
18	17.5	7,790,076	4,371,535	1,035,679	3,418,541	2,382,862	688,409	329,273	2,205	2,398,654	0.263	630,846	13,425,977
19	18.5	7,790,076	4,536,109	1,049,154	3,253,967	2,204,813	636,970	333,017	-	2,283,980	0.244	557,291	13,983,268
20 and beyond	19.5	7,790,076	4,707,095	1,062,939	3,082,981	2,020,042	583,590	336,806	-	2,162,585	3.582	7,746,379	21,729,647
			68,751,382					7,095,110					

Age 19.5
PW(Age) = 1/(1+Discount Rate)$^{(Age)}$ 0.226
PW to Perpetuity = 1/Capitalization Rate 15.848

$PW_{(Year\ 3\ Beyond)}$ = PW to Perpetuity * $PW\ Factor_{(19.5)}$ 3.582

Deferred Tax

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Potential Purchaser: Investor-Owned Utility
As of October 29, 2018
Calculated Rates of Return on Rate Base and Equity
(Years 1 through 20)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Period	Age	Revenues	O&M Expenses	Book Depreciation	Ratemaking Interest Expense	Book Taxable Income (Current + Deferred)	State and Federal Taxes @ 28.89%	Net Operating Income	Net (Equity) Income	Net Plant	Working Capital	Accumulated Deferred Income Taxes (ADIT)	Rate Base	Return on Rate Base	Net Equity	Return on Equity
						(3)-(4)-(5)-(6)	(7) *28.89%	(7)-(8)+(6)	(9) - (6)				(11)+(12)+(13)	(9)/(14)		(10)/(16)
1	0.5	3,397,875	2,472,398	822,335	280,350	(177,208)	(51,195)	154,337	(126,013)	20,503,171	16,990	(8,480)	20,511,681	0.75%	14,363,987	-0.88%
2	1.5	3,482,822	2,546,780	803,553	271,005	(138,516)	(40,017)	172,506	(98,499)	20,030,206	17,414	(25,673)	20,021,947	0.86%	14,062,488	-0.70%
3	2.5	4,092,316	2,624,599	781,489	261,972	424,256	122,568	563,660	301,688	19,584,473	20,461	(52,641)	19,552,293	2.88%	14,167,943	2.13%
4	3.5	4,194,624	2,705,974	756,079	253,239	479,332	138,479	594,092	340,853	19,169,409	20,973	(90,465)	19,099,917	3.11%	14,319,104	2.38%
5	4.5	4,299,490	2,791,030	735,949	244,798	527,713	152,456	620,055	375,257	18,779,817	21,498	(137,739)	18,663,576	3.32%	14,510,992	2.59%
6	5.5	4,910,018	2,884,460	712,780	236,638	1,076,140	310,897	1,001,881	765,243	18,418,830	24,550	(195,463)	18,247,917	5.49%	15,098,978	5.07%
7	6.5	5,018,038	2,981,657	695,964	228,750	1,111,667	321,161	1,019,256	790,506	18,079,213	25,090	(261,851)	17,842,452	5.71%	15,718,136	5.03%
8	7.5	5,128,435	3,082,768	669,465	221,125	1,155,077	333,702	1,042,500	821,375	17,771,709	25,642	(339,894)	17,457,457	5.97%	16,373,874	5.02%
9	8.5	5,754,104	3,187,947	645,269	213,754	1,707,134	493,191	1,427,697	1,213,943	17,494,113	28,770	(429,059)	17,093,824	8.35%	17,427,702	6.97%
10	9.5	5,880,694	3,297,354	625,929	206,629	1,750,782	505,801	1,451,610	1,244,981	17,241,665	29,404	(528,077)	16,742,992	8.67%	18,517,906	6.72%
11	10.5	6,010,069	3,411,155	603,479	199,741	1,795,694	518,776	1,476,659	1,276,918	17,017,572	30,050	(637,985)	16,409,637	9.00%	19,645,205	6.50%
12	11.5	6,502,895	3,529,526	581,610	193,083	2,198,676	635,197	1,756,562	1,563,479	16,821,352	32,515	(758,755)	16,095,112	10.91%	21,064,052	7.42%
13	12.5	6,645,959	3,652,643	562,484	186,647	2,244,185	648,345	1,782,487	1,595,840	16,650,367	33,230	(889,338)	15,794,259	11.29%	22,520,081	7.09%
14	13.5	6,792,170	3,780,697	542,312	180,426	2,288,735	661,215	1,807,946	1,627,520	16,505,763	33,960	(1,030,584)	15,509,139	11.66%	24,012,450	6.78%
15	14.5	7,349,128	3,913,880	521,207	174,411	2,739,630	791,479	2,122,562	1,948,151	16,388,583	36,746	(1,182,917)	15,242,412	13.93%	25,829,956	7.54%
16	15.5	7,349,128	4,060,649	506,152	168,598	2,613,729	755,106	2,027,221	1,858,623	16,204,346	36,746	(1,328,373)	14,912,719	13.59%	27,562,290	6.74%
17	16.5	7,349,128	4,213,126	489,424	162,978	2,483,600	717,512	1,929,066	1,766,088	16,040,491	36,746	(1,482,381)	14,594,856	13.22%	29,206,297	6.05%
18	17.5	7,790,076	4,371,535	476,751	157,545	2,784,245	804,369	2,137,421	1,979,876	15,893,009	38,951	(1,643,856)	14,288,104	14.96%	31,068,162	6.37%
19	18.5	7,790,076	4,536,109	464,693	152,294	2,636,980	761,824	2,027,450	1,875,156	15,761,329	38,951	(1,812,707)	13,987,573	14.49%	32,829,240	5.71%
20	19.5	7,790,076	4,707,095	449,374	147,217	2,486,390	718,318	1,915,289	1,768,072	15,648,757	38,951	(1,989,966)	13,697,742	13.98%	34,487,037	5.13%
										3,536,619.19						

Deferred Tax

Water and Wastewater Cost of Capital
Third Quarter 2018 (10-1-2018)

As a Investor-Owned Utility

Weighted Cost of Capital (Discount Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3)*(4a)
Debt	30%	Market	4.45%	Market	28.89%	71.11%	0.95%
Equity	70%	Market	9.95%	Market	0.0%	100.0%	6.97%
Total Capital r	100.0%						**7.92%**
Growth (g)							**1.52%**
Rate without Growth: [(1+r)/(1+g)]-1							**6.31%**

Weighted Cost of Capital (Capitlization Rate)

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	Market Capital Cost (2)*(3)
Debt	30%	Market	4.45%	Market	Not Applicable	Not Applicable	1.34%
Equity	70%	Market	9.95%	Market	Not Applicable	Not Applicable	6.97%
Total Capital r	100.0%						**8.31%**
Growth (g)							**1.52%**
Rate without Growth: [(1+r)/(1+g)]-1							**6.69%**

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

(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	Required Return on Rate Base (2)*(3)
Debt	45%	Embedded	4.99%	Embedded	Not Applicable	Not Applicable	2.25%
Equity	55%	Embedded	9.95%	Market	Not Applicable	Not Applicable	5.47%
Total Capital r	100.0%						**7.72%**
Growth (g)						Not Applicable	**0.00%**
Rate without Growth: [(1+r)/(1+g)]-1							**7.72%**

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
East Norriton Wastewater Collection System
Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

Market Approach

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Market Approach Summary

Comparable Sales	Book Ratios	Purchase Price to Depreciated Original Cost (Book Value)	Indicated Market Value
Depreciated Original Cost (AUS Consultants) OCLD	**8,407,007.17**	1.817	15,275,532
Replacement Cost New less Depreciation RCNLD	**27,461,355.67**	0.9621	26,420,570
Average			20,848,051
Use (RCNLD)			26,420,570

Financial Markets	Market Value per Share to Book Value per Share	
Market to Book (equity)	2.97	
Market to Book (equity and debt)	1.90	
Use (equity and debt)	1.90	Input

Market Conclusion	Investor Purchaser Owned Value to Depreciated Original Cost (Book Value)		
	East Norriton Sanitary Sewer System		
East Norriton Sanitary Sewer System			
AUS Depreciated Original Cost	8,407,007	1.90	15,973,314

Market Value	Indicated Valus $s
Minimum	15,275,532
Mean	19,223,139
Median	15,973,314
Maximum	26,420,570
Use (RCNLD)	**26,420,570**

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Comparable Sales Approach

Market Sales Basis

Description	New Garden Wastewater System	McKeesport Wastewater System	Limerick Wastewater System	Mahoning Water System	Mahoning Wastewater System	East Bradford Wastewater Collection System	Sadsbury Wastewater Collection System	Exeter Wastwater Collection System	Steelton Water System	Cheltenham Wastewarer Collection System	Simple Average / Standard Deviation	Remove Outliers Simple Average / Standard Deviation	Weighted Average	Remove Outliers Weighted Average / Standard Deviation	Use
System Description															
Type of System	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Wastewater Collection & Treatment	Water Treatment & Distribution	Wastewater Collection & Treatment	Wastewater Collection Only	Wastewater Collection Only	Wastewater Collection & Treatment	Water Treatment & Distribution	Wastewater Collection Only					
System Attributes															
Purchase Price	29,500,000	159,000,000	75,100,000	4,734,800	4,765,200	5,000,000	9,250,000	96,000,000	22,500,000	50,250,000			456,100,000	441,600,000	
Proportion of Purchase Price to Total	6%	35%	16%	1%	1%	1%	2%	21%	5%	11%			100%	97%	
Proportion of Purchase Price to Outlier Adjusted Total	7%	36%	17%				2%	22%	5%	11%				100%	
Acquirer	Aqua-PA	PA-American	Aqua-PA	SUEZ PA	SUEZ PA	Aqua-PA	PA-American	PA-American	PA-American	Aqua-PA					
Date	Aug-16	Sep-16				20-Dec-17		29-May-18	14-Nov-18	Jun-18					
Customers															
Original Cost														295,350,000	
Depreciated Original Cost (AUS Consultants) OCLD	18,567,728	101,915,080	46,153,867			5,383,591	6,128,876	40,057,634	14,433,435	15,784,463			248,424,674	243,041,083	
Purchase Price to OCLD	1.5888	1.5601	1.6272			0.9287	1.5092	2.3965	1.5589	3.1835	1.7941	1.5688	1.836	1.817	1.817
Variance to Simple Mean	-0.2053	-0.234	-0.1669			-0.8654	-0.2849	0.6024	-0.2352	1.3894	0.6426	0.3105			
Variance to Wtd Mean	-0.2472	-0.2759	-0.2088			-0.9073	-0.3268	0.5605	-0.2771	1.3475					
Replacement Cost New less Depreciation RCNLD	30,615,410	160,301,491	86,086,756	8,899,336	7,991,234	9,236,581	8,517,587	99,589,819	23,921,473	49,940,486			485,100,173	458,973,022	
Purchase Price to RCNLD	0.9636	0.9915	0.8724	0.532	0.5963	0.5413	1.086	0.964	0.9406	1.0062	0.8494	0.975	0.9402	0.9621	0.9621
Variance to Simple Mean	0.1142	0.1425	0.023	-0.3174	-0.2531	-0.3081	0.2366	0.1146	0.0912	0.1568	0.1989	0.0604			
Variance to Wtd Mean	0.0234	0.0517	-0.0678	-0.4082	-0.3439	-0.3989	0.1458	0.0238	0.0004	0.066			0.0273	0.0200	
Customers	2,100	20320	5,434			1,248	984								

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East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
October 29, 2018

Comparable Sales Approach

Financial Basis[1]

	Industry Averages	American & Aqua Averages	American States Water	American Water	Aqua America	California Water	Connecticut Water	Consol. Water Co.	Middlesex Water	SJW Corp	York	
Price per Share			60.01	88.35	36.9	41.93	69.28	13.51	46.97	60.28	30.36	
Book value per share			15.2	31.75	11	14.45	24.7	10.45	14.85	22.6	10	
Market to Book Equity Ratio			3.95	2.78	3.35	2.9	2.8	1.29	3.16	2.67	3.04	
Minimum	1.29	2.78										
Mean	2.88	3.065		2.78	3.35							
Standard Deviation	0.67	0.285										
Weighted Market to Debt Ratio	2.97		9,976.43	67,566.47	29,697.49	8,294.51	3,052.30	261.18	3,028.07	4,470.01	1,471.59	127,818.05
Median	2.9	3.065										
Maximum	3.95	3.35										
Debt (Total) $s millions			321.3	8,358.0	2,299.9	844.6	255.7	0.3	188.3	431.3	92.0	
Outstanding Shares (millions)			36.73	180.49	177.91	48.07	12.04	14.96	16.39	20.62	12.91	
Debt per share			8.75	46.31	12.93	17.57	21.23	0.02	11.49	20.92	7.12	
Equity (Total) $s millions			2,204.38	15,946.49	6,565.02	2,015.58	834.41	202.16	769.95	1,242.86	392.08	
Total Capital (Debt + Equity)			2,525.68	24,304.49	8,864.92	2,860.18	1,090.11	202.46	958.25	1,674.16	484.08	42,964.32
			0.06	0.57	0.21	0.07	0.03	-	0.02	0.04	0.01	1.01
Market Value per Share (Equity+Debt)			68.76	134.66	49.83	59.5	90.51	13.53	58.46	81.2	37.48	
Book Value per Share (Equity+Debt)			23.95	78.06	23.93	32.02	45.93	10.47	26.34	43.52	17.12	
Market to Book (Total Capital) Ratio			2.87	1.73	2.08	1.86	1.97	1.29	2.22	1.87	2.19	
Minimum	1.29	1.73										
Mean	2.01	1.905		1.73	2.08							
Standard Deviation	0.40	0.175										
Weighted Market to Book (Debt&Equity) Ratio	1.90		7,248.69	42,046.76	18,439.04	5,319.93	2,147.51	261.18	2,127.31	3,130.68	1,060.13	81,781.23
Variance to Wtd Mean	0.1018		0.97	(0.17)	0.18	(0.04)	0.07	(0.61)	0.32	(0.03)	0.29	
Median	1.97	1.905										
Maximum	2.87	2.08										

1. Value Line Investment Survey October 12, 2018

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
East Norriton Wastewater Collection System
Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

Cost Approach

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

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
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Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

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

Summary
&
Detail

AUS Consultants
Suite 201
8555 West Forest Home Avenue
Greenfield, Wisconsin 53228
Office Telephone: 414-529-5755
J. Weinert's Cell: 414-698-8371
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East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
353.1	353.1	Pump Station Land/Land Rights			275.00	USBLS3			7.012	1,928	1.000	1,928
354.1	354.1	Pump Station Structures & Improvements			2,350,000.00	HWW-18			3.210	7,544,669	1.000	7,544,669
355.0	355.0	Pump Station Power Generator Equipment			472,449.00	USBLS4			1.842	870,384	1.000	870,384
360.0	360.0	Collection Mains - Force			757,848.13	HWW-144			5.164	3,913,629	1.000	3,913,629
361.0	361.0	Collection Mains - Gravity			8,084,501.49	HWW-144			4.893	39,557,426	1.000	39,557,426
363.0	363.0	Service Laterals			1,790,221.75	HWW-139			6.196	11,092,344	1.000	11,092,344
364.0	364.0	Flow Meters			201,724.00	HWW-140			2.211	446,027	1.000	446,027
371.0	371.0	Pumping Equipment			2,388,085.00	HWW-19			2.989	7,138,499	1.000	7,138,499
396.0	396.0	Communication Equipment			201,724.00	USBLS2			1.018	205,326	1.000	205,326
		Grand Total			**16,246,828.38**				**4.356**	**70,770,233**	**1.000**	**70,770,233**

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	Yearindex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
		Pump Station Land/Land Rights										
353.1	353.1	Stony Creek No. 1 (Timberlake) Pump Station	1963	1963	1.00	USBLS3	20	184	9.200	9	1.000	9
353.1	353.1	Stony Creek No. 2 (Norris City) Pump Station	1963	1963	1.00	USBLS3	20	184	9.200	9	1.000	9
353.1	353.1	Stony Creek No. 3 (Germantown) Pump Station	1963	1963	1.00	USBLS3	20	184	9.200	9	1.000	9
353.1	353.1	Sandra Lane Pump Station	1981	1981	1.00	USBLS3	55	184	3.345	3	1.000	3
353.1	353.1	Burnside Avenue Pump Station	1995	1995	1.00	USBLS3	97	184	1.897	2	1.000	2
353.1	353.1	Schultz Road Pump Station	1981	1981	1.00	USBLS3	55	184	3.345	3	1.000	3
353.1	353.1	Whitehall Road Pump Station	1982	1982	1.00	USBLS3	59	184	3.119	3	1.000	3
353.1	353.1	Felton Road Pump Station	1975	1975	1.00	USBLS3	34	184	5.412	5	1.000	5
353.1	353.1	Einstein	2012	2012	1.00	USBLS3	184	184	1.122	1	1.000	1
353.1	353.1	Easements (year installed is average age of sewer system)	1971	1971	266.00	USBLS3	26	184	7.077	1,882	1.000	1,882
		Total Account 353.10			**275.00**					**1,928**		**1,928**
		Pump Station Structures & Improvements										
354.1	354.1	Stony Creek No. 1 (Timberlake) Pump Station	1960	1960	86,000.00	HWW-18	53	717	13.528	1,163,408	1.000	1,163,408
354.1	354.1	Stony Creek No. 2 (Norris City) Pump Station	1960	1960	127,000.00	HWW-18	53	717	13.528	1,718,056	1.000	1,718,056
354.1	354.1	Stony Creek No. 3 (Germantown) Pump Station	1960	1960	62,000.00	HWW-18	53	717	13.528	838,736	1.000	838,736
354.1	354.1	Sandra Lane Pump Station	1975	1975	67,000.00	HWW-18	127	717	5.646	378,282	1.000	378,282
354.1	354.1	Burnside Avenue Pump Station	1994	1994	310,000.00	HWW-18	308	717	2.328	721,680	1.000	721,680
354.1	354.1	Schultz Road Pump Station	1975	1975	55,000.00	HWW-18	127	717	5.646	310,530	1.000	310,530
354.1	354.1	Whitehall Road Pump Station	1975	1975	52,000.00	HWW-18	127	717	5.646	293,592	1.000	293,592
354.1	354.1	Felton Road Pump Station	1975	1975	52,000.00	HWW-18	127	717	5.646	293,592	1.000	293,592
354.1	354.1	Einstein	2012	2012	1,539,000.00	HWW-18	603.8	717	1.187	1,826,793	1.000	1,826,793
		Total Account 354.10			**2,350,000.00**					**7,544,669**		**7,544,669**
Account		Pump Station Power Generator Equipment										
355	355	Stony Creek No. 1 (Timberlake) Pump Station	1960	1960	8,000.00	USBLS4	29.2	214.7	7.353	58,824	1.000	58,824
355	355	1996 Upgrade	1996	1996	77,000.00	USBLS4	139.1	214.7	1.543	118,811	1.000	118,811

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
355	355	Stony Creek No. 2 (Norris City) Pump Station	1960	1960	12,000.00	USBLS4	29.2	214.7	7.353	88,236	1.000	88,236
355	355	1996 Upgrade	1996	1996	113,000.00	USBLS4	139.1	214.7	1.543	174,359	1.000	174,359
355	355	Stony Creek No. 3 (Germantown) Pump Station	1960	1960	6,000.00	USBLS4	29.2	214.7	7.353	44,118	1.000	44,118
355	355	1996 Upgrade	1996	1996	55,000.00	USBLS4	139.1	214.7	1.543	84,865	1.000	84,865
355	355	Sandra Lane Pump Station	1975	1975	6,000.00	USBLS4	52.5	214.7	4.090	24,540	1.000	24,540
355	355	1985 Upgrade	1985	1985	7,449.00	USBLS4	105	214.7	2.045	15,233	1.000	15,233
355	355	Burnside Avenue Pump Station	1994	1994	29,000.00	USBLS4	134.2	214.7	1.600	46,400	1.000	46,400
355	355	Schultz Road Pump Station	1975	1975	5,000.00	USBLS4	52.5	214.7	4.090	20,450	1.000	20,450
355	355	Whitehall Road Pump Station	1975	1975	5,000.00	USBLS4	52.5	214.7	4.090	20,450	1.000	20,450
355	355	Felton Road Pump Station	1975	1975	5,000.00	USBLS4	52.5	214.7	4.090	20,450	1.000	20,450
355	355	Einstein	2012	2012	144,000.00	USBLS4	201.2	214.7	1.067	153,648	1.000	153,648
355	**355**	**Total Account 355.00**			**472,449.00**	USBLS4			**1.842**	**870,384**	**1.000**	**870,384**
Account		Service Laterals										
363	363	4" VCP Laterals in the cartway(3,715 connections @ 15 ft long)	1971	1971	899,958.75	HWW-139	89	674	7.573	6,815,388	1.000	6,815,388
363	363	4" VCP Laterals out of the cartway(3,715 connections @ 10 ft lon	1971	1971	196,152.00	HWW-139	89	674	7.573	1,485,459	1.000	1,485,459
363	363	6" VCP Laterals in the cartway(650 connections @ 15 ft long)	1971	1971	163,020.00	HWW-139	89	674	7.573	1,234,550	1.000	1,234,550
363	363	6" VCP Laterals out of the cartway(650 connections @ 10 ft long)	1971	1971	38,090.00	HWW-139	89	674	7.573	288,456	1.000	288,456
363	363	4" PVC Laterals in the cartway(485 connections @ 15 ft long)	1990	1990	336,105.00	HWW-139	262	674	2.573	864,798	1.000	864,798
363	363	4" PVC Laterals out of the cartway(485 connections @ 10 ft long)	1990	1990	66,396.50	HWW-139	262	674	2.573	170,838	1.000	170,838
363	363	6" PVC Laterals in the cartway(105 connections @ 15 ft long)	1990	1990	74,781.00	HWW-139	262	674	2.573	192,412	1.000	192,412
363	363	6" PVC Laterals out of the cartway(105 connections @ 10 ft long)	1990	1990	15,718.50	HWW-139	262	674	2.573	40,444	1.000	40,444
		Total Account 363.00			**1,790,221.75**					**11,092,344**		**11,092,344**
Account		Flow Meters	YearInstalled		Total Cost							
364	364	Stony Creek No. 1 (Timberlake) Pump Station	1960	1960	3,000.00	HWW-140	78	443	5.679	17,037	1.000	17,037
364	364	1996 Upgrade	1996	1996	38,000.00	HWW-140	207	443	2.140	81,320	1.000	81,320
364	364	Stony Creek No. 2 (Norris City) Pump Station	1960	1960	4,000.00	HWW-140	78	443	5.679	22,716	1.000	22,716

East Norriton Township Pennsylvania
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Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15) Reproduction Cost New (RCN) to Replacement Cost New (COR)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)		Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
364	364	1996 Upgrade	1996	1996	57,000.00	HWW-140	207	443	2.140	121,980	1.000	121,980
364	364	Stony Creek No. 3 (Germantown) Pump Station	1960	1960	2,000.00	HWW-140	78	443	5.679	11,358	1.000	11,358
364	364	1996 Upgrade	1996	1996	28,000.00	HWW-140	207	443	2.140	59,920	1.000	59,920
364	364	Sandra Lane Pump Station	1975	1975	2,000.00	HWW-140	93	443	4.763	9,526	1.000	9,526
364	364	1985 Upgrade	1985	1985	3,724.00	HWW-140	135	443	3.281	12,218	1.000	12,218
364	364	Burnside Avenue Pump Station	1994	1994	10,000.00	HWW-140	175	443	2.531	25,310	1.000	25,310
364	364	Schultz Road Pump Station	1975	1975	2,000.00	HWW-140	93	443	4.763	9,526	1.000	9,526
364	364	Whitehall Road Pump Station	1975	1975	2,000.00	HWW-140	93	443	4.763	9,526	1.000	9,526
364	364	Felton Road Pump Station	1975	1975	2,000.00	HWW-140	93	443	4.763	9,526	1.000	9,526
364	364	Einstein	2012	2012	48,000.00	HWW-140	379.3	443	1.168	56,064	1.000	56,064
		Total Account 364.00			**201,724.00**					**446,027**		**446,027**
Account		Pumping Equipment	YearInstalled		Total Cost							
371	371	Stony Creek No. 1 (Timberlake) Pump Station	1960	1960	11,000.00	HWW-19	74	1261	17.041	187,451	1.000	187,451
371	371	1996 Upgrade	1996	1996	614,000.00	HWW-19	450	1261	2.802	1,720,428	1.000	1,720,428
371	371	Stony Creek No. 2 (Norris City) Pump Station	1960	1960	16,000.00	HWW-19	74	1261	17.041	272,656	1.000	272,656
371	371	1996 Upgrade	1996	1996	907,000.00	HWW-19	450	1261	2.802	2,541,414	1.000	2,541,414
371	371	Stony Creek No. 3 (Germantown) Pump Station	1960	1960	8,000.00	HWW-19	74	1261	17.041	136,328	1.000	136,328
371	371	1996 Upgrade	1996	1996	440,000.00	HWW-19	450	1261	2.802	1,232,880	1.000	1,232,880
371	371	Sandra Lane Pump Station	1975	1975	8,000.00	HWW-19	155	1261	8.135	65,080	1.000	65,080
371	371	1985 Upgrade	1985	1985	59,590.00	HWW-19	282	1261	4.472	266,486	1.000	266,486
371	371	Burnside Avenue Pump Station	1994	1994	39,000.00	HWW-19	428	1261	2.946	114,894	1.000	114,894
371	371	Schultz Road Pump Station	1975	1975	7,000.00	HWW-19	155	1261	8.135	56,945	1.000	56,945
371	371	1999 Pumps replaced	1999	1999	24,000.00	HWW-19	505	1261	2.497	59,928	1.000	59,928
371	371	Whitehall Road Pump Station	1975	1975	7,000.00	HWW-19	155	1261	8.135	56,945	1.000	56,945
371	371	1999 Repairs	1999	1999	6,926.00	HWW-19	505	1261	2.497	17,294	1.000	17,294
371	371	2014 Pump replacement	2014	2014	5,800.00	HWW-19	896	1261	1.407	8,161	1.000	8,161
371	371	2018 Procurement of packaged station (not installed)	2018	2018	35,769.00	HWW-19	1209.8	1261	1.042	37,271	1.000	37,271

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Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	Yearindex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
371	371	Felton Road Pump Station	1975	1975	7,000.00	HWW-19	155	1261	8.135	56,945	1.000	56,945
371	371	Einstein	2012	2012	192,000.00	HWW-19	787.5	1261	1.601	307,392	1.000	307,392
		Total Account 371.00			**2,388,085.00**					**7,138,499**		**7,138,499**
Account		Communication Equipment	YearInstalled		Total Cost							
396	396	Stony Creek No. 1 (Timberlake) Pump Station	1960	1960	3,000.00	USBLS2	26	93.1	3.581	10,743	1.000	10,743
396	396	1996 Upgrade	1996	1996	38,000.00	USBLS2	115	93.1	0.810	30,780	1.000	30,780
396	396	Stony Creek No. 2 (Norris City) Pump Station	1960	1960	4,000.00	USBLS2	26	93.1	3.581	14,324	1.000	14,324
396	396	1996 Upgrade	1996	1996	57,000.00	USBLS2	115	93.1	0.810	46,170	1.000	46,170
396	396	Stony Creek No. 3 (Germantown) Pump Station	1960	1960	2,000.00	USBLS2	26	93.1	3.581	7,162	1.000	7,162
396	396	1996 Upgrade	1996	1996	28,000.00	USBLS2	115	93.1	0.810	22,680	1.000	22,680
396	396	Sandra Lane Pump Station	1975	1975	2,000.00	USBLS2	49	93.1	1.900	3,800	1.000	3,800
396	396	1985 Upgrade	1985	1985	3,724.00	USBLS2	100	93.1	0.931	3,467	1.000	3,467
396	396	Burnside Avenue Pump Station	1994	1994	10,000.00	USBLS2	113	93.1	0.824	8,240	1.000	8,240
396	396	Schultz Road Pump Station	1975	1975	2,000.00	USBLS2	49	93.1	1.900	3,800	1.000	3,800
396	396	Whitehall Road Pump Station	1975	1975	2,000.00	USBLS2	49	93.1	1.900	3,800	1.000	3,800
396	396	Felton Road Pump Station	1975	1975	2,000.00	USBLS2	49	93.1	1.900	3,800	1.000	3,800
396	396	Einstein	2012	2012	48,000.00	USBLS2	96	93.1	0.970	46,560	1.000	46,560
		Total Account 396.00			**201,724.00**					**205,326**		**205,326**

EAST NORRITON TOWNSHIP
SANITARY SEWER SYSTEM
ASSET INVENTORY REPORT

Account		Collection Mains - Force										
360.1	360.1	Stony Creek No. 1 (Timberlake)	1962.5	1963	32,338.26	HWW-135	79	883	11.177	361,445	1.000	361,445
360.1	360.1	Stony Creek No. 2 (Norris City)	1962.5	1963	81,092.04	HWW-135	79	883	11.177	906,366	1.000	906,366
360.1	360.1	Stony Creek No. 3 (Germantown)	1962.5	1963	92,460.10	HWW-135	79	883	11.177	1,033,426	1.000	1,033,426

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Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15) Reproduction Cost New (RCN) to Replacement Cost New (COR)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)		Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
360.3	360.3	Stony Creek No. 3 (Germantown)	2012.0	2012	104,470.56	HWW-135	711.5	883	1.241	129,648	1.000	129,648
360.1	360.1	Felton Road	1974.5	1975	13,403.98	HWW-135	158	883	5.589	74,915	1.000	74,915
360.1	360.1	Sandra Lane	1975.0	1975	81,183.72	HWW-135	158	883	5.589	453,736	1.000	453,736
360.2	360.2	Burnside Road	1994.0	1994	117,614.96	HWW-138	191	401	2.099	246,874	1.000	246,874
360.1	360.1	Schultz Road	1974.5	1975	71,214.32	HWW-135	158	883	5.589	398,017	1.000	398,017
360.1	360.1	Whitehall Rd	1974.5	1975	24,285.21	HWW-135	158	883	5.589	135,730	1.000	135,730
360.3	360.3	Einstein	2012.0	2012	139,785.00	HWW-135	711.5	883	1.241	173,473	1.000	173,473
		Total			**757,848.13**					**3,913,629**		**3,913,629**
		Collection Mains - Gravity										
Account		SEWER DISTRICT NO. 1 PHASE I										
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	1962.5	1963	1,678,646.89	HWW-136	89	784	8.809	14,787,200	1.000	14,787,200
361.2	361.2	SEWER DISTRICT NO. 1 PHASE I - Mains CIP	1962.5	1963	1,429.45	HWW-135	79	883	11.177	15,977	1.000	15,977
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	1962.5	1963	33,402.90	HWW-136	89	784	8.809	294,246	1.000	294,246
361.2	361.2	SEWER DISTRICT NO. 1 PHASE I - Mains CIP	1962.5	1963	3,068.55	HWW-135	79	883	11.177	34,297	1.000	34,297
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	1962.5	1963	25,566.18	HWW-136	89	784	8.809	225,212	1.000	225,212
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	1962.5	1963	41,726.67	HWW-136	89	784	8.809	367,570	1.000	367,570
361.5	361.5	SEWER DISTRICT NO. 1 PHASE I - Mains RCP	1962.5	1963	8,581.57	HWW-135	79	883	11.177	95,916	1.000	95,916
361.5	361.5	SEWER DISTRICT NO. 1 PHASE I - Mains RCP	1962.5	1963	50,569.63	HWW-135	79	883	11.177	565,217	1.000	565,217
361.5	361.5	SEWER DISTRICT NO. 1 PHASE I - Mains RCP	1962.5	1963	9,645.80	HWW-135	79	883	11.177	107,811	1.000	107,811
361.7	361.7	SEWER DISTRICT NO. 1 PHASE I - Manholes	1962.5	1963	360,660.64	HWW-145	61.8	547.4	8.858	3,194,732	1.000	3,194,732
		Total			**2,213,298.28**					**19,688,179**		**19,688,179**
Account		SEWER DISTRICT NO. 1 PHASE II										
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	1970	1970	700,069.62	HWW-136	88	784	8.909	6,236,920	1.000	6,236,920
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	1970	1970	58,555.80	HWW-136	88	784	8.909	521,674	1.000	521,674
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	1970	1970	23,022.83	HWW-136	88	784	8.909	205,110	1.000	205,110
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	1970	1970	59,838.30	HWW-136	88	784	8.909	533,099	1.000	533,099
361.7	361.7	SEWER DISTRICT NO. 1 PHASE II - Manholes	1970	1970	167,862.29	HWW-145	82	547.4	6.676	1,120,649	1.000	1,120,649

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Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15) Reproduction Cost New (RCN) to Replacement Cost New (COR)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)		Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	Yearindex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
		Total 361 Phase II			**1,009,348.84**					**8,617,452**		**8,617,452**
Account		AUTUMN RIDGE										
361.3	361.3	AUTUMN RIDGE - Mains 8" PVC	2000	2000	217,823.86	HWW-136	231	401	1.736	378,142	1.000	378,142
361.7	361.7	AUTUMN RIDGE - Manholes	2000	2000	54,662.92	HWW-145	341.5	547.4	1.603	87,625	1.000	87,625
		Total			**272,486.77**					**465,767**		**465,767**
Account		OLD ARCH CROSSING										
361.3	361.3	OLD ARCH CROSSING - Mains 8" PVC	1986	1986	129,814.31	HWW-136	150	401	2.673	346,994	1.000	346,994
361.7	361.7	OLD ARCH CROSSING - Manholes	1986	1986	39,478.77	HWW-145	249	547.4	2.198	86,774	1.000	86,774
		Total			**169,293.08**					**433,768**		**433,768**
Account		NEW HOPE VILLAGE										
361.1	361.1	NEW HOPE VILLAGE - Mains 8" VCP	1980	1980	27,126.48	HWW-136	212	784	3.698	100,314	1.000	100,314
361.7	361.7	NEW HOPE VILLAGE - Manholes	1980	1980	14,221.50	HWW-145	185.7	547.4	2.948	41,925	1.000	41,925
		Total			**41,347.98**					**142,239**		**142,239**
Account		VILLAGE EAST										
361.1	361.1	VILLAGE EAST - Mains 8" VCP	1978	1978	50,927.88	HWW-136	176	784	4.455	226,884	1.000	226,884
361.7	361.7	VILLAGE EAST - Manholes	1978	1978	17,616.63	HWW-145	148.4	547.4	3.689	64,988	1.000	64,988
		Total			**68,544.51**					**291,871**		**291,871**
Account		FOX HUNT										
361.3	361.3	FOX HUNT - Mains 8" PVC	1994	1994	84,603.76	HWW-136	191	401	2.099	177,583	1.000	177,583
361.7	361.7	FOX HUNT - Manholes	1994	1994	23,759.61	HWW-145	290.8	547.4	1.882	44,716	1.000	44,716
		Total			**108,363.37**					**222,299**		**222,299**
Account		RESERVE AT PENN CROSSING										
361.3	361.3	RESERVE AT PENNS CROSSING - Mains 8" PVC	2003	2003	259,599.15	HWW-136	253.5	401	1.582	410,686	1.000	410,686
361.7	361.7	RESERVE AT PENNS CROSSING - Manholes	2003	2003	84,960.91	HWW-145	377.9	547.4	1.449	123,108	1.000	123,108

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Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
		Total			**344,560.06**					**533,794**		**533,794**
Account		KIMBERLY KNOLL										
361.1	361.1	KIMBERLY KNOLL - Mains 8" VCP	1979	1979	145,420.99	HWW-136	202	784	3.881	564,379	1.000	564,379
361.7	361.7	KIMBERLY KNOLL - Manholes	1979	1979	27,852.81	HWW-145	166	547.4	3.298	91,859	1.000	91,859
		Total			**173,273.81**					**656,237**		**656,237**
Account		EVERGREEN TERRACE										
361.3	361.3	EVERGREEN TERRACE - Mains 8" PVC	2010	2010	18,869.09	HWW-138	362	401	1.108	20,907	1.000	20,907
361.7	361.7	EVERGREEN TERRACE - Manholes	2010	2010	8,590.60	HWW-145	475.5	547.4	1.151	9,888	1.000	9,888
		Total			**27,459.69**					**30,795**		**30,795**
Account		THOMAS END										
361.6	361.6	THOMAS END - Mains 8" Unknown	1983	1983	64,597.65	HWW-144	199.6	595.4	2.983	192,695	1.000	192,695
361.7	361.7	THOMAS END - Manholes	1983	1983	13,893.94	HWW-145	229.5	547.4	2.385	33,137	1.000	33,137
		Total			**78,491.59**					**225,832**		**225,832**
Account		BARLY SHEAF										
361.3	361.3	BARLEY SHEAF - Mains 8" PVC	1986	1986	106,948.68	HWW-138	150	401	2.673	285,874	1.000	285,874
361.4	361.4	BARLEY SHEAF - Mains 8" DIP	1986	1986	5,478.44	HWW-135	263	883	3.357	18,391	1.000	18,391
361.7	361.7	BARLEY SHEAF - Manholes	1986	1986	48,222.65	HWW-145	249	547.4	2.198	105,993	1.000	105,993
		Total			**160,649.77**					**410,258**		**410,258**
Account		MARION AVENUE SEWER EXTENSION										
361.3	361.3	MARION AVENUE SEWER EXTENENSION - 8" PVC	2009	2009	137,640.61	HWW-138	397	401	1.010	139,017	1.000	139,017
361.7	361.7	MARION AVENUE SEWER EXTENENSION - Manholes	2009	2009	25,101.07	HWW-145	469.1	547.4	1.167	29,293	1.000	29,293
		Total			**162,741.68**					**168,310**		**168,310**
Account		WHITEHALL ROAD PROJECT										
361.1	361.1	WHITEHALL ROAD PROJECT - Mains 8" VCP	1980	1980	307,302.85	HWW-136	212	784	3.698	1,136,406	1.000	1,136,406

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Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15) Reproduction Cost New (RCN) to Replacement Cost New (COR)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Asmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	Yearindex	APPCostindex	Translator	RCN	COR / RCN Factor	COR
361.7	361.7	WHITEHALL ROAD PROJECT Manholes	1980	1980	58,466.15	HWW-145	185.7	547.4	2.948	172,358	1.000	172,358
		Total			**365,769.00**					**1,308,764**		**1,308,764**
Account		WOODLANDS AT WHITEHALL										
361.3	361.3	WOODLANDS AT WHITEHALL - Mains 8" PVC	1993	1993	62,033.95	HWW-138	193	401	2.078	128,907	1.000	128,907
361.7	361.7	WOODLANDS AT WHITEHALL - Manholes	1993	1993	20,346.41	HWW-145	282.2	547.4	1.940	39,472	1.000	39,472
		Total			**82,380.36**					**168,379**		**168,379**
Account		SUNSET KNOLL										
361.3	361.3	SUNSET KNOLL - Mains 8" PVC	1986	1986	82,598.18	HWW-138	150	401	2.673	220,785	1.000	220,785
361.7	361.7	SUNSET KNOLL - Manholes	1986	1986	16,773.10	HWW-145	249	547.4	2.198	36,867	1.000	36,867
		Total			**99,371.28**					**257,652**		**257,652**
Account		HEATHERWOOD										
361.3	361.3	HEATHERWOOD - Mains 8" PVC	2006	2006	147,277.41	HWW-138	332	401	1.208	177,911	1.000	177,911
361.7	361.7	HEATHERWOOD - Manholes	2006	2006	41,620.81	HWW-145	412.5	547.4	1.327	55,231	1.000	55,231
		Total			**188,898.22**					**233,142**		**233,142**
Account		LINFOOT WALKER										
361.1	361.1	LINFOOT WALKER - Mains 8" VCP	1985	1985	28,008.13	HWW-136	255	764	3.075	86,125	1.000	86,125
361.7	361.7	LINFOOT WALKER - Manholes	1985	1985	10,239.11	HWW-145	248.1	547.4	2.206	22,587	1.000	22,587
		Total			**38,247.24**					**108,712**		**108,712**
Account		PIMLICO FARMS										
361.3	361.3	PIMLICO FARMS - Mains 8" PVC	2007	2007	269,212.20	HWW-138	364.8	401	1.099	295,864	1.000	295,864
361.4	361.4	PIMLICO FARMS - Mains 8" DIP	2007	2007	16,716.21	HWW-135	534.3	883	1.653	27,632	1.000	27,632
361.7	361.7	PIMLICO FARMS - Manholes	2007	2007	97,216.60	HWW-145	443.3	547.4	1.235	120,063	1.000	120,063
		Total			**383,145.01**					**443,559**		**443,559**
Account		WHITEHALL ESTATES										

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Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15) Reproduction Cost New (RCN) to Replacement Cost New (COR)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)		Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
361.1	361.1	WHITEHALL ESTATES - Mains 8" VCP	1985	1985	79,147.16	HWW-136	255	784	3.075	243,378	1.000	243,378
361.7	361.7	WHITEHALL ESTATES - Manholes	1985	1985	20,478.21	HWW-145	248.1	547.4	2.206	45,175	1.000	45,175
		Total			**99,625.37**					**288,552**		**288,552**
Account		VILLGE OF CARALEA										
361.3	361.3	VILLAGE OF CARALEA - Mains 8" PVC	2007	2007	232,559.38	HWW-136	364.8	401	1.099	255,583	1.000	255,583
361.4	361.4	VILLAGE OF CARALEA - Mains 8" DIP	2007	2007	6,013.03	HWW-135	534.3	883	1.653	9,940	1.000	9,940
361.7	361.7	VILLAGE OF CARALEA - Manholes	2007	2007	54,441.29	HWW-145	443.3	547.4	1.235	67,235	1.000	67,235
		Total			**293,013.70**					**332,757**		**332,757**
Account		NORRITON BUSINESS CAMPUS										
361.3	361.3	NORRITON BUSINESS CAMPUS - Mains 8" PVC	2007	2007	419,022.26	HWW-136	364.8	401	1.099	460,505	1.000	460,505
361.7	361.7	NORRITON BUSINESS CAMPUS - Manholes	2007	2007	147,769.23	HWW-145	443.3	547.4	1.235	182,495	1.000	182,495
		Total			**566,791.49**					**643,000**		**643,000**
Account		STONEBRIDGE ESTATES										
361.3	361.3	STONEBRIDGE ESTATES - Mains 8" PVC	1994	1994	129,784.18	HWW-136	191	401	2.099	272,417	1.000	272,417
361.4	361.4	STONEBRIDGE ESTATES - Mains 8" DIP	1994	1994	33,228.74	HWW-135	339	883	2.605	86,561	1.000	86,561
361.7	361.7	STONEBRIDGE ESTATES - Manholes	1994	1994	31,679.48	HWW-145	290.8	547.4	1.882	59,621	1.000	59,621
		Total			**194,692.40**					**418,599**		**418,599**
Account		ELIZABETH MYERS										
361.1	361.1	ELIZABETH MYERS - Mains 8" VCP	1985	1985	58,106.93	HWW-136	255	784	3.075	178,679	1.000	178,679
361.3	361.3	ELIZABETH MYERS - Mains 8" PVC	2000	2000	20,083.56	HWW-136	231	401	1.736	34,865	1.000	34,865
361.7	361.7	ELIZABETH MYERS - Manholes	1985	1985	12,286.93	HWW-145	248.1	547.4	2.206	27,105	1.000	27,105
361.7	361.7	ELIZABETH MYERS - Manholes	2000	2000	6,073.66	HWW-145	341.5	547.4	1.603	9,736	1.000	9,736
		Total			**96,551.08**					**250,385**		**250,385**
Account		GLEN MOORE										
361.1	361.1	GLEN MOORE - Mains 8" VCP	1978	1978	35,395.13	HWW-136	176	784	4.455	157,685	1.000	157,685

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Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
361.7	361.7	GLEN MOORE - Manholes	1978	1978	6,775.63	HWW-145	148.4	547.4	3.689	24,995	1.000	24,995
		Total			**42,170.76**					**182,681**		**182,681**
Account		WOODLAND MANOR										
361.1	361.1	WOODLAND MANOR - Mains 8" VCP	1975	1975	56,474.14	HWW-136	148	784	5.297	299,144	1.000	299,144
361.7	361.7	WOODLAND MANOR - Manholes	1975	1975	12,371.87	HWW-145	125.1	547.4	4.376	54,139	1.000	54,139
		Total			**68,846.01**					**353,283**		**353,283**
Account		NICK & LES										
361.3	361.3	NICK & LES - Mains 8" PVC	1996	1996	99,663.30	HWW-138	211	401	1.900	189,360	1.000	189,360
361.7	361.7	NICK & LES - Manholes	1996	1996	30,177.91	HWW-145	310.5	547.4	1.763	53,204	1.000	53,204
		Total			**129,841.20**					**242,564**		**242,564**
Account		TANGLEWOOD										
361.1	361.1	TANGLEWOOD - Mains 8" VCP	1975	1975	69,624.21	HWW-136	148	784	5.297	368,799	1.000	368,799
361.7	361.7	TANGLEWOOD - Manholes	1975	1975	16,495.82	HWW-145	125.1	547.4	4.376	72,186	1.000	72,186
		Total			**86,120.04**					**440,985**		**440,985**
Account		VALLEY FORGE GREENE										
361.3	361.3	VALLEY FORGE GREENE - Mains 8" PVC	1996	1996	12,479.63	HWW-138	211	401	1.900	23,711	1.000	23,711
361.7	361.7	VALLEY FORGE GREENE - Manholes	1996	1996	8,230.34	HWW-145	310.5	547.4	1.763	14,510	1.000	14,510
		Total			**20,709.97**					**38,221**		**38,221**
Account		WOODSTREAM CROSSING II										
361.1	361.1	WOODSTREAM CROSSING II - Mains 8" VCP	1975	1975	121,636.46	HWW-136	148	784	5.297	644,308	1.000	644,308
361.7	361.7	WOODSTREAM CROSSING II - Manholes	1975	1975	24,743.74	HWW-145	125.1	547.4	4.376	108,279	1.000	108,279
		Total			**146,380.20**					**752,587**		**752,587**
Account		HOLLY HILL EAST										
361.1	361.1	HOLLY HILL EAST - Mains 8" VCP	1975	1975	87,645.33	HWW-136	148	784	5.297	464,257	1.000	464,257

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Replacement Cost New (RCN)

(1)	(2)	(3)	(4)	(5)	(9)	(10)	(11)	(12)	(13)	(14)	(15) Reproduction Cost New (RCN) to Replacement Cost New (COR)	(16)
Account	Account	Asset Description	Average Year Installed	Average Year Installed	Original Cost	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
					OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Asmnt)	Eng Assmnt	AUS Input	Eng Assmnt	AUS Input	Cost Indices Lookup Cols(10) & (5)	Cost Indices Lookup Cols(10) & Study YR	Col (12) / (11)	Col (5) * (13)	AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Service Date	Year Installed	Original Cost	Cost Index Table	YearIndex	APPCostIndex	Translator	RCN	COR / RCN Factor	COR
361.7	361.7	HOLLY HILL EAST - Manholes	1975	1975	19,588.79	HWW-145	125.1	547.4	4.376	85,721	1.000	85,721
		Total			**107,234.12**					**549,978**		**549,978**
Account		TIOGA LEASING										
361.1	361.1	TIOGA LEASING - Mains 8" VCP	1975	1975	65,442.02	HWW-136	148	784	5.297	346,646	1.000	346,646
361.7	361.7	TIOGA LEASING - Manholes	1975	1975	12,371.87	HWW-145	125.1	547.4	4.376	54,139	1.000	54,139
		Total			**77,813.89**					**400,786**		**400,786**
Account		EINSTEIN MEDICAL CENTER										
361.3	361.3	EINSTEIN MEDICAL CENTER - Mains 8" PVC	2012	2012	94,421.25	HWW-138	406.8	401	0.986	93,099	1.000	93,099
361.7	361.7	EINSTEIN MEDICAL CENTER - Manholes	2012	2012	31,806.40	HWW-145	491.1	547.4	1.115	35,464	1.000	35,464
		Total			**126,227.65**					**128,564**		**128,564**
Account		UNKNOWN SEWER EXTENSIONS										
361.6	361.6	UKNOWN SEWER EXTENSIONS - Mains 8" Unknown	1981	1981	34,324.96	HWW-144	185.5	595.4	3.210	110,183	1.000	110,183
361.7	361.7	UKNOWN SEWER EXTENSIONS - Manholes	1981	1981	6,488.10	HWW-145	205.4	547.4	2.665	17,291	1.000	17,291
		Total			**40,813.07**					**127,474**		**127,474**
		Total Collection Sewers - Gravity			**8,084,501.49**					**39,557,426**		**39,557,426**
		Total			**16,246,828.38**				**4.355941438**	**70,770,233**		**70,770,233**

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
East Norriton Wastewater Collection System
Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

Cost Approach
Replacement Cost New less Depreciation (CORLD)

Summary
&
Detail

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

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Replacement Cost New (RCN)

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Replacement Cost New less Depreciation (RCNLD)

(1)	(2)	(3)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
Account	Account	Asset Description	Account	Description	Placement Year	Age at October 29, 2018 Appraisal Date	Replacement Cost New (COR)	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 (COR less Normal Depreciation)	COR Weighted Age	COR Weighted Normal Remaining Life	COR Weighted Total Life Expectancy	COR Weighted Normal Service Life (NSL)
						years	COR $		years	% of NSL		%	years	years	% of COR	COR/LD $	COR $ * Years	COR $ * Years	COR $ * Years	COR $ * Years
Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assmt NARUC Code	Act Input NARUC Code	Asset Description	Eng Assmt Account	Eng Assmt Description	Eng Assmt Year1	2018 (2018 - 5) Age	Col (18) RCN	Assb Input Iowa	Assb Input NL	Col (21) / (24) AgeP	Col (23) & (25) IowaLookup	Lookup Iowa Curves Life Tables @ Col (26) IowaCondition	Col (24) * (27) Rem Life	Col (21) + (29) Total Life	Col (26) / (28) Condition	Col (20) * (30) CORLD	Col (21) * (31) COR * Age	Col (22) * (29) COR * RL	Col (22) * (28) COR * TL	Col (22) * (24) COR * NL
353.1	353.1	Pump Station Land/Land Rights	353.1	Pump Station Land/Land Rights		47.50	1,928	Non-Depr	0.00				47.50	47.50	100.00%	1,928	91,604	91,604	91,604	
354.1	354.1	Pump Station Structures & Improvements	354.1	Pump Station Structures & Improvements		40.12	7,544,669	R4.0	45.00				13.76	53.88	29.44%	2,221,446	302,692,841	103,832,167	406,525,008	339,510,105
355.0	355.0	Pump Station Power Generator Equipment	355.0	Pump Station Power Generator Equipment		29.95	870,384	R3.0	35.00				12.82	42.77	34.83%	303,180	26,071,742	11,157,746	37,229,488	30,463,447
360.0	360.0	Collection Mains - Force	360.0	Collection Mains - Force		46.49	3,913,629	R3.0	60.00				20.72	67.21	31.72%	1,241,357	181,951,637	81,090,740	263,042,376	234,817,761
361.0	361.0	Collection Mains - Gravity	361.0	Collection Mains - Gravity		46.90	39,557,426	R3.0	97.50				38.09	103.39	45.12%	17,849,870	1,855,056,840	1,506,736,103	4,089,795,310	3,857,019,019
363.0	363.0	Service Laterals	363.0	Service Laterals		45.33	11,092,344	R3.0	55.00				16.76	62.09	27.23%	3,020,156	502,795,014	185,889,377	688,684,392	610,078,937
364.0	364.0	Flow Meters	364.0	Flow Meters		26.82	448,027	R3.0	35.00				13.74	40.57	37.07%	165,327	11,963,797	6,129,625	18,093,422	15,610,960
371.0	371.0	Pumping Equipment	371.0	Pumping Equipment		25.79	7,138,499	R3.0	35.00				13.79	39.57	34.92%	2,635,628	184,086,437	99,404,300	282,490,737	249,847,452
396.0	396.0	Communication Equipment	396.0	Communication Equipment		26.34	205,326	R3.0	12.00				1.37	27.72	10.04%	22,464	5,408,934	282,154	5,691,088	2,463,912
		Grand Total		**Grand Total**		**43.38**	**70,770,233**		**75.45**				**38.17**	**81.84**	**38.80%**	**27,461,356**	**3,070,106,850**	**1,993,623,816**	**5,791,441,429**	**5,339,811,595**

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Replacement Cost New (RCN)

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East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
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Replacement Cost New less Depreciation (RCNLD)

(1)	(2)	(3)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
Account	Account	Asset Description	Account	Description	Placement Year	Age at October 29, 2018 Appraisal Date	Replacement Cost New (COR)	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 (COR less Normal Depreciation)	COR Weighted Age	COR Weighted Normal Remaining Life	COR Weighted Total Life Expectancy	COR Weighted Normal Service Life (NSL)
						years	COR $'s		years	% of NSL	Lookup	%	years	years	% of COR	COR $'s	COR $'s * Years	COR $'s * Years	COR $'s * Years	COR $'s * Years
Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assmt NARUC Code	Eng Assmt NARUC Code	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Averitte)	Eng Assmt Account	Eng Assmt Description	Eng Assmt Year	2018-(22)=(21)	(22) (18)	Iowa	NSL Input	(24) = (21) / (24)	(23) & (25)	Lookup Iowa Curves Life Tables @ col (26)	(27) = (24) * (27)	(28) = (21) + (28)	(29) = (28) / (28)	(30) = (22) * (29)	(31) = (22) * (21)	(32) = (22) * (28)	(33) = (22) * (26)	(34) = (22) * (24)
Code	Code	Asset Description	Account	Description	Year1	Age	RCN	Iowa	NL	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	CORLD	COR * Age	COR * RL	COR * TL	COR * NL
		Pump Station Land/Land Rights																		
353.1	353.1	Stony Creek No. 1 (Timberlake) Pump Station	353.1	Stony Creek No. 1 (Timberlake) Pump St	1963	55.50	9	Non-Depr	0.0	0	Non-Depr000	1.00000	55.50	55.50	100.000000%	9.20	511	511	511	-
353.1	353.1	Stony Creek No. 2 (Norris City) Pump Station	353.1	Stony Creek No. 2 (Norris City) Pump Sta	1963	55.50	9	Non-Depr	0.0	0	Non-Depr000	1.00000	55.50	55.50	100.000000%	9.20	511	511	511	-
353.1	353.1	Stony Creek No. 3 (Germantown) Pump Station	353.1	Stony Creek No. 3 (Germantown) Pump S	1963	55.50	9	Non-Depr	0.0	0	Non-Depr000	1.00000	55.50	55.50	100.000000%	9.20	511	511	511	-
353.1	353.1	Sandra Lane Pump Station	353.1	Sandra Lane Pump Station	1981	37.50	3	Non-Depr	0.0	0	Non-Depr000	1.00000	37.50	37.50	100.000000%	3.39	128	128	128	-
353.1	353.1	Burnside Avenue Pump Station	353.1	Burnside Avenue Pump Station	1995	23.50	2	Non-Depr	0.0	0	Non-Depr000	1.00000	23.50	23.50	100.000000%	1.90	45	45	45	-
353.1	353.1	Schultz Road Pump Station	353.1	Schultz Road Pump Station	1981	37.50	3	Non-Depr	0.0	0	Non-Depr000	1.00000	37.50	37.50	100.000000%	3.39	128	128	128	-
353.1	353.1	Whitehall Road Pump Station	353.1	Whitehall Road Pump Station	1982	36.50	3	Non-Depr	0.0	0	Non-Depr000	1.00000	36.50	36.50	100.000000%	3.13	114	114	114	-
353.1	353.1	Felton Road Pump Station	353.1	Felton Road Pump Station	1975	43.50	5	Non-Depr	0.0	0	Non-Depr000	1.00000	43.50	43.50	100.000000%	5.41	235	235	235	-
353.1	353.1	Einstein	353.1	Einstein	2012	6.50	1	Non-Depr	0.0	0	Non-Depr000	1.00000	6.50	6.50	100.000000%	1.12	7	7	7	-
353.1	353.1	Easements (year installed is average age of sewer system)	353.1	Easements (year installed is average age	1971	47.50	1,882	Non-Depr	0.0	0	Non-Depr000	1.00000	47.50	47.50	100.000000%	1,882.48	89,418	89,418	89,418	-
		Total Account 353.10					**1,929**									**1,929**	**91,604**	**91,604**	**91,604**	-
		Pump Station Structures & Improvements																		
354.1	354.1	Stony Creek No. 1 (Timberlake) Pump Station	354.1	Stony Creek No. 1 (Timberlake) Pump St	1960	58.50	1,163,406	R4.0	45.0	130	R4.0130	0.05022	2.26	60.76	3.719552%	43,273.57	89,059,368	2,629,302	70,688,670	52,353,360
354.1	354.1	Stony Creek No. 2 (Norris City) Pump Station	354.1	Stony Creek No. 2 (Norris City) Pump Sta	1960	58.50	1,718,056	R4.0	45.0	130	R4.0130	0.05022	2.26	60.76	3.719552%	63,903.99	100,506,276	3,682,607	104,389,063	77,312,520
354.1	354.1	Stony Creek No. 3 (Germantown) Pump Station	354.1	Stony Creek No. 3 (Germantown) Pump S	1960	58.50	838,736	R4.0	45.0	130	R4.0130	0.05022	2.26	60.76	3.719552%	31,197.22	49,066,056	1,865,543	50,981,599	37,743,120
354.1	354.1	Sandra Lane Pump Station	354.1	Sandra Lane Pump Station	1975	43.50	376,282	R4.0	45.0	97	R4.0097	0.16103	7.25	50.75	14.285714%	54,040.28	16,456,267	2,742,545	19,197,812	17,022,890
354.1	354.1	Burnside Avenue Pump Station	354.1	Burnside Avenue Pump Station	1994	24.50	721,880	R4.0	45.0	54	R4.0054	0.47598	21.42	45.92	46.648341%	336,637.31	17,681,180	15,458,386	33,139,566	32,475,800
354.1	354.1	Schultz Road Pump Station	354.1	Schultz Road Pump Station	1975	43.50	310,530	R4.0	45.0	97	R4.0097	0.16103	7.25	50.75	14.285714%	44,361.43	13,508,055	2,251,343	15,759,398	13,973,850
354.1	354.1	Whitehall Road Pump Station	354.1	Whitehall Road Pump Station	1975	43.50	293,592	R4.0	45.0	97	R4.0097	0.16103	7.25	50.75	14.285714%	41,941.71	12,771,252	2,128,542	14,899,794	13,211,640
354.1	354.1	Felton Road Pump Station	354.1	Felton Road Pump Station	1975	43.50	293,592	R4.0	45.0	97	R4.0097	0.16103	7.25	50.75	14.285714%	41,941.71	12,771,252	2,128,542	14,899,794	13,211,640
354.1	354.1	Einstein	354.1	Einstein	2012	6.50	1,626,793	R4.0	45.0	14	R4.0014	0.86031	38.71	45.21	85.622650%	1,564,148.58	11,874,155	70,715,157	82,589,312	82,205,685
		Total Account 354.10					**7,044,869**									**2,221,446**	**302,692,841**	**103,682,167**	**406,826,008**	**359,810,105**
Account		Pump Station Power Generator Equipment																		
355	355	Stony Creek No. 1 (Timberlake) Pump Station	355	Stony Creek No. 1 (Timberlake) Pump St	1960	58.50	58,824	R3.0	35.0	167	R3.0167	0.00641	0.22	58.72	0.374659%	220.39	3,441,204	12,941	3,454,145	2,059,640
355	355	1998 Upgrade	355	1998 Upgrade	1998	22.50	118,811	R3.0	35.0	64	R3.0064	0.42683	14.94	37.44	39.903846%	47,410.18	2,673,246	1,775,036	4,448,284	4,158,385
355	355	Stony Creek No. 2 (Norris City) Pump Station	355	Stony Creek No. 2 (Norris City) Pump Sta	1960	58.50	86,236	R3.0	35.0	167	R3.0167	0.00641	0.22	58.72	0.374659%	330.58	5,181,606	19,412	5,181,218	3,089,260
355	355	1998 Upgrade	355	1998 Upgrade	1998	22.50	174,359	R3.0	35.0	64	R3.0064	0.42683	14.94	37.44	39.903846%	69,575.95	3,923,078	2,604,823	6,528,001	6,102,565
355	355	Stony Creek No. 3 (Germantown) Pump Station	355	Stony Creek No. 3 (Germantown) Pump S	1960	58.50	44,116	R3.0	35.0	167	R3.0167	0.00641	0.22	58.72	0.374659%	169.29	2,580,903	9,706	2,590,609	1,544,130
355	355	1998 Upgrade	355	1998 Upgrade	1998	22.50	84,885	R3.0	35.0	64	R3.0064	0.42683	14.94	37.44	39.903846%	33,864.40	1,909,463	1,267,883	3,177,346	2,970,275
355	355	Sandra Lane Pump Station	355	Sandra Lane Pump Station	1975	43.50	24,540	R3.0	35.0	124	R3.0124	0.11382	3.98	47.48	8.382477%	2,057.06	1,067,460	97,669	1,165,159	858,900
355	355	1985 Upgrade	355	1985 Upgrade	1985	33.50	15,233	R3.0	35.0	96	R3.0096	0.22130	7.75	41.25	16.787679%	2,862.00	510,313	118,057	628,370	533,182
355	355	Burnside Avenue Pump Station	355	Burnside Avenue Pump Station	1994	24.50	46,400	R3.0	35.0	70	R3.0070	0.38241	13.39	37.89	35.339140%	16,397.36	1,136,800	621,296	1,758,096	1,624,000
355	355	Schultz Road Pump Station	355	Schultz Road Pump Station	1975	43.50	20,450	R3.0	35.0	124	R3.0124	0.11382	3.98	47.48	8.382477%	1,714.22	889,575	81,381	970,956	715,750
355	355	Whitehall Road Pump Station	355	Whitehall Road Pump Station	1975	43.50	20,450	R3.0	35.0	124	R3.0124	0.11382	3.98	47.48	8.382477%	1,714.22	889,575	81,381	970,956	715,750
355	355	Felton Road Pump Station	355	Felton Road Pump Station	1975	43.50	20,450	R3.0	35.0	124	R3.0124	0.11382	3.98	47.48	8.382477%	1,714.22	889,575	81,381	970,956	715,750
355	355	Einstein	355	Einstein	2012	6.50	153,648	R3.0	35.0	19	R3.0019	0.81568	28.55	35.05	81.455064%	125,154.08	998,712	4,366,650	5,365,362	5,377,680
355	**355**	**Total Account 355.00**	**355**	**Total Account 355.00**		**29.85**	**870,384**	**R3.0**					**12.82**	**42.77**	**29.974281%**	**303,180**	**28,071,742**	**11,157,746**	**37,229,488**	**30,483,447**
Account		Service Laterals																		
363	363	4" VCP Laterals in the cartway(3,715 connections @ 15 ft long)	363	4" VCP Laterals in the cartway(3,715 con	1971	47.50	8,815,368	R3.0	55.0	86	R3.0086	0.27673	15.22	62.72	24.266582%	1,853,891.62	323,730,911	103,730,199	427,461,111	374,846,319
363	363	4" VCP Laterals out of the cartway(3,715 connections @ 10 ft long)	363	4" VCP Laterals out of the cartway(3,715	1971	47.50	1,485,408	R3.0	55.0	86	R3.0086	0.27673	15.22	62.72	24.266582%	360,470.15	70,559,307	22,606,688	93,167,995	81,700,251
363	363	6" VCP Laterals in the cartway(650 connections @ 15 ft long)	363	6" VCP Laterals in the cartway(650 connec	1971	47.50	1,234,560	R3.0	55.0	86	R3.0086	0.27673	15.22	62.72	24.266582%	299,563.20	58,641,147	18,789,858	77,431,005	67,900,275
363	363	6" VCP Laterals out of the cartway(650 connections @ 10 ft long)	363	6" VCP Laterals out of the cartway(650 co	1971	47.50	208,458	R3.0	55.0	86	R3.0086	0.27673	15.22	62.72	24.266582%	69,998.31	13,701,840	4,390,294	18,091,933	15,865,056
363	363	4" PVC Laterals in the cartway(485 connections @ 15 ft long)	363	4" PVC Laterals in the cartway(485 connec	1990	28.50	864,796	R3.0	55.0	52	R3.0052	0.52142	28.68	57.18	50.157398%	433,760.26	24,640,746	24,802,412	49,443,159	47,563,899
363	363	4" PVC Laterals out of the cartway(485 connections @ 10 ft long)	363	4" PVC Laterals out of the cartway(485 co	1990	28.50	170,838	R3.0	55.0	52	R3.0052	0.52142	28.68	57.18	50.157398%	85,667.99	4,866,888	4,896,639	9,768,528	9,398,100
363	363	6" PVC Laterals in the cartway(105 connections @ 15 ft long)	363	6" PVC Laterals in the cartway(105 connec	1990	28.50	182,412	R3.0	55.0	52	R3.0052	0.52142	28.68	57.18	50.157398%	96,508.61	5,463,726	5,518,362	11,002,090	10,582,833
363	363	6" PVC Laterals out of the cartway(105 connections @ 10 ft long)	363	6" PVC Laterals out of the cartway(105 co	1990	28.50	40,444	R3.0	55.0	52	R3.0052	0.52142	28.68	57.18	50.157398%	20,269.51	1,152,845	1,159,925	2,312,571	2,224,404
		Total Account 363.00					**11,092,344**									**3,020,188**	**502,786,014**	**185,899,377**	**688,684,392**	**610,079,937**
Account		Flow Meters																		
364	364	Stony Creek No. 1 (Timberlake) Pump Station	364	Stony Creek No. 1 (Timberlake) Pump St	1960	58.50	17,037	R3.0	35.0	167	R3.0167	0.00641	0.22	58.72	0.374659%	63.83	996,665	3,746	1,000,413	596,295
364	364	1998 Upgrade	364	1998 Upgrade	1998	22.50	61,320	R3.0	35.0	64	R3.0064	0.42683	14.94	37.44	39.903846%	24,469.81	1,379,700	1,214,921	3,044,621	2,846,200
364	364	Stony Creek No. 2 (Norris City) Pump Station	364	Stony Creek No. 2 (Norris City) Pump Sta	1960	58.50	22,718	R3.0	35.0	167	R3.0167	0.00641	0.22	58.72	0.374659%	85.11	1,328,886	4,968	1,333,854	795,060
364	364	1998 Upgrade	364	1998 Upgrade	1998	22.50	121,980	R3.0	35.0	64	R3.0064	0.42683	14.94	37.44	39.903846%	48,674.71	2,744,550	1,822,381	4,566,931	4,269,300

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New less Depreciation (RCNLD)

(1)	(2)	(3)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
Account	Account	Asset Description	Account	Description	Placement Year	Age at October 29, 2018 Appraisal Date	Replacement Cost New (COR)	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 (COR less Normal Depreciation)	COR Weighted Age	COR Weighted Normal Remaining Life	COR Weighted Total Life Expectancy	COR Weighted Normal Service Life (NSL)
Input	Input	Input	Input	Input	Input	years	COR $s	Input	years	% of NSL	Lookup	%	years	years	% of COR	COR $	COR $s * Years	COR $s * Years	COR $s * Years	COR $s * Years
Eng Alarm	Acct Input	Link Norriton Wastewater Collection System Engineers Assessment (Eng. Assets)	Eng Alarm	Eng Alarm	Eng Alarm	RYM (CYD-Y-1)	Cpi (18)	Acct Input	Acct Input	Cpi (21) / (24)	Cpi (26) & (27)	Lookup Iowa Curves Life Tables @ 1/2 (28)	Cpi (24) * (27)	Cpi (21) + (29)	Cpi (28) (29)	Cpi (22) * (30)	Cpi (22) * (31)	Cpi (22) * (29)	Cpi (22) * (29)	cpi (22) * (34)
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Age	RCN	Iowa	NL	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	CORLD	COR * Age	COR * RL	COR * TL	COR * NL
354	354	Stony Creek No. 3 (Germantown) Pump Station	354	Stony Creek No. 3 (Germantown) Pump S	1960	58.50	11,358	R3.0	35.0	167	R3.0167	0.00641	0.22	58.72	0.374658%	42.55	664,443	2,499	866,942	397,530
354	354	1996 Upgrade	354	1996 Upgrade	1996	22.50	59,920	R3.0	35.0	64	R3.0064	0.42683	14.94	37.44	39.903646%	23,910.38	1,348,200	895,205	2,243,405	2,097,200
354	354	Sandra Lane Pump Station	354	Sandra Lane Pump Station	1975	43.50	9,526	R3.0	35.0	124	R3.0124	0.11382	3.86	47.48	8.382477%	798.51	414,381	37,913	452,294	333,410
354	354	1985 Upgrade	354	1985 Upgrade	1985	33.50	12,218	R3.0	35.0	96	R3.0096	0.22130	7.75	41.25	18.787879%	2,295.59	409,318	84,660	504,011	427,645
354	354	Burnside Avenue Pump Station	354	Burnside Avenue Pump Station	1994	24.50	25,310	R3.0	35.0	70	R3.0070	0.38261	13.39	37.89	35.339140%	8,944.34	620,095	338,901	958,996	885,860
354	354	Schultz Road Pump Station	354	Schultz Road Pump Station	1975	43.50	9,526	R3.0	35.0	124	R3.0124	0.11382	3.86	47.48	8.382477%	798.51	414,381	37,913	452,294	333,410
354	354	Whitehall Road Pump Station	354	Whitehall Road Pump Station	1975	43.50	9,526	R3.0	35.0	124	R3.0124	0.11382	3.86	47.48	8.382477%	798.51	414,381	37,913	452,294	333,410
354	354	Felton Road Pump Station	354	Felton Road Pump Station	1975	43.50	9,526	R3.0	35.0	124	R3.0124	0.11382	3.86	47.48	8.382477%	798.51	414,381	37,913	452,294	333,410
354	354	Einstein	354	Einstein	2012	6.50	56,064	R3.0	35.0	19	R3.0019	0.81588	28.55	35.05	81.455064%	45,698.97	364,418	1,600,627	1,965,043	1,962,240
		Total Account 354.00					644,027									166,327	11,963,797	5,129,529	18,093,422	16,610,966
Account		Pumping Equipment																		
371	371	Stony Creek No. 1 (Timberlake) Pump Station	371	Stony Creek No. 1 (Timberlake) Pump St	1960	58.50	187,451	R3.0	35.0	167	R3.0167	0.00641	0.22	58.72	0.374658%	702.30	10,965,884	41,239	11,007,123	6,560,780
371	371	1996 Upgrade	371	1996 Upgrade	1996	22.50	1,720,428	R3.0	35.0	64	R3.0064	0.42683	14.94	37.44	39.903646%	686,516.94	38,709,630	25,703,194	64,412,824	60,214,680
371	371	Stony Creek No. 2 (Norris City) Pump Station	371	Stony Creek No. 2 (Norris City) Pump Sta	1958	58.50	372,858	R3.0	35.0	167	R3.0167	0.00641	0.22	58.72	0.374658%	1,021.53	18,950,376	59,564	19,010,360	9,542,960
371	371	1996 Upgrade	371	1996 Upgrade	1996	22.50	2,541,414	R3.0	35.0	64	R3.0064	0.42683	14.94	37.44	39.903646%	1,014,121.50	57,181,915	37,998,725	95,150,540	88,948,480
371	371	Stony Creek No. 3 (Germantown) Pump Station	371	Stony Creek No. 3 (Germantown) Pump S	1960	58.50	136,328	R3.0	35.0	167	R3.0167	0.00641	0.22	58.72	0.374658%	510.77	7,975,188	29,992	8,005,180	4,771,480
371	371	1996 Upgrade	371	1996 Upgrade	1996	22.50	1,232,880	R3.0	35.0	64	R3.0064	0.42683	14.94	37.44	39.903646%	491,966.54	27,736,800	18,419,227	46,156,027	43,150,800
371	371	Sandra Lane Pump Station	371	Sandra Lane Pump Station	1975	43.50	65,080	R3.0	35.0	124	R3.0124	0.11382	3.86	47.48	8.382477%	5,455.32	2,830,980	259,016	3,089,996	2,277,800
371	371	1985 Upgrade	371	1985 Upgrade	1985	33.50	266,484	R3.0	35.0	96	R3.0096	0.22130	7.75	41.25	18.787879%	50,067.16	8,927,297	2,065,270	10,992,567	9,327,027
371	371	Burnside Avenue Pump Station	371	Burnside Avenue Pump Station	1994	24.50	114,894	R3.0	35.0	70	R3.0070	0.38261	13.39	37.89	35.339140%	40,602.56	2,814,903	1,538,431	4,353,334	4,021,290
371	371	Schultz Road Pump Station	371	Schultz Road Pump Station	1975	43.50	56,945	R3.0	35.0	124	R3.0124	0.11382	3.86	47.48	8.382477%	4,773.40	2,477,108	226,641	2,703,749	1,993,075
371	371	1999 Pumps replaced	371	1999 Pumps replaced	1999	19.50	59,926	R3.0	35.0	56	R3.0056	0.48904	17.12	36.62	46.750410%	28,018.59	1,168,596	1,025,967	2,194,563	3,767,440
371	371	Whitehall Road Pump Station	371	Whitehall Road Pump Station	1975	43.50	56,945	R3.0	35.0	124	R3.0124	0.11382	3.86	47.48	8.382477%	4,773.40	2,477,108	226,641	2,703,749	1,993,075
371	371	1998 Repairs	371	1998 Repairs	1998	19.50	17,294	R3.0	35.0	56	R3.0056	0.48904	17.12	36.62	46.750410%	8,085.12	337,237	296,077	633,314	606,299
371	371	2014 Pump replacement	371	2014 Pump replacement	2014	4.50	8,181	R3.0	35.0	13	R3.0013	0.87314	30.56	35.06	87.164862%	7,113.18	36,723	249,388	286,111	385,631
371	371	2018 Procurement of packaged station (not installed)	371	2018 Procurement of packaged station (n	2018	0.50	37,271	R3.0	35.0	1	R3.0001	0.99015	34.66	35.16	98.577929%	36,741.28	18,636	1,291,823	1,310,459	1,304,496
371	371	Felton Road Pump Station	371	Felton Road Pump Station	1975	43.50	56,945	R3.0	35.0	124	R3.0124	0.11382	3.86	47.48	8.382477%	4,773.40	2,477,108	226,641	2,703,749	1,993,075
371	371	Einstein	371	Einstein	2012	6.50	307,392	R3.0	35.0	19	R3.0019	0.81588	28.55	35.05	81.455064%	250,386.35	1,998,048	8,778,042	10,774,090	10,756,720
		Total Account 371.00					7,139,489									2,838,828	184,048,437	98,404,300	282,490,737	249,847,482
Account		Communication Equipment																		
396	396	Stony Creek No. 1 (Timberlake) Pump Station	396	Stony Creek No. 1 (Timberlake) Pump St	1960	58.50	10,743	R3.0	12.0	488	R3.0488	0.00000	0.00	58.50	0.000000%	-	628,466	-	628,466	128,918
396	396	1996 Upgrade	396	1996 Upgrade	1996	22.50	30,780	R3.0	12.0	188	R3.0188	0.00000	0.00	22.50	0.000000%	-	692,550	-	692,550	369,360
396	396	Stony Creek No. 2 (Norris City) Pump Station	396	Stony Creek No. 2 (Norris City) Pump Sta	1965	58.50	14,324	R3.0	12.0	488	R3.0488	0.00000	0.00	58.50	0.000000%	-	837,954	-	837,954	171,888
396	396	1996 Upgrade	396	1996 Upgrade	1996	22.50	46,170	R3.0	12.0	188	R3.0188	0.00000	0.00	22.50	0.000000%	-	1,038,825	-	1,038,825	554,040
396	396	Stony Creek No. 3 (Germantown) Pump Station	396	Stony Creek No. 3 (Germantown) Pump S	1960	58.50	7,162	R3.0	12.0	488	R3.0488	0.00000	0.00	58.50	0.000000%	-	418,977	-	418,977	85,944
396	396	1996 Upgrade	396	1996 Upgrade	1996	22.50	22,680	R3.0	12.0	188	R3.0188	0.00000	0.00	22.50	0.000000%	-	510,300	-	510,300	272,160
396	396	Sandra Lane Pump Station	396	Sandra Lane Pump Station	1975	43.50	3,800	R3.0	12.0	363	R3.0363	0.00000	0.00	43.50	0.000000%	-	165,300	-	165,300	45,600
396	396	1985 Upgrade	396	1985 Upgrade	1985	33.50	3,467	R3.0	12.0	279	R3.0279	0.00000	0.00	33.50	0.000000%	-	116,146	-	116,146	41,804
396	396	Burnside Avenue Pump Station	396	Burnside Avenue Pump Station	1994	24.50	9,240	R3.0	12.0	204	R3.0204	0.00000	0.00	24.50	0.000000%	-	201,880	-	201,880	98,880
396	396	Schultz Road Pump Station	396	Schultz Road Pump Station	1975	43.50	3,800	R3.0	12.0	363	R3.0363	0.00000	0.00	43.50	0.000000%	-	165,300	-	165,300	45,600
396	396	Whitehall Road Pump Station	396	Whitehall Road Pump Station	1975	43.50	3,800	R3.0	12.0	363	R3.0363	0.00000	0.00	43.50	0.000000%	-	165,300	-	165,300	45,600
396	396	Felton Road Pump Station	396	Felton Road Pump Station	1975	43.50	3,800	R3.0	12.0	363	R3.0363	0.00000	0.00	43.50	0.000000%	-	165,300	-	165,300	45,600
396	396	Einstein	396	Einstein	2012	6.50	46,560	R3.0	12.0	54	R3.0054	0.50513	6.06	12.56	48.248408%	22,464.46	302,640	282,154	584,794	558,720
		Total Account 396.00					205,326									22,464	5,408,938	282,154	6,691,092	2,483,912
		EAST NORRETON TOWNSHIP SANITARY SEWER SYSTEM ASSET INVENTORY REPORT																		
Account		Collection Mains - Force																		
360.1	360.1	Stony Creek No. 1 (Timberlake)	360.1	Stony Creek No. 1 (Timberlake)	1960	58.50	361,445	R3.0	80.0	93	R3.0093	0.23696	14.22	68.72	20.395869%	73,719.79	20,080,183	5,139,744	25,199,927	21,688,664
360.1	360.1	Stony Creek No. 2 (Norris City)	360.1	Stony Creek No. 2 (Norris City)	1962	58.50	906,366	R3.0	80.0	93	R3.0093	0.23696	14.22	68.72	20.395869%	184,861.16	50,303,298	12,888,520	63,191,818	54,381,941
360.1	360.1	Stony Creek No. 3 (Germantown)	360.1	Stony Creek No. 3 (Germantown)	1962	58.50	1,033,426	R3.0	80.0	93	R3.0093	0.23696	14.22	68.72	20.395869%	210,776.91	57,395,170	14,695,325	72,090,495	62,005,586
360.1	360.3	Stony Creek No. 3 (Germantown)	360.3	Stony Creek No. 3 (Germantown)	2012	6.50	129,648	R3.0	60.0	11	R3.0011	0.89247	53.55	60.05	89.175887%	115,614.46	842,712	6,942,648	7,785,360	7,778,878
360.1	360.1	Felton Road	360.1	Felton Road	1975	43.50	74,915	R3.0	60.0	73	R3.0073	0.38135	21.88	65.18	33.261737%	24,917.97	3,258,795	1,824,153	4,882,948	4,464,888

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New less Depreciation (RCNLD)

(1)	(2)	(3)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
Account	Account	Asset Description	Account	Description	Placement Year	Age as October 29, 2018 Appraisal Date	Replacement Cost New (COR)	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 (COR less Normal Depreciation)	COR Weighted Age	COR Weighted Normal Remaining Life	COR Weighted Total Life Expectancy	COR Weighted Normal Service Life (NSL)
						years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	COR ($)	COR $s * Years	COR $s * Years	COR $s * Years	COR $s * Years
Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assmt NARUC Code	AUS Input NARUC Code	Asset Description (Wastewater Collection System Engineer's Assessment Eng. Assmt.)	Eng Assmt Account	Eng Assmt Description	Eng Assmt Year1	2018 (2004) Yr	Col (18) RCN	AUS Input Iowa	AUS Input NL	Col (21) / (24) AgeP	Col (22) & (23) IowaLookup	Lookup, Iowa Curves I, M, Tavern @ xx OR IowaCondition	Col (24) * (27) Rem Life	Col (21) + (28) Total Life	Col (29) / (24) Condition	Col (22) * (30) CORLD	Col (22) * (21) COR * Age	Col (22) * (28) COR * RL	Col (22) * (24) COR * TL	Col (22) * (25) COR * NL
360.1	360.1	Sandra Lane	360.1	Sandra Lane	1975	43.50	483,738	R3.0	60.0	73	R3.0073	0.36135	21.68	65.18	33.261737%	150,920.41	19,737,508	9,836,992	29,574,500	27,224,148
360.2	360.2	Burnside Road	360.2	Burnside Road	1994	24.50	246,674	R3.0	60.0	41	R3.0041	0.61453	36.87	61.37	60.078214%	148,317.36	6,046,408	9,102,237	15,150,644	14,812,427
360.1	360.1	Schultz Road	360.1	Schultz Road	1975	43.50	396,017	R3.0	60.0	73	R3.0073	0.36135	21.68	65.18	33.261737%	132,367.32	17,313,733	8,629,005	25,942,738	23,581,011
360.1	360.1	Whitehall Rd	360.1	Whitehall Rd	1975	43.50	139,730	R3.0	60.0	73	R3.0073	0.36135	21.68	65.18	33.261737%	46,146.17	5,904,256	2,942,627	8,846,883	8,143,802
360.3	360.3	Einstein	360.3	Einstein	2012	6.50	173,473	R3.0	60.0	11	R3.0011	0.89247	53.55	60.05	89.175687%	154,695.91	1,127,576	9,289,489	10,417,065	10,408,391
		Total					3,813,629								0.317188151	1,241,357	181,961,637	81,090,740	283,042,376	294,817,761
		Collection Mains - Gravity																		
Account		SEWER DISTRICT NO. 1 PHASE I																		
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE I - Mai	1963	55.50	14,737,200	R3.0	80.0	69	R3.0069	0.38962	31.19	86.69	35.978775%	5,320,253.56	820,689,625	461,212,782	1,281,902,407	1,162,876,038
361.2	361.2	SEWER DISTRICT NO. 1 PHASE I - Mains CIP	361.2	SEWER DISTRICT NO. 1 PHASE I - Mai	1963	55.50	15,877	R3.0	80.0	69	R3.0069	0.38962	31.19	86.69	35.978775%	5,748.31	886,721	498,321	1,385,043	1,278,157
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE I - Mai	1963	55.50	294,246	R3.0	80.0	69	R3.0069	0.38962	31.19	86.69	35.978775%	105,866.16	16,330,661	9,177,537	25,508,196	23,536,692
361.2	361.2	SEWER DISTRICT NO. 1 PHASE I - Mains CIP	361.2	SEWER DISTRICT NO. 1 PHASE I - Mai	1963	55.50	34,297	R3.0	80.0	69	R3.0069	0.38962	31.19	86.69	35.978775%	12,339.71	1,903,483	1,069,729	2,973,233	2,743,774
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE I - Mai	1963	55.50	225,212	R3.0	80.0	69	R3.0069	0.38962	31.19	86.69	35.978775%	81,029.69	12,498,283	7,024,377	19,523,670	18,018,898
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE I - Mai	1963	55.50	367,570	R3.0	80.0	69	R3.0069	0.38962	31.19	86.69	35.978775%	132,247.27	20,400,148	11,464,516	31,864,664	29,405,618
361.5	361.5	SEWER DISTRICT NO. 1 PHASE I - Mains RCP	361.5	SEWER DISTRICT NO. 1 PHASE I - Mai	1963	55.50	95,918	R3.0	80.0	69	R3.0069	0.38962	31.19	86.69	35.978775%	34,509.46	5,323,350	2,991,827	8,314,976	7,673,297
361.5	361.5	SEWER DISTRICT NO. 1 PHASE I - Mains RCP	361.5	SEWER DISTRICT NO. 1 PHASE I - Mai	1963	55.50	565,217	R3.0	80.0	69	R3.0069	0.38962	31.19	86.69	35.978775%	203,358.08	31,368,530	17,629,110	48,996,640	45,217,340
361.5	361.5	SEWER DISTRICT NO. 1 PHASE I - Mains RCP	361.5	SEWER DISTRICT NO. 1 PHASE I - Mai	1963	55.50	107,811	R3.0	80.0	69	R3.0069	0.38962	31.19	86.69	35.978775%	38,789.12	5,983,517	3,362,629	9,346,145	8,624,889
361.7	361.7	SEWER DISTRICT NO. 1 PHASE I - Manholes	361.7	SEWER DISTRICT NO. 1 PHASE I - Mai	1963	55.50	3,194,732	R3.0	60.0	69	R3.0069	0.38962	31.19	86.69	35.978775%	1,149,429.42	177,307,623	99,643,890	276,951,313	255,578,566
		Total					19,666,179									7,093,968	1,094,693,961	614,074,316	1,706,768,286	1,575,094,309
Account		SEWER DISTRICT NO. 1 PHASE II																		
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE II - Ma	1970	48.50	6,238,920	R3.0	80.0	61	R3.0061	0.44974	35.98	84.48	42.589962%	2,656,301.96	302,490,632	224,404,390	526,895,022	498,953,619
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE II - Ma	1970	48.50	531,674	R3.0	80.0	61	R3.0061	0.44974	35.98	84.48	42.589962%	226,360.60	25,781,171	19,129,617	44,910,787	42,533,880
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE II - Ma	1970	48.50	205,110	R3.0	80.0	61	R3.0061	0.44974	35.98	84.48	42.589962%	87,356.44	9,947,854	7,379,672	17,327,726	16,408,831
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE II - Ma	1970	48.50	533,089	R3.0	80.0	61	R3.0061	0.44974	35.98	84.48	42.589962%	227,046.84	25,850,321	19,180,917	45,036,238	42,647,953
361.7	361.7	SEWER DISTRICT NO. 1 PHASE II - Manholes	361.7	SEWER DISTRICT NO. 1 PHASE II - Ma	1970	48.50	1,120,649	R3.0	80.0	61	R3.0061	0.44974	35.98	84.48	42.589962%	477,283.82	54,351,458	40,320,937	94,672,395	89,651,890
		Total 361 Phase II					8,617,482									3,676,170	417,948,436	310,065,933	728,842,166	689,396,183
Account		AUTUMN RIDGE																		
361.3	361.3	AUTUMN RIDGE - Mains 8" PVC	361.3	AUTUMN RIDGE - Mains 8" PVC	2000	18.50	378,142	R3.0	80.0	23	R3.0023	0.77769	62.23	80.73	77.084108%	291,487.55	5,695,631	23,531,790	30,527,421	30,251,377
361.7	361.7	AUTUMN RIDGE - Manholes	361.7	AUTUMN RIDGE - Manholes	2000	18.50	87,625	R3.0	80.0	23	R3.0023	0.77769	62.23	80.73	77.084108%	67,544.89	1,821,056	5,452,883	7,073,939	7,009,973
		Total					465,767									359,032	9,516,687	28,984,673	788,603,729	726,857,833
Account		OLD ARCH CROSSING																		
361.3	361.3	OLD ARCH CROSSING - Mains 8" PVC	361.3	OLD ARCH CROSSING - Mains 8" PVC	1986	32.50	346,984	R3.0	80.0	41	R3.0041	0.61453	49.16	81.66	60.200833%	208,893.06	11,277,293	17,058,207	28,335,501	27,758,491
361.7	361.7	OLD ARCH CROSSING - Manholes	361.7	OLD ARCH CROSSING - Manholes	1986	32.50	86,774	R3.0	80.0	41	R3.0041	0.61453	49.16	81.66	60.200833%	52,236.98	2,820,168	4,265,827	7,085,903	6,941,948
		Total					433,758									261,130	14,097,460	21,324,034	35,421,404	34,701,439
Account		NEW HOPE VILLAGE																		
361.1	361.1	NEW HOPE VILLAGE - Mains 8" VCP	361.1	NEW HOPE VILLAGE - Mains 8" VCP	1980	38.50	100,314	R3.0	80.0	48	R3.0048	0.55461	44.37	82.87	53.541692%	53,709.87	3,862,079	4,450,920	8,312,999	8,025,096
361.7	361.7	NEW HOPE VILLAGE - Manholes	361.7	NEW HOPE VILLAGE - Manholes	1980	38.50	41,925	R3.0	80.0	48	R3.0048	0.55461	44.37	82.87	53.541692%	22,447.34	1,614,111	1,860,211	3,474,322	3,353,998
		Total					142,239									76,157	5,476,190	6,311,131	11,787,321	11,379,096
Account		VILLAGE EAST																		
361.1	361.1	VILLAGE EAST - Mains 8" VCP	361.1	VILLAGE EAST - Mains 8" VCP	1978	40.50	226,884	R3.0	80.0	51	R3.0051	0.52965	42.37	82.87	51.128273%	116,001.72	9,188,760	9,613,083	18,801,853	18,150,697
361.7	361.7	VILLAGE EAST - Manholes	361.7	VILLAGE EAST - Manholes	1978	40.50	64,986	R3.0	80.0	51	R3.0051	0.52965	42.37	82.87	51.128273%	33,227.12	2,632,004	2,753,531	5,385,538	5,199,021
		Total					291,871									149,229	11,820,764	12,366,614	24,187,389	23,349,718
Account		FOX HUNT																		
361.3	361.3	FOX HUNT - Mains 8" PVC	361.3	FOX HUNT - Mains 8" PVC	1994	24.50	177,583	R3.0	80.0	31	R3.0031	0.70380	56.30	80.80	69.675218%	123,736.88	4,350,791	9,997,940	14,348,731	14,206,664
361.7	361.7	FOX HUNT - Manholes	361.7	FOX HUNT - Manholes	1994	24.50	44,716	R3.0	80.0	31	R3.0031	0.70380	56.30	80.80	69.675218%	31,157.03	1,095,532	2,517,456	3,613,020	3,577,247
		Total					222,299									154,894	5,446,323	12,515,428	17,961,781	17,783,911
Account		RESERVE AT PENNS CROSSING																		
361.3	361.3	RESERVE AT PENNS CROSSING - Mains 8" PVC	361.3	RESERVE AT PENNS CROSSING - Mai	2003	15.50	410,680	R3.0	80.0	19	R3.0019	0.81568	65.25	80.75	80.804954%	331,854.52	6,365,631	26,797,252	33,162,883	32,854,569
361.7	361.7	RESERVE AT PENNS CROSSING - Manholes	361.7	RESERVE AT PENNS CROSSING - Ma	2003	15.50	123,108	R3.0	80.0	19	R3.0019	0.81568	65.25	80.75	80.804954%	99,477.65	1,908,180	8,032,620	9,941,000	9,848,969
		Total					533,794									431,333	8,273,811	34,830,072	43,103,883	42,703,538
Account		KIMBERLY KNOLL																		

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New less Depreciation (RCNLD)

(1)	(2)	(3)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
Account	Account	Asset Description	Account	Description	Placement Year	Age at October 29, 2018 Appraisal Date	Replacement Cost New (COR)	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 (COR less Normal Depreciation)	COR Weighted Age	COR Weighted Normal Remaining Life	COR Weighted Total Life Expectancy	COR Weighted Normal Service Life (NSL)
						years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	COR $s * Years	COR $s * Years	COR $s * Years	COR $s * Years
Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assmt NARUC Code	Acct Input NARUC Code	East Norriton Wastewater Collection System Engineers Assessment Eng Assmt	Eng Assmt Account	Eng Assmt Description	Eng Assmt Year	2019-(2018+0.8)	Col (18)	Audit Input	Acct Input	Col (21) / (24)	Col (22) & (25)	Lookup Iowa Curves Life Tables at Col (25)	Col (24) * (27)	Col (21) + (28)	Col (28) / (29)	Col (22) * (30)	Col (22) * (21)	Col (22) * (28)	Col (22) * (28)	Col (22) * (24)
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Age	RCN	Iowa	NL	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	CORLD	COR * Age	COR * RL	COR * TL	COR * NL
361.1	361.1	KIMBERLY KNOLL - Mains 8" VCP	361.1	KIMBERLY KNOLL - Mains 8" VCP	1979	39.50	564,378	R3.0	80.0	49	R3.0049	0.54824	43.70	83.20	52.524036%	296,434.58	22,292,966	24,883,357	46,956,323	45,150,310
361.7	361.7	KIMBERLY KNOLL - Manholes	361.7	KIMBERLY KNOLL - Manholes	1979	39.50	91,859	R3.0	80.0	49	R3.0049	0.54824	43.70	83.20	52.524036%	48,247.83	3,626,414	4,014,220	7,642,633	7,348,686
		Total					656,237									344,682	25,921,380	28,677,577	54,598,956	52,498,996
Account		EVERGREEN TERRACE																		
361.3	361.3	EVERGREEN TERRACE - Mains 8" PVC	361.3	EVERGREEN TERRACE - Mains 8" PVC	2010	8.50	20,907	R3.0	80.0	11	R3.0011	0.89247	71.40	79.90	89.361702%	18,682.81	177,709	1,492,756	1,670,465	1,672,556
361.7	361.7	EVERGREEN TERRACE - Manholes	361.7	EVERGREEN TERRACE - Manholes	2010	8.50	9,888	R3.0	80.0	11	R3.0011	0.89247	71.40	79.90	89.361702%	8,835.89	84,046	705,987	790,034	791,022
		Total					30,795									27,519	261,755	2,198,743	2,460,499	2,463,578
Account		THOMAS END																		
361.6	361.6	THOMAS END - Mains 8" Unknown	361.6	THOMAS END - Mains 8" Unknown	1983	36.50	192,695	R3.0	80.0	39	R3.0039	0.83205	56.86	92.38	61.571769%	118,645.58	6,840,885	10,960,479	17,801,144	17,342,530
361.7	361.7	THOMAS END - Manholes	361.7	THOMAS END - Manholes	1983	36.50	33,137	R3.0	80.0	44	R3.0044	0.58858	47.09	82.59	57.016568%	18,893.82	1,176,365	1,560,424	2,736,789	2,650,964
		Total					225,832									137,539	8,017,030	12,520,903	20,537,933	19,993,494
Account		BARLEY SHEAF																		
361.3	361.3	BARLEY SHEAF - Mains 8" PVC	361.3	BARLEY SHEAF - Mains 8" PVC	1986	32.50	285,674	R3.0	80.0	41	R3.0041	0.81453	49.16	81.66	60.200833%	172,096.43	9,290,899	14,053,557	23,344,457	22,869,906
361.4	361.4	BARLEY SHEAF - Mains 8" DIP	361.4	BARLEY SHEAF - Mains 8" DIP	1986	32.50	18,391	R3.0	80.0	41	R3.0041	0.81453	49.16	81.66	60.200833%	11,071.80	597,711	904,107	1,501,818	1,471,289
361.7	361.7	BARLEY SHEAF - Manholes	361.7	BARLEY SHEAF - Manholes	1986	32.50	105,993	R3.0	80.0	41	R3.0041	0.81453	49.16	81.66	60.200833%	63,808.90	3,444,765	5,210,835	8,655,420	8,479,471
		Total					410,258									246,979	13,333,395	20,169,299	33,501,695	32,820,666
Account		MARION AVENUE SEWER EXTENSION																		
361.3	361.3	MARION AVENUE SEWER EXTENENSION - 8" PVC	361.3	MARION AVENUE SEWER EXTENENSI	2009	9.50	139,017	R3.0	80.0	12	R3.0012	0.88279	70.62	80.12	88.142786%	122,533.47	1,320,662	9,917,382	11,138,044	11,121,360
361.7	361.7	MARION AVENUE SEWER EXTENENSION - Manholes	361.7	MARION AVENUE SEWER EXTENENSI	2009	9.50	29,293	R3.0	80.0	12	R3.0012	0.88279	70.62	80.12	88.142786%	25,819.61	278,283	2,088,667	2,346,950	2,343,436
		Total					168,310									148,353	1,598,945	11,896,049	13,484,994	13,464,797
Account		WHITEHALL ROAD PROJECT																		
361.1	361.1	WHITEHALL ROAD PROJECT - Mains 8" VCP	361.1	WHITEHALL ROAD PROJECT - Mains 8	1980	38.50	1,136,406	R3.0	80.0	48	R3.0048	0.55461	44.37	82.87	53.541692%	608,450.96	43,751,828	50,422,331	94,173,959	90,912,474
361.7	361.7	WHITEHALL ROAD PROJECT Manholes	361.7	WHITEHALL ROAD PROJECT Manhole	1980	38.50	172,358	R3.0	80.0	48	R3.0048	0.55461	44.37	82.87	53.541692%	92,283.51	6,635,791	7,647,534	14,283,326	13,788,658
		Total					1,308,764									700,734	50,387,619	58,069,866	108,457,285	104,701,132
Account		WOODLANDS AT WHITEHALL																		
361.3	361.3	WOODLANDS AT WHITEHALL - Mains 8" PVC	361.3	WOODLANDS AT WHITEHALL - Mains	1993	25.50	126,907	R3.0	80.0	32	R3.0032	0.69469	55.56	81.06	68.549581%	86,364.89	3,287,117	7,164,825	10,451,742	10,312,523
361.7	361.7	WOODLANDS AT WHITEHALL - Manholes	361.7	WOODLANDS AT WHITEHALL - Manho	1993	25.50	39,472	R3.0	80.0	32	R3.0032	0.69469	55.56	81.06	68.549581%	27,057.92	1,006,537	2,193,656	3,200,393	3,157,763
		Total					168,379									115,423	4,293,654	9,358,481	13,652,136	13,470,286
Account		SUNSET KNOLL																		
361.3	361.3	SUNSET KNOLL - Mains 8" PVC	361.3	SUNSET KNOLL - Mains 8" PVC	1986	32.50	220,785	R3.0	80.0	41	R3.0041	0.81453	49.16	81.66	60.200833%	132,914.36	7,175,511	10,853,786	18,029,299	17,662,796
361.7	361.7	SUNSET KNOLL - Manholes	361.7	SUNSET KNOLL - Manholes	1986	32.50	36,867	R3.0	80.0	41	R3.0041	0.81453	49.16	81.66	60.200833%	22,194.40	1,198,186	1,812,395	3,010,581	2,949,382
		Total					257,652									155,109	8,373,697	12,666,183	21,039,880	20,612,179
Account		HEATHERWOOD																		
361.3	361.3	HEATHERWOOD - Mains 8" PVC	361.3	HEATHERWOOD - Mains 8" PVC	2006	12.50	177,911	R3.0	80.0	16	R3.0016	0.84430	67.54	80.04	84.382609%	150,126.39	2,223,889	12,016,116	14,240,005	14,232,889
361.7	361.7	HEATHERWOOD - Manholes	361.7	HEATHERWOOD - Manholes	2006	12.50	55,231	R3.0	80.0	16	R3.0016	0.84430	67.54	80.04	84.382609%	46,605.31	690,385	3,730,289	4,420,674	4,418,465
		Total					233,142									196,732	2,914,274	15,746,405	18,660,679	18,651,354
Account		LINFOOT WALKER																		
361.1	361.1	LINFOOT WALKER - Mains 8" VCP	361.1	LINFOOT WALKER - Mains 8" VCP	1985	33.50	86,125	R3.0	80.0	42	R3.0042	0.60583	48.47	81.97	59.131390%	50,926.91	2,885,188	4,174,479	7,059,666	6,890,000
361.7	361.7	LINFOOT WALKER - Manholes	361.7	LINFOOT WALKER - Manholes	1985	33.50	22,587	R3.0	80.0	42	R3.0042	0.60583	48.47	81.97	59.131390%	13,356.28	756,680	1,094,815	1,851,495	1,806,998
		Total					108,712									64,283	3,641,868	5,269,294	8,911,161	8,696,998
Account		PIMLICO FARMS																		
361.3	361.3	PIMLICO FARMS - Mains 8" PVC	361.3	PIMLICO FARMS - Mains 8" PVC	2007	11.50	295,864	R3.0	80.0	14	R3.0014	0.86350	69.08	80.58	85.728469%	253,639.86	3,402,436	20,438,300	23,840,736	23,689,137
361.4	361.4	PIMLICO FARMS - Mains 8" DIP	361.4	PIMLICO FARMS - Mains 8" DIP	2007	11.50	27,832	R3.0	80.0	14	R3.0014	0.86350	69.08	80.58	85.728469%	23,866.40	317,767	1,908,812	2,226,579	2,210,552
361.7	361.7	PIMLICO FARMS - Manholes	361.7	PIMLICO FARMS - Manholes	2007	11.50	120,063	R3.0	80.0	14	R3.0014	0.86350	69.08	80.58	85.728469%	102,927.74	1,380,719	8,293,918	9,674,636	9,605,000
		Total					443,689									380,258	5,100,924	30,641,030	35,741,951	35,484,689
Account		WHITEHALL ESTATES																		
361.1	361.1	WHITEHALL ESTATES - Mains 8" VCP	361.1	WHITEHALL ESTATES - Mains 8" VCP	1985	33.50	243,378	R3.0	80.0	42	R3.0042	0.60583	48.47	81.97	59.131390%	143,912.50	8,153,147	11,796,508	19,949,654	19,470,201
361.7	361.7	WHITEHALL ESTATES - Manholes	361.7	WHITEHALL ESTATES - Manholes	1985	33.50	45,175	R3.0	80.0	42	R3.0042	0.60583	48.47	81.97	59.131390%	26,712.57	1,513,360	2,189,629	3,702,990	3,613,995
		Total					288,552									170,625	9,666,507	13,986,137	23,652,644	23,084,196

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New less Depreciation (RCNLD)

(1)	(2)	(3)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
Account	Account	Asset Description	Account	Description	Placement Year	Age at October 29, 2018 Appraisal Date	Replacement Cost New (COR)	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 (COR less Normal Depreciation)	COR Weighted Age	COR Weighted Normal Remaining Life	COR Weighted Total Life Expectancy	COR Weighted Normal Service Life (NSL)
						years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	COR $s * Years	COR $s * Years	COR $s * Years	COR $s * Years
Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assmt NARUC Code	acct input NARUC Code	Last Name, Wastewater Collection System Engineer's Assessment (e.g. Jones) Asset Description	Eng Assmt Account	Eng Assmt Description	Eng Assmt Year1	2018 (TOY) - 5 Age	Col (18) RCN	Acct Input Iowa	Acct Input NL	Col (21) / (24) AgeP	Col (23) & (26) IowaLookup	Lookup Iowa Curves Life Tables @ Col (26) IowaCondition	Col (24) * (27) Rem Life	Col (21) + (28) Total Life	Col (28) / (29) Condition	Col (22) * (30) CORLD	Col (22) * (21) COR * Age	Col (22) * (28) COR * RL	Col (22) * (29) COR * TL	Col (22) * (24) COR * NL
Account		VILLGE OF CARALEA																		
361.3	361.3	VILLAGE OF CARALEA - Mains 8" PVC	361.3	VILLAGE OF CARALEA - Mains 8" PVC	2007	11.50	255,583	R3.0	80.0	14	R3.0014	0.86350	69.08	80.58	85.728469%	219,107.19	2,939,202	17,659,857	20,594,859	20,446,621
361.4	361.4	VILLAGE OF CARALEA - Mains 8" DIP	361.4	VILLAGE OF CARALEA - Mains 8" DIP	2007	11.50	9,940	R3.0	80.0	14	R3.0014	0.86350	69.08	80.58	85.728469%	8,521.01	114,305	686,623	800,927	795,162
361.7	361.7	VILLAGE OF CARALEA - Manholes	361.7	VILLAGE OF CARALEA - Manholes	2007	11.50	67,235	R3.0	80.0	14	R3.0014	0.86350	69.08	80.58	85.728469%	57,639.54	773,203	4,644,594	5,417,796	5,378,600
		Total					332,757									285,268	3,826,710	22,990,074	26,813,582	26,620,583
Account		NORRITON BUSINESS CAMPUS																		
361.3	361.3	NORRITON BUSINESS CAMPUS - Mains 8" PVC	361.3	NORRITON BUSINESS CAMPUS - Mair	2007	11.50	460,505	R3.0	80.0	14	R3.0014	0.86350	69.08	80.58	85.728469%	394,784.28	5,295,813	31,811,717	37,107,530	36,840,437
361.7	361.7	NORRITON BUSINESS CAMPUS - Manholes	361.7	NORRITON BUSINESS CAMPUS - Man	2007	11.50	182,495	R3.0	80.0	14	R3.0014	0.86350	69.08	80.58	85.728469%	156,450.17	2,098,683	12,606,755	14,705,447	14,599,600
		Total					643,000									551,234	7,394,506	44,418,472	51,812,977	51,440,037
Account		STONEBRIDGE ESTATES																		
361.3	361.3	STONEBRIDGE ESTATES - Mains 8" PVC	361.3	STONEBRIDGE ESTATES - Mains 8" PV	1994	24.50	272,417	R3.0	80.0	31	R3.0031	0.70380	56.30	80.80	69.678218%	189,815.30	6,674,219	15,337,077	22,011,293	21,793,359
361.4	361.4	STONEBRIDGE ESTATES - Mains 8" DIP	361.4	STONEBRIDGE ESTATES - Mains 8" DI	1994	24.50	86,561	R3.0	80.0	31	R3.0031	0.70380	56.30	80.80	69.678218%	60,314.07	2,120,741	4,873,377	6,994,118	6,924,870
361.7	361.7	STONEBRIDGE ESTATES - Manholes	361.7	STONEBRIDGE ESTATES - Manholes	1994	24.50	59,621	R3.0	80.0	31	R3.0031	0.70380	56.30	80.80	69.678218%	41,542.70	1,460,709	3,356,690	4,817,399	4,769,662
		Total					418,599									291,672	10,255,669	23,567,104	33,822,770	33,487,891
Account		ELIZABETH MYERS																		
361.1	361.1	ELIZABETH MYERS - Mains 8" VCP	361.1	ELIZABETH MYERS - Mains 8" VCP	1985	33.50	178,679	R3.0	80.0	42	R3.0042	0.60563	48.47	81.97	59.131390%	105,655.26	5,985,740	8,660,562	14,646,302	14,294,305
361.3	361.3	ELIZABETH MYERS - Mains 8" PVC	361.3	ELIZABETH MYERS - Mains 8" PVC	2000	18.50	34,865	R3.0	80.0	23	R3.0023	0.77789	62.23	80.73	77.084108%	26,875.42	645,004	2,169,653	2,814,656	2,789,205
361.7	361.7	ELIZABETH MYERS - Manholes	361.7	ELIZABETH MYERS - Manholes	1985	33.50	27,105	R3.0	80.0	42	R3.0042	0.60563	48.47	81.97	59.131390%	16,027.54	908,019	1,313,777	2,221,794	2,168,397
361.7	361.7	ELIZABETH MYERS - Manholes	361.7	ELIZABETH MYERS - Manholes	2000	18.50	9,736	R3.0	80.0	23	R3.0023	0.77789	62.23	80.73	77.084108%	7,504.96	180,117	605,876	785,993	778,886
		Total					250,385									156,043	7,718,877	12,749,868	20,468,746	20,030,793
Account		GLEN MOORE																		
361.1	361.1	GLEN MOORE - Mains 8" VCP	361.1	GLEN MOORE - Mains 8" VCP	1978	40.50	157,683	R3.0	80.0	51	R3.0051	0.52965	42.37	82.87	51.128273%	80,621.77	6,386,255	9,681,128	13,067,381	12,814,824
361.7	361.7	GLEN MOORE - Manholes	361.7	GLEN MOORE - Manholes	1978	40.50	24,998	R3.0	80.0	51	R3.0051	0.52965	42.37	82.87	51.128273%	12,779.66	1,012,309	1,059,050	2,071,360	1,999,623
		Total					182,681									93,401	7,398,564	7,740,178	15,138,741	14,814,447
Account		WOODLAND MANOR																		
361.1	361.1	WOODLAND MANOR - Mains 8" VCP	361.1	WOODLAND MANOR - Mains 8" VCP	1975	43.50	299,144	R3.0	80.0	54	R3.0054	0.50513	40.41	83.91	48.158742%	144,063.78	13,012,743	12,088,390	25,101,133	23,931,482
361.7	361.7	WOODLAND MANOR - Manholes	361.7	WOODLAND MANOR - Manholes	1975	43.50	54,139	R3.0	80.0	54	R3.0054	0.50513	40.41	83.91	48.158742%	26,072.80	2,355,059	2,187,789	4,542,828	4,331,143
		Total					353,283									170,137	15,367,802	14,276,179	29,643,961	28,262,625
Account		NICK & LES																		
361.3	361.3	NICK & LES - Mains 8" PVC	361.3	NICK & LES - Mains 8" PVC	1996	22.50	189,360	R3.0	80.0	28	R3.0028	0.73133	58.51	81.01	72.225651%	136,766.89	4,260,606	11,079,469	15,340,075	15,148,822
361.7	361.7	NICK & LES - Manholes	361.7	NICK & LES - Manholes	1996	22.50	53,204	R3.0	80.0	28	R3.0028	0.73133	58.51	81.01	72.225651%	38,426.66	1,197,082	3,112,946	4,310,028	4,256,292
		Total					242,564									175,193	5,457,688	14,192,415	19,650,103	19,405,114
Account		TANGLEWOOD																		
361.1	361.1	TANGLEWOOD - Mains 8" VCP	361.1	TANGLEWOOD - Mains 8" VCP	1975	43.50	368,799	R3.0	80.0	54	R3.0054	0.50513	40.41	83.91	48.158742%	177,609.18	16,042,776	14,903,186	30,945,962	29,503,996
361.7	361.7	TANGLEWOOD - Manholes	361.7	TANGLEWOOD - Manholes	1975	43.50	72,186	R3.0	80.0	54	R3.0054	0.50513	40.41	83.91	48.158742%	34,763.73	3,140,079	2,917,025	6,057,104	5,774,858
		Total					440,985									212,373	19,182,855	17,820,211	37,003,066	35,278,854
Account		VALLEY FORGE GREENE																		
361.3	361.3	VALLEY FORGE GREENE - Mains 8" PVC	361.3	VALLEY FORGE GREENE - Mains 8" PV	1996	22.50	23,711	R3.0	80.0	28	R3.0028	0.73133	58.51	81.01	72.225651%	17,125.84	533,504	1,387,348	1,920,853	1,896,904
361.7	361.7	VALLEY FORGE GREENE - Manholes	361.7	VALLEY FORGE GREENE - Manholes	1996	22.50	14,510	R3.0	80.0	28	R3.0028	0.73133	58.51	81.01	72.225651%	10,480.01	326,477	848,985	1,175,462	1,160,807
		Total					38,221									27,606	859,981	2,236,333	3,096,314	3,057,711
Account		WOODSTREAM CROSSING II																		
361.1	361.1	WOODSTREAM CROSSING II - Mains 8" VCP	361.1	WOODSTREAM CROSSING II - Mains 8	1975	43.50	644,308	R3.0	80.0	54	R3.0054	0.50513	40.41	83.91	48.158742%	310,290.79	28,027,412	26,036,500	54,063,912	51,544,696
361.7	361.7	WOODSTREAM CROSSING II - Manholes	361.7	WOODSTREAM CROSSING II - Manhol	1975	43.50	108,279	R3.0	80.0	54	R3.0054	0.50513	40.41	83.91	48.158742%	52,145.61	4,710,119	4,375,538	9,085,656	8,662,287
		Total					752,587									362,436	32,737,531	30,412,038	63,149,568	60,206,983
Account		HOLLY HILL EAST																		
361.1	361.1	HOLLY HILL EAST - Mains 8" VCP	361.1	HOLLY HILL EAST - Mains 8" VCP	1975	43.50	464,257	R3.0	80.0	54	R3.0054	0.50513	40.41	83.91	48.158742%	223,580.48	20,196,193	18,760,837	38,958,030	37,140,584
361.7	361.7	HOLLY HILL EAST - Manholes	361.7	HOLLY HILL EAST - Manholes	1975	43.50	85,721	R3.0	80.0	54	R3.0054	0.50513	40.41	83.91	48.158742%	41,281.94	3,728,844	3,463,967	7,192,811	6,857,644
		Total					549,978									264,862	23,924,037	22,224,804	46,149,841	43,998,229
Account		TIOGA LEASING																		
361.1	361.1	TIOGA LEASING - Mains 8" VCP	361.1	TIOGA LEASING - Mains 8" VCP	1975	43.50	346,646	R3.0	80.0	54	R3.0054	0.50513	40.41	83.91	48.158742%	166,940.55	15,079,119	14,007,981	29,087,100	27,731,713

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

(1)	(2)	(3)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
Account	AccountI	Asset Description	Account	Description	Placement Year	Age at October 29, 2018 Appraisal Date	Replacement Cost New (COR)	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 (COR less Normal Depreciation)	COR Weighted Age	COR Weighted Normal Remaining Life	COR Weighted Total Life Expectancy	COR Weighted Normal Service Life (NSL)
						years	COR $		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $	COR $ * Years	COR $ * Years	COR $ * Years	COR $ * Years
Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Iowa's	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assets NARUC Code	Acct Input NARUC Code	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assets)	Eng Assets Account	Eng Assets Description	Eng Assets Year	2018 (DEcm1 1) Age	Col (18) RCN	Acct Input Iowa	Acct Input NL	Col (21) / (24) AgeP	Col (22) & (25) IowaLookup	Lookup Iowa Curves (to Varies @ col (26) IowaCondition	Col (24) * (27) Rem Life	Col (21) + (28) Total Life	Col (26) / (29) Condition	Col (22) * (30) CORLD	Col (22) * (21) COR * Age	Col (22) * (28) COR * RL	Col (22) * (29) COR * TL	Col (22) * (24) COR * NL
361.7	361.7	TIOGA LEASING - Manholes	361.7	TIOGA LEASING - Manholes	1975	43.50	54,139	R3.0	80.0	54	R3.0054	0.50513	40.41	83.91	48.156742%	26,072.80	2,355,059	2,187,769	4,542,826	4,331,143
		Total					400,796									193,013	17,434,179	16,195,780	33,629,928	32,062,856
Account		EINSTEIN MEDICAL CENTER																		
361.3	361.3	EINSTEIN MEDICAL CENTER - Mains 8" PVC	361.3	EINSTEIN MEDICAL CENTER - Mains 8	2012	6.50	93,099	R3.0	80.0	8	R3.0008	0.92160	73.73	80.23	91.896292%	85,598.72	605,146	5,464,216	7,469,362	7,447,946
361.7	361.7	EINSTEIN MEDICAL CENTER - Manholes	361.7	EINSTEIN MEDICAL CENTER - Manholi	2012	6.50	35,464	R3.0	80.0	8	R3.0008	0.92160	73.72	80.23	91.896292%	32,590.94	230,517	2,014,771	2,845,288	2,837,131
		Total					128,564									118,148	835,663	9,479,987	10,314,650	10,285,080
Account		UNKNOWN SEWER EXTENSIONS																		
361.8	361.8	UKNOWN SEWER EXTENSIONS - Mains 8" Unknown	361.8	UKNOWN SEWER EXTENSIONS - Mai	1981	37.50	110,183	R3.0	80.0	47	R3.0042	0.60583	54.52	92.02	59.247990%	65,281.30	4,131,866	6,007,185	10,139,053	9,916,463
361.7	361.7	UNKNOWN SEWER EXTENSIONS - Manholes	361.7	UKNOWN SEWER EXTENSIONS - Man	1981	37.50	17,291	R3.0	80.0	47	R3.0047	0.56303	45.04	82.54	54.567462%	9,435.15	648,405	778,778	1,427,183	1,393,284
		Total					127,474									74,716	4,780,273	6,785,963	11,566,236	11,309,747
		Total Collection Sewers - Gravity					39,687,425									17,849,979	1,886,068,840	1,506,736,103	4,089,795,310	3,857,018,019
		Total					70,770,233								0.3860354	27,461,366	3,070,109,850	1,963,625,819	5,791,643,429	5,339,811,093

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New less Depreciation (RCNLD)

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
East Norriton Wastewater Collection System
Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

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

Summary
&
Detail

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

(1)	(2)	(3)
Account	Account	Asset Description
Input	Input	Input
Eng Assmnt	AUS Input	East Norriton Wastewater Collestion System's Engineer's Assessment (Eng. Assmnt)
NARUC Code	NARUC Code	Asset Description
353.1	353.1	Pump Station Land/Land Rights
354.1	354.1	Pump Station Structures & Improvements
355.0	355.0	Pump Station Power Generator Equipment
360.0	360.0	Collection Mains - Force
361.0	361.0	Collection Mains - Gravity
363.0	363.0	Service Laterals
364.0	364.0	Flow Meters
371.0	371.0	Pumping Equipment
396.0	396.0	Communication Equipment
		Grand Total

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
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Fair Market Value

(36)	(37)	(38)	(39)	(40)	(41)
Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
Account	Description	Year	Prelim CORLD	EO%	FMV
353.1	Pump Station Land/Land Rights		1,928	23.53%	1,475
354.1	Pump Station Structures & Improvements		2,221,446	23.53%	1,698,764
355.0	Pump Station Power Generator Equipment		303,180	23.53%	231,845
360.0	Collection Mains - Force		1,241,357	23.53%	949,279
361.0	Collection Mains - Gravity		17,849,870	23.53%	13,649,991
363.0	Service Laterals		3,020,156	23.53%	2,309,546
364.0	Flow Meters		165,327	23.53%	126,428
371.0	Pumping Equipment		2,635,628	23.53%	2,015,493
396.0	Communication Equipment		22,464	23.53%	17,179
	Grand Total		**27,461,356**	23.53%	**21,000,000**

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Replacement Cost New (RCN)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
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Fair Market Value

(1)	(2)	(3)	(36)	(37)	(38)	(39)	(40)	(41)
Account	Account	Asset Description	Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
						CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
		Pump Station Land/Land Rights						
353.1	353.1	Stony Creek No. 1 (Timberlake) Pump Station	353.1	Stony Creek No. 1 (Timberlake) Pu	1963	9.20	23.53%	7.04
353.1	353.1	Stony Creek No. 2 (Norris City) Pump Station	353.1	Stony Creek No. 2 (Norris City) Pu	1963	9.20	23.53%	7.04
353.1	353.1	Stony Creek No. 3 (Germantown) Pump Station	353.1	Stony Creek No. 3 (Germantown) I	1963	9.20	23.53%	7.04
353.1	353.1	Sandra Lane Pump Station	353.1	Sandra Lane Pump Station	1981	3.35	23.53%	2.56
353.1	353.1	Burnside Avenue Pump Station	353.1	Burnside Avenue Pump Station	1995	1.90	23.53%	1.45
353.1	353.1	Schultz Road Pump Station	353.1	Schultz Road Pump Station	1981	3.35	23.53%	2.56
353.1	353.1	Whitehall Road Pump Station	353.1	Whitehall Road Pump Station	1982	3.12	23.53%	2.39
353.1	353.1	Felton Road Pump Station	353.1	Felton Road Pump Station	1975	5.41	23.53%	4.14
353.1	353.1	Einstein	353.1	Einstein	2012	1.12	23.53%	0.86
353.1	353.1	Easements (year installed is average age of sewer system)	353.1	Easements (year installed is avera	1971	1,882.48	23.53%	1,439.55
		Total Account 353.10				**1,928**	**23.53%**	**1,475**
		Pump Station Structures & Improvements						
354.1	354.1	Stony Creek No. 1 (Timberlake) Pump Station	354.1	Stony Creek No. 1 (Timberlake) Pu	1960	43,273.57	23.53%	33,091.77
354.1	354.1	Stony Creek No. 2 (Norris City) Pump Station	354.1	Stony Creek No. 2 (Norris City) Pu	1960	63,903.99	23.53%	48,868.08
354.1	354.1	Stony Creek No. 3 (Germantown) Pump Station	354.1	Stony Creek No. 3 (Germantown) I	1960	31,197.22	23.53%	23,856.86
354.1	354.1	Sandra Lane Pump Station	354.1	Sandra Lane Pump Station	1975	54,040.28	23.53%	41,325.20
354.1	354.1	Burnside Avenue Pump Station	354.1	Burnside Avenue Pump Station	1994	336,637.31	23.53%	257,430.24

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Wastewater Collection and Treatment System
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Replacement Cost New (RCN)

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Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Fair Market Value

(1)	(2)	(3)	(36)	(37)	(38)	(39)	(40)	(41)
Account	Account	Asset Description	Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
						CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
354.1	354.1	Schultz Road Pump Station	354.1	Schultz Road Pump Station	1975	44,361.43	23.53%	33,923.67
354.1	354.1	Whitehall Road Pump Station	354.1	Whitehall Road Pump Station	1975	41,941.71	23.53%	32,073.29
354.1	354.1	Felton Road Pump Station	354.1	Felton Road Pump Station	1975	41,941.71	23.53%	32,073.29
354.1	354.1	Einstein	354.1	Einstein	2012	1,564,148.58	23.53%	1,196,121.58
		Total Account 354.10				**2,221,446**	**23.53%**	**1,698,764**
Account		Pump Station Power Generator Equipment						
355	355	Stony Creek No. 1 (Timberlake) Pump Station	355	Stony Creek No. 1 (Timberlake) Pu	1960	220.39	23.53%	168.53
355	355	1996 Upgrade	355	1996 Upgrade	1996	47,410.16	23.53%	36,255.07
355	355	Stony Creek No. 2 (Norris City) Pump Station	355	Stony Creek No. 2 (Norris City) Pu	1960	330.58	23.53%	252.80
355	355	1996 Upgrade	355	1996 Upgrade	1996	69,575.95	23.53%	53,205.49
355	355	Stony Creek No. 3 (Germantown) Pump Station	355	Stony Creek No. 3 (Germantown) I	1960	165.29	23.53%	126.40
355	355	1996 Upgrade	355	1996 Upgrade	1996	33,864.40	23.53%	25,896.48
355	355	Sandra Lane Pump Station	355	Sandra Lane Pump Station	1975	2,057.06	23.53%	1,573.06
355	355	1985 Upgrade	355	1985 Upgrade	1985	2,862.00	23.53%	2,188.60
355	355	Burnside Avenue Pump Station	355	Burnside Avenue Pump Station	1994	16,397.36	23.53%	12,539.24
355	355	Schultz Road Pump Station	355	Schultz Road Pump Station	1975	1,714.22	23.53%	1,310.88
355	355	Whitehall Road Pump Station	355	Whitehall Road Pump Station	1975	1,714.22	23.53%	1,310.88
355	355	Felton Road Pump Station	355	Felton Road Pump Station	1975	1,714.22	23.53%	1,310.88

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Replacement Cost New (RCN)

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Fair Market Value

(1)	(2)	(3)	(36)	(37)	(38)	(39)	(40)	(41)
Account	Account	Asset Description	Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
						CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
355	355	Einstein	355	Einstein	2012	125,154.08	23.53%	95,706.70
355	**355**	**Total Account 355.00**	**355**			**303,180**	**23.53%**	**231,845**
Account		Service Laterals						
363	363	4" VCP Laterals in the cartway(3,715 connections @ 15 ft long)	363	4" VCP Laterals in the cartway(3,7	1971	1,653,861.62	23.53%	1,264,726.13
363	363	4" VCP Laterals out of the cartway(3,715 connections @ 10 ft lor	363	4" VCP Laterals out of the cartway	1971	360,470.15	23.53%	275,655.48
363	363	6" VCP Laterals in the cartway(650 connections @ 15 ft long)	363	6" VCP Laterals in the cartway(65(	1971	299,583.20	23.53%	229,094.56
363	363	6" VCP Laterals out of the cartway(650 connections @ 10 ft long	363	6" VCP Laterals out of the cartway	1971	69,998.31	23.53%	53,528.48
363	363	4" PVC Laterals in the cartway(485 connections @ 15 ft long)	363	4" PVC Laterals in the cartway(48	1990	433,760.26	23.53%	331,701.23
363	363	4" PVC Laterals out of the cartway(485 connections @ 10 ft long	363	4" PVC Laterals out of the cartway	1990	85,687.99	23.53%	65,526.55
363	363	6" PVC Laterals in the cartway(105 connections @ 15 ft long)	363	6" PVC Laterals in the cartway(10	1990	96,508.61	23.53%	73,801.19
363	363	6" PVC Laterals out of the cartway(105 connections @ 10 ft long	363	6" PVC Laterals out of the cartway	1990	20,285.51	23.53%	15,512.55
		Total Account 363.00				**3,020,156**	**23.53%**	**2,309,546**
Account		Flow Meters						
364	364	Stony Creek No. 1 (Timberlake) Pump Station	364	Stony Creek No. 1 (Timberlake) Pu	1960	63.83	23.53%	48.81
364	364	1996 Upgrade	364	1996 Upgrade	1996	32,449.81	23.53%	24,814.73
364	364	Stony Creek No. 2 (Norris City) Pump Station	364	Stony Creek No. 2 (Norris City) Pu	1960	85.11	23.53%	65.08

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Fair Market Value

(1)	(2)	(3)	(36)	(37)	(38)	(39)	(40)	(41)
Account	Account	Asset Description	Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
						CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
364	364	1996 Upgrade	364	1996 Upgrade	1996	48,674.71	23.53%	37,222.08
364	364	Stony Creek No. 3 (Germantown) Pump Station	364	Stony Creek No. 3 (Germantown) I	1960	42.55	23.53%	32.54
364	364	1996 Upgrade	364	1996 Upgrade	1996	23,910.38	23.53%	18,284.53
364	364	Sandra Lane Pump Station	364	Sandra Lane Pump Station	1975	798.51	23.53%	610.63
364	364	1985 Upgrade	364	1985 Upgrade	1985	2,295.59	23.53%	1,755.46
364	364	Burnside Avenue Pump Station	364	Burnside Avenue Pump Station	1994	8,944.34	23.53%	6,839.83
364	364	Schultz Road Pump Station	364	Schultz Road Pump Station	1975	798.51	23.53%	610.63
364	364	Whitehall Road Pump Station	364	Whitehall Road Pump Station	1975	798.51	23.53%	610.63
364	364	Felton Road Pump Station	364	Felton Road Pump Station	1975	798.51	23.53%	610.63
364	364	Einstein	364	Einstein	2012	45,666.97	23.53%	34,922.03
		Total Account 364.00				**165,327**	**23.53%**	**126,428**
Account		Pumping Equipment						
371	371	Stony Creek No. 1 (Timberlake) Pump Station	371	Stony Creek No. 1 (Timberlake) Pu	1960	702.30	23.53%	537.06
371	371	1996 Upgrade	371	1996 Upgrade	1996	686,516.94	23.53%	524,987.04
371	371	Stony Creek No. 2 (Norris City) Pump Station	371	Stony Creek No. 2 (Norris City) Pu	1960	1,021.53	23.53%	781.18
371	371	1996 Upgrade	371	1996 Upgrade	1996	1,014,121.93	23.53%	775,510.17
371	371	Stony Creek No. 3 (Germantown) Pump Station	371	Stony Creek No. 3 (Germantown) I	1960	510.77	23.53%	390.59

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Wastewater Collection and Treatment System
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Replacement Cost New (RCN)

(1)	(2)	(3)
Account	Account	Asset Description
Input	Input	Input
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)
NARUC Code	NARUC Code	Asset Description
Account		Communication Equipment
396	396	Stony Creek No. 1 (Timberlake) Pump Station
396	396	1996 Upgrade
396	396	Stony Creek No. 2 (Norris City) Pump Station
396	396	1996 Upgrade

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Fair Market Value

(36)	(37)	(38)	(39)	(40)	(41)
Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
Account	Description	Year	Prelim CORLD	EO%	FMV
371	1996 Upgrade	1990	491,966.54	23.53%	376,212.21
371	Sandra Lane Pump Station	1975	5,455.32	23.53%	4,171.74
371	1985 Upgrade	1985	50,067.16	23.53%	38,286.91
371	Burnside Avenue Pump Station	1994	40,602.55	23.53%	31,049.22
371	Schultz Road Pump Station	1975	4,773.40	23.53%	3,650.27
371	1999 Pumps replaced	1999	28,016.59	23.53%	21,424.59
371	Whitehall Road Pump Station	1975	4,773.40	23.53%	3,650.27
371	1999 Repairs	1999	8,085.12	23.53%	6,182.78
371	2014 Pump replacement	2014	7,113.18	23.53%	5,439.53
371	2018 Procurement of packaged st	2018	36,741.28	23.53%	28,096.46
371	Felton Road Pump Station	1975	4,773.40	23.53%	3,650.27
371	Einstein	2012	250,386.35	23.53%	191,473.19
			2,635,628	**23.53%**	**2,015,493**
396	Stony Creek No. 1 (Timberlake) Pi	1960	-	23.53%	-
396	1996 Upgrade	1996	-	23.53%	-
396	Stony Creek No. 2 (Norris City) Pu	1960	-	23.53%	-
396	1996 Upgrade	1996	-	23.53%	-

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(1)	(2)	(3)	(36)	(37)	(38)	(39)	(40)	(41)
Account	Account	Asset Description	Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
						CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
396	396	Stony Creek No. 3 (Germantown) Pump Station	396	Stony Creek No. 3 (Germantown) I	1960	-	23.53%	-
396	396	1996 Upgrade	396	1996 Upgrade	1996	-	23.53%	-
396	396	Sandra Lane Pump Station	396	Sandra Lane Pump Station	1975	-	23.53%	-
396	396	1985 Upgrade	396	1985 Upgrade	1985	-	23.53%	-
396	396	Burnside Avenue Pump Station	396	Burnside Avenue Pump Station	1994	-	23.53%	-
396	396	Schultz Road Pump Station	396	Schultz Road Pump Station	1975	-	23.53%	-
396	396	Whitehall Road Pump Station	396	Whitehall Road Pump Station	1975	-	23.53%	-
396	396	Felton Road Pump Station	396	Felton Road Pump Station	1975	-	23.53%	-
396	396	Einstein	396	Einstein	2012	22,464.46	23.53%	17,178.82
		Total Account 396.00				**22,464**	**23.53%**	**17,179**
		EAST NORRITON TOWNSHIP SANITARY SEWER SYSTEM ASSET INVENTORY REPORT						
Account		Collection Mains - Force						
360.1	360.1	Stony Creek No. 1 (Timberlake)	360.1	Stony Creek No. 1 (Timberlake)	1963	73,719.79	23.53%	56,374.33
360.1	360.1	Stony Creek No. 2 (Norris City)	360.1	Stony Creek No. 2 (Norris City)	1963	184,861.16	23.53%	141,365.36
360.1	360.1	Stony Creek No. 3 (Germantown)	360.1	Stony Creek No. 3 (Germantown)	1963	210,776.31	23.53%	161,182.96

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Fair Market Value

(1)	(2)	(3)	(36)	(37)	(38)	(39)	(40)	(41)
Account	Account	Asset Description	Account	Description	Placement Year	Preliminary Cost Approach CORLD $s	Economic Obsolescence % of Preliminary Cost Approach	Fair Market Value Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collestion System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
360.3	360.3	Stony Creek No. 3 (Germantown)	360.3	Stony Creek No. 3 (Germantown)	2012	115,614.46	23.53%	88,411.65
360.1	360.1	Felton Road	360.1	Felton Road	1975	24,917.97	23.53%	19,055.05
360.1	360.1	Sandra Lane	360.1	Sandra Lane	1975	150,920.41	23.53%	115,410.49
360.2	360.2	Burnside Road	360.2	Burnside Road	1994	148,317.36	23.53%	113,419.91
360.1	360.1	Schultz Road	360.1	Schultz Road	1975	132,387.32	23.53%	101,238.04
360.1	360.1	Whitehall Rd	360.1	Whitehall Rd	1975	45,146.17	23.53%	34,523.77
360.3	360.3	Einstein	360.3	Einstein	2012	154,695.91	23.53%	118,297.66
		Total				**1,241,357**	**23.53%**	**949,279**
		Collection Mains - Gravity						
Account		SEWER DISTRICT NO. 1 PHASE I						
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE	1963	5,320,253.58	23.53%	4,068,456.29
361.2	361.2	SEWER DISTRICT NO. 1 PHASE I - Mains CIP	361.2	SEWER DISTRICT NO. 1 PHASE	1963	5,748.31	23.53%	4,395.80
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE	1963	105,866.16	23.53%	80,957.01
361.2	361.2	SEWER DISTRICT NO. 1 PHASE I - Mains CIP	361.2	SEWER DISTRICT NO. 1 PHASE	1963	12,339.71	23.53%	9,436.31
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE	1963	81,028.69	23.53%	61,963.53
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE	1963	132,247.27	23.53%	101,130.94
361.5	361.5	SEWER DISTRICT NO. 1 PHASE I - Mains RCP	361.5	SEWER DISTRICT NO. 1 PHASE	1963	34,509.48	23.53%	26,389.78
361.5	361.5	SEWER DISTRICT NO. 1 PHASE I - Mains RCP	361.5	SEWER DISTRICT NO. 1 PHASE	1963	203,358.06	23.53%	155,510.14
361.5	361.5	SEWER DISTRICT NO. 1 PHASE I - Mains RCP	361.5	SEWER DISTRICT NO. 1 PHASE	1963	38,789.12	23.53%	29,662.47

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(1)	(2)	(3)	(36)	(37)	(38)	(39)	(40)	(41)
Account	Account	Asset Description	Account	Description	Placement Year	Preliminary Cost Approach CORLD $s	Economic Obsolescence % of Preliminary Cost Approach	Fair Market Value Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
361.7	361.7	SEWER DISTRICT NO. 1 PHASE I - Manholes	361.7	SEWER DISTRICT NO. 1 PHASE	1963	1,149,425.42	23.53%	878,978.23
		Total				**7,083,566**	**23.53%**	**5,416,881**
Account		SEWER DISTRICT NO. 1 PHASE II						
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE	1970	2,656,301.96	23.53%	2,031,303.26
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE	1970	222,180.60	23.53%	169,903.94
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE	1970	87,356.44	23.53%	66,802.43
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE	1970	227,046.84	23.53%	173,625.21
361.7	361.7	SEWER DISTRICT NO. 1 PHASE II - Manholes	361.7	SEWER DISTRICT NO. 1 PHASE	1970	477,283.82	23.53%	364,984.17
		Total 361 Phase II				**3,670,170**	**23.53%**	**2,806,619**
Account		AUTUMN RIDGE						
361.3	361.3	AUTUMN RIDGE - Mains 8" PVC	361.3	AUTUMN RIDGE - Mains 8" PVC	2000	291,487.55	23.53%	222,903.73
361.7	361.7	AUTUMN RIDGE - Manholes	361.7	AUTUMN RIDGE - Manholes	2000	67,544.69	23.53%	51,652.17
		Total				**359,032**	**23.53%**	**274,556**
Account		OLD ARCH CROSSING						
361.3	361.3	OLD ARCH CROSSING - Mains 8" PVC	361.3	OLD ARCH CROSSING - Mains 8'	1986	208,893.06	23.53%	159,742.82
361.7	361.7	OLD ARCH CROSSING - Manholes	361.7	OLD ARCH CROSSING - Manhole	1986	52,238.88	23.53%	39,947.64

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Account	Account	Asset Description	Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
						CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collestion System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
		Total				**261,132**	**23.53%**	**199,690**
Account		NEW HOPE VILLAGE						
361.1	361.1	NEW HOPE VILLAGE - Mains 8" VCP	361.1	NEW HOPE VILLAGE - Mains 8" '	1980	53,709.67	23.53%	41,072.37
361.7	361.7	NEW HOPE VILLAGE - Manholes	361.7	NEW HOPE VILLAGE - Manholes	1980	22,447.34	23.53%	17,165.73
		Total				**76,157**	**23.53%**	**58,238**
Account		VILLAGE EAST						
361.1	361.1	VILLAGE EAST - Mains 8" VCP	361.1	VILLAGE EAST - Mains 8" VCP	1978	116,001.72	23.53%	88,707.79
361.7	361.7	VILLAGE EAST - Manholes	361.7	VILLAGE EAST - Manholes	1978	33,227.12	23.53%	25,409.14
		Total				**149,229**	**23.53%**	**114,117**
Account		FOX HUNT						
361.3	361.3	FOX HUNT - Mains 8" PVC	361.3	FOX HUNT - Mains 8" PVC	1994	123,736.88	23.53%	94,622.95
361.7	361.7	FOX HUNT - Manholes	361.7	FOX HUNT - Manholes	1994	31,157.03	23.53%	23,826.12
		Total				**154,894**	**23.53%**	**118,449**
Account		RESERVE AT PENN CROSSING						
361.3	361.3	RESERVE AT PENNS CROSSING - Mains 8" PVC	361.3	RESERVE AT PENNS CROSSINC	2003	331,854.52	23.53%	253,772.79
361.7	361.7	RESERVE AT PENNS CROSSING - Manholes	361.7	RESERVE AT PENNS CROSSINC	2003	99,477.65	23.53%	76,071.65

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Account	Account	Asset Description	Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
						CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collestion System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
		Total				**431,332**	**23.53%**	**329,844**
Account		KIMBERLY KNOLL						
361.1	361.1	KIMBERLY KNOLL - Mains 8" VCP	361.1	KIMBERLY KNOLL - Mains 8" VCI	1979	296,434.58	23.53%	226,686.78
361.7	361.7	KIMBERLY KNOLL - Manholes	361.7	KIMBERLY KNOLL - Manholes	1979	48,247.83	23.53%	36,895.64
		Total				**344,682**	**23.53%**	**263,582**
Account		EVERGREEN TERRACE						
361.3	361.3	EVERGREEN TERRACE - Mains 8" PVC	361.3	EVERGREEN TERRACE - Mains I	2010	18,682.81	23.53%	14,286.95
361.7	361.7	EVERGREEN TERRACE - Manholes	361.7	EVERGREEN TERRACE - Manho	2010	8,835.89	23.53%	6,756.90
		Total				**27,519**	**23.53%**	**21,044**
Account		THOMAS END						
361.6	361.6	THOMAS END - Mains 8" Unknown	361.6	THOMAS END - Mains 8" Unknow	1983	118,645.58	23.53%	90,729.58
361.7	361.7	THOMAS END - Manholes	361.7	THOMAS END - Manholes	1983	18,893.62	23.53%	14,448.16
		Total				**137,539**	**23.53%**	**105,178**
Account		BARLY SHEAF						
361.3	361.3	BARLEY SHEAF - Mains 8" PVC	361.3	BARLEY SHEAF - Mains 8" PVC	1986	172,098.43	23.53%	131,605.56
361.4	361.4	BARLEY SHEAF - Mains 8" DIP	361.4	BARLEY SHEAF - Mains 8" DIP	1986	11,071.60	23.53%	8,466.57

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Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collestion System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
361.7	361.7	BARLEY SHEAF - Manholes	361.7	BARLEY SHEAF - Manholes	1986	63,808.90	23.53%	48,795.37
		Total				**246,979**	**23.53%**	**188,868**
Account		MARION AVENUE SEWER EXTENSION						
361.3	361.3	MARION AVENUE SEWER EXTENENSION - 8" PVC	361.3	MARION AVENUE SEWER EXTEI	2009	122,533.47	23.53%	93,702.69
361.7	361.7	MARION AVENUE SEWER EXTENENSION - Manholes	361.7	MARION AVENUE SEWER EXTEI	2009	25,819.61	23.53%	19,744.54
		Total				**148,353**	**23.53%**	**113,447**
Account		WHITEHALL ROAD PROJECT						
361.1	361.1	WHITEHALL ROAD PROJECT - Mains 8" VCP	361.1	WHITEHALL ROAD PROJECT - M	1980	608,450.96	23.53%	465,289.13
361.7	361.7	WHITEHALL ROAD PROJECT Manholes	361.7	WHITEHALL ROAD PROJECT Ma	1980	92,283.51	23.53%	70,570.21
		Total				**700,734**	**23.53%**	**535,859**
Account		WOODLANDS AT WHITEHALL						
361.3	361.3	WOODLANDS AT WHITEHALL - Mains 8" PVC	361.3	WOODLANDS AT WHITEHALL - M	1993	88,364.89	23.53%	67,573.60
361.7	361.7	WOODLANDS AT WHITEHALL - Manholes	361.7	WOODLANDS AT WHITEHALL - M	1993	27,057.92	23.53%	20,691.49
		Total				**115,423**	**23.53%**	**88,265**
Account		SUNSET KNOLL						
361.3	361.3	SUNSET KNOLL - Mains 8" PVC	361.3	SUNSET KNOLL - Mains 8" PVC	1986	132,914.38	23.53%	101,641.08

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Account	Account	Asset Description	Account	Description	Placement Year	Preliminary Cost Approach CORLD $s	Economic Obsolescence % of Preliminary Cost Approach	Fair Market Value Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collestion System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1 00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
361.7	361.7	SUNSET KNOLL - Manholes	361.7	SUNSET KNOLL - Manholes	1986	22,194.40	23.53%	16,972.30
		Total				**155,109**	**23.53%**	**118,613**
Account		HEATHERWOOD						
361.3	361.3	HEATHERWOOD - Mains 8" PVC	361.3	HEATHERWOOD - Mains 8" PVC	2006	150,126.39	23.53%	114,803.30
361.7	361.7	HEATHERWOOD - Manholes	361.7	HEATHERWOOD - Manholes	2006	46,605.31	23.53%	35,639.59
		Total				**196,732**	**23.53%**	**150,443**
Account		LINFOOT WALKER						
361.1	361.1	LINFOOT WALKER - Mains 8" VCP	361.1	LINFOOT WALKER - Mains 8" VC	1985	50,926.91	23.53%	38,944.37
361.7	361.7	LINFOOT WALKER - Manholes	361.7	LINFOOT WALKER - Manholes	1985	13,356.28	23.53%	10,213.69
		Total				**64,283**	**23.53%**	**49,158**
Account		PIMLICO FARMS						
361.3	361.3	PIMLICO FARMS - Mains 8" PVC	361.3	PIMLICO FARMS - Mains 8" PVC	2007	253,639.86	23.53%	193,961.18
361.4	361.4	PIMLICO FARMS - Mains 8" DIP	361.4	PIMLICO FARMS - Mains 8" DIP	2007	23,688.40	23.53%	18,114.78
361.7	361.7	PIMLICO FARMS - Manholes	361.7	PIMLICO FARMS - Manholes	2007	102,927.74	23.53%	78,709.97
		Total				**380,256**	**23.53%**	**290,786**
Account		WHITEHALL ESTATES						

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Account	Account	Asset Description	Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
						CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collestion System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
361.1	361.1	WHITEHALL ESTATES - Mains 8" VCP	361.1	WHITEHALL ESTATES - Mains 8"	1985	143,912.50	23.53%	110,051.47
361.7	361.7	WHITEHALL ESTATES - Manholes	361.7	WHITEHALL ESTATES - Manhole	1985	26,712.57	23.53%	20,427.40
		Total				**170,625**	**23.53%**	**130,479**
Account		VILLGE OF CARALEA						
361.3	361.3	VILLAGE OF CARALEA - Mains 8" PVC	361.3	VILLAGE OF CARALEA - Mains 8'	2007	219,107.19	23.53%	167,553.67
361.4	361.4	VILLAGE OF CARALEA - Mains 8" DIP	361.4	VILLAGE OF CARALEA - Mains 8'	2007	8,521.01	23.53%	6,516.11
361.7	361.7	VILLAGE OF CARALEA - Manholes	361.7	VILLAGE OF CARALEA - Manhole	2007	57,639.54	23.53%	44,077.59
		Total				**285,268**	**23.53%**	**218,147**
Account		NORRITON BUSINESS CAMPUS						
361.3	361.3	NORRITON BUSINESS CAMPUS - Mains 8" PVC	361.3	NORRITON BUSINESS CAMPUS	2007	394,784.28	23.53%	301,895.87
361.7	361.7	NORRITON BUSINESS CAMPUS - Manholes	361.7	NORRITON BUSINESS CAMPUS	2007	156,450.17	23.53%	119,639.16
		Total				**551,234**	**23.53%**	**421,535**
Account		STONEBRIDGE ESTATES						
361.3	361.3	STONEBRIDGE ESTATES - Mains 8" PVC	361.3	STONEBRIDGE ESTATES - Mains	1994	189,815.30	23.53%	145,153.84
361.4	361.4	STONEBRIDGE ESTATES - Mains 8" DIP	361.4	STONEBRIDGE ESTATES - Mains	1994	60,314.07	23.53%	46,122.83
361.7	361.7	STONEBRIDGE ESTATES - Manholes	361.7	STONEBRIDGE ESTATES - Manh	1994	41,542.70	23.53%	31,768.16
		Total				**291,672**	**23.53%**	**223,045**

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Account	Account	Asset Description	Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
						CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * (1.00-Col (40))
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
Account		ELIZABETH MYERS						
361.1	361.1	ELIZABETH MYERS - Mains 8" VCP	361.1	ELIZABETH MYERS - Mains 8" VC	1985	105,655.26	23.53%	80,795.74
361.3	361.3	ELIZABETH MYERS - Mains 8" PVC	361.3	ELIZABETH MYERS - Mains 8" PV	2000	26,875.42	23.53%	20,551.93
361.7	361.7	ELIZABETH MYERS - Manholes	361.7	ELIZABETH MYERS - Manholes	1985	16,027.54	23.53%	12,256.44
361.7	361.7	ELIZABETH MYERS - Manholes	361.7	ELIZABETH MYERS - Manholes	2000	7,504.96	23.53%	5,739.13
		Total				**156,063**	**23.53%**	**119,343**
Account		GLEN MOORE						
361.1	361.1	GLEN MOORE - Mains 8" VCP	361.1	GLEN MOORE - Mains 8" VCP	1978	80,621.77	23.53%	61,652.35
361.7	361.7	GLEN MOORE - Manholes	361.7	GLEN MOORE - Manholes	1978	12,779.66	23.53%	9,772.75
		Total				**93,401**	**23.53%**	**71,425**
Account		WOODLAND MANOR						
361.1	361.1	WOODLAND MANOR - Mains 8" VCP	361.1	WOODLAND MANOR - Mains 8" \	1975	144,063.76	23.53%	110,167.14
361.7	361.7	WOODLAND MANOR - Manholes	361.7	WOODLAND MANOR - Manholes	1975	26,072.80	23.53%	19,938.16
		Total				**170,137**	**23.53%**	**130,105**
Account		NICK & LES						
361.3	361.3	NICK & LES - Mains 8" PVC	361.3	NICK & LES - Mains 8" PVC	1996	136,766.69	23.53%	104,586.99

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						CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
361.7	361.7	NICK & LES - Manholes	361.7	NICK & LES - Manholes	1996	38,426.68	23.53%	29,385.30
		Total				**175,193**	**23.53%**	**133,972**
Account		TANGLEWOOD						
361.1	361.1	TANGLEWOOD - Mains 8" VCP	361.1	TANGLEWOOD - Mains 8" VCP	1975	177,609.18	23.53%	135,819.69
361.7	361.7	TANGLEWOOD - Manholes	361.7	TANGLEWOOD - Manholes	1975	34,763.73	23.53%	26,584.21
		Total				**212,373**	**23.53%**	**162,404**
Account		VALLEY FORGE GREENE						
361.3	361.3	VALLEY FORGE GREENE - Mains 8" PVC	361.3	VALLEY FORGE GREENE - Mains	1996	17,125.64	23.53%	13,096.16
361.7	361.7	VALLEY FORGE GREENE - Manholes	361.7	VALLEY FORGE GREENE - Manh	1996	10,480.01	23.53%	8,014.18
		Total				**27,606**	**23.53%**	**21,110**
Account		WOODSTREAM CROSSING II						
361.1	361.1	WOODSTREAM CROSSING II - Mains 8" VCP	361.1	WOODSTREAM CROSSING II - M	1975	310,290.79	23.53%	237,282.77
361.7	361.7	WOODSTREAM CROSSING II - Manholes	361.7	WOODSTREAM CROSSING II - M	1975	52,145.61	23.53%	39,876.32
		Total				**362,436**	**23.53%**	**277,159**
Account		HOLLY HILL EAST						
361.1	361.1	HOLLY HILL EAST - Mains 8" VCP	361.1	HOLLY HILL EAST - Mains 8" VCF	1975	223,580.48	23.53%	170,974.45

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Input	Input	Input	Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)	Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
NARUC Code	NARUC Code	Asset Description	Account	Description	Year	Prelim CORLD	EO%	FMV
361.7	361.7	HOLLY HILL EAST - Manholes	361.7	HOLLY HILL EAST - Manholes	1975	41,281.94	23.53%	31,568.75
		Total				**264,862**	**23.53%**	**202,543**
Account		TIOGA LEASING						
361.1	361.1	TIOGA LEASING - Mains 8" VCP	361.1	TIOGA LEASING - Mains 8" VCP	1975	166,940.55	23.53%	127,661.27
361.7	361.7	TIOGA LEASING - Manholes	361.7	TIOGA LEASING - Manholes	1975	26,072.80	23.53%	19,938.16
		Total				**193,013**	**23.53%**	**147,599**
Account		EINSTEIN MEDICAL CENTER						
361.3	361.3	EINSTEIN MEDICAL CENTER - Mains 8" PVC	361.3	EINSTEIN MEDICAL CENTER - M	2012	85,556.72	23.53%	65,426.16
361.7	361.7	EINSTEIN MEDICAL CENTER - Manholes	361.7	EINSTEIN MEDICAL CENTER - M	2012	32,590.94	23.53%	24,922.65
		Total				**118,148**	**23.53%**	**90,349**
Account		UNKNOWN SEWER EXTENSIONS						
361.6	361.6	UKNOWN SEWER EXTENSIONS - Mains 8" Unknown	361.6	UKNOWN SEWER EXTENSIONS	1981	65,281.30	23.53%	49,921.33
361.7	361.7	UKNOWN SEWER EXTENSIONS - Manholes	361.7	UKNOWN SEWER EXTENSIONS	1981	9,435.15	23.53%	7,215.16
		Total				**74,716**	**23.53%**	**57,136**
		Total Collection Sewers - Gravity				**17,849,870**	**23.53%**	**13,649,991**

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

(1)	(2)	(3)
Account	Account	Asset Description
Input	Input	Input
Eng Assmnt	AUS Input	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmnt)
NARUC Code	NARUC Code	Asset Description

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Fair Market Value

(36)	(37)	(38)	(39)	(40)	(41)
Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Calculation	Input	Calculation
Eng Assmnt	Eng Assmnt	Eng Assmnt	Col (31)	AUS Economic Obsolescence Analysis	(39) * [1.00-Col (40)]
Account	Description	Year	Prelim CORLD	EO%	FMV
Total			**27,461,366**	**23.53%**	**21,000,000**

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
East Norriton Wastewater Collection System
Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

Cost Approach
Depreciated Original Cost

Summary
&
Detail

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

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Determination of the Depreciated Original Cost

(1)	(2)	(3)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)
Account	Account	Asset Description	Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at October 29, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy	Normal Service Life (NSL)
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assmt NARUC Code	A/S Input NARUC Code	Last Service Wastewater Collection System Engineer's Assessment (Eng. Assmt)	A/S Input Acct	Eng Assmt Descrip	Eng Assmt Year	Eng Assmt Original Cost	A/S Input Iowa	A/S Input Normal Life	2018 (25)+(0.5) age	Col (48) / (49) AgeP	Col (47) & (50) IowaLookup	Lookup Iowa Curves Life Tables @ (49 (51) Iowa Condition	Col (49) * (52) Rem Life	Col (49) + (53) Total Life	Col (53) / (54) Theo%	Col (49) * (55) Theo Reserve	Col (49) - (56) Net Book	Col (49) * (48) OC wtd Age	Col (49) * (53) OC wtd Rem Life	Col (49) * (54) OC wtd Total Life	Col (49) * (48) OC wtd Normal Life
353.1	353.1	Pump Station Land/Land Rights	353.1	Pump Station Land/Land Rights		275	Non-Depr	0.00	47.22				47.22	47.22	0.00000	-	275	12,987	12,987	12,987	-
354.1	354.1	Pump Station Structures & Improvements	354.1	Pump Station Structures & Improvements		2,350,000	R4.0	45.00	18.53				29.14	47.66	0.35964	845,143	1,504,857	43,517,000	68,474,890	111,991,890	105,750,000
355.0	355.0	Pump Station Power Generator Equipment	355.0	Pump Station Power Generator Equipment		472,449	R3.0	35.00	20.83				17.58	38.42	0.51621	243,883	228,566	9,843,042	8,306,840	18,149,881	16,535,715
360.0	360.0	Collection Mains - Force	360.0	Collection Mains - Force		757,848	R3.0	60.00	31.89				32.28	64.17	0.48051	364,150	393,698	24,164,939	24,465,201	48,630,140	45,470,889
361.0	361.0	Collection Mains - Gravity	361.0	Collection Mains - Gravity		8,084,501	R3.0	80.12	35.65				47.74	83.39	0.42196	3,411,345	4,673,156	288,232,138	385,921,187	674,153,325	647,749,345
363.0	363.0	Service Laterals	363.0	Service Laterals		1,790,222	R3.0	55.00	42.27				18.93	61.19	0.68603	1,228,151	562,071	75,668,514	33,882,969	109,551,483	98,462,197
364.0	364.0	Flow Meters	364.0	Flow Meters		201,724	R3.0	35.00	21.43				16.88	38.31	0.00000	-	-	4,323,754	3,404,601	7,728,355	7,060,340
371.0	371.0	Pumping Equipment	371.0	Pumping Equipment		2,388,085	R3.0	12.31	21.89				15.84	13.22	0.57237	1,366,860	1,021,225	52,278,307	37,832,547	31,579,174	29,402,975
396.0	396.0	Communication Equipment	396.0	Communication Equipment		201,724	R3.0	12.00	21.43				1.44	22.88	0.88519	178,565	23,159	4,323,754	290,880	4,614,634	2,420,888
		Grand Total		**Grand Total**		**16,246,828**		58.65	30.92				34.63	61.95	0.47013	**7,638,097**	**8,407,007**	**502,364,433**	**583,592,101**	**1,006,411,868**	**952,852,149**

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Determination of the Depreciated Original Cost

(1)	(2)	(3)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)
Account	Account	Asset Description	Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at October 29, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy	Normal Service Life (NSL)
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assist NARUC Code	Acct Input NARUC Code	East Norriton Wastewater Collection System Engineer's Assessment (Eng. Assist.) Asset Description	Acct Input Acct	Eng Assist Descrip	Eng Assist Year	Eng Assist Original Cost	Acct Input Iowa	Acct Input Normal Life	2018 (45)+(0.5) age	Col (49) / (48) AgeP	Col (47) & (50) IowaLookup	Lookup Iowa Curves Life Tables @ col (51) Iowa Condition	Col (48) * (52) Rem Life	Col (48) / (53) Total Life	Col (53) / (54) Theo%	Col (46) * (55) Theo Reserve	Col (46) - (56) Net Book	Col (49) * (46) OC wtd Age	Col (49) * (57) OC wtd Rem Life	Col (48) * (57) OC wtd Total Life	Col (48) * (46) OC wtd Normal Life
		Pump Station Land/Land Rights																			
353.1	353.1	Stony Creek No. 1 (Timberlake) Pump Station	353.1	Stony Creek No. 1 (Timberlake) Pum	1963	1	Non-Depr	0	55.50	0	Non-Depr000	1	55.5	55.5	0	-	1	56	56	56	-
353.1	353.1	Stony Creek No. 2 (Norris City) Pump Station	353.1	Stony Creek No. 2 (Norris City) Pump	1963	1	Non-Depr	0	55.50	0	Non-Depr000	1	55.5	55.5	0	-	1	56	56	56	-
353.1	353.1	Stony Creek No. 3 (Germantown) Pump Station	353.1	Stony Creek No. 3 (Germantown) Pu	1963	1	Non-Depr	0	55.50	0	Non-Depr000	1	55.5	55.5	0	-	1	56	56	56	-
353.1	353.1	Sandra Lane Pump Station	353.1	Sandra Lane Pump Station	1981	1	Non-Depr	0	37.50	0	Non-Depr000	1	37.5	37.5	0	-	1	38	38	38	-
353.1	353.1	Burnside Avenue Pump Station	353.1	Burnside Avenue Pump Station	1995	1	Non-Depr	0	23.50	0	Non-Depr000	1	23.5	23.5	0	-	1	24	24	24	-
353.1	353.1	Schultz Road Pump Station	353.1	Schultz Road Pump Station	1981	1	Non-Depr	0	37.50	0	Non-Depr000	1	37.5	37.5	0	-	1	38	38	38	-
353.1	353.1	Whitehall Road Pump Station	353.1	Whitehall Road Pump Station	1982	1	Non-Depr	0	36.50	0	Non-Depr000	1	36.5	36.5	0	-	1	37	37	37	-
353.1	353.1	Felton Road Pump Station	353.1	Felton Road Pump Station	1975	1	Non-Depr	0	43.50	0	Non-Depr000	1	43.5	43.5	0	-	1	44	44	44	-
353.1	353.1	Einstein	353.1	Einstein	2012	1	Non-Depr	0	6.50	0	Non-Depr000	1	6.5	6.5	0	-	1	7	7	7	-
353.1	353.1	Easements (year installed is average age of sewer system)	353.1	Easements (year installed is average	1971	266	Non-Depr	0	47.50	0	Non-Depr000	1	47.5	47.5	0	-	266	12,635	12,635	12,635	-
		Total Account 353.10				**275**											**275**	**12,987**	**12,987**	**12,987**	
		Pump Station Structures & Improvements																			
354.1	354.1	Stony Creek No. 1 (Timberlake) Pump Station	354.1	Stony Creek No. 1 (Timberlake) Pum	1960	86,000	R4.0	45	58.50	130	R4.0130	0.05022	2.26	60.76	0.9628	82,801	3,199	5,031,000	194,360	5,225,360	3,870,000
354.1	354.1	Stony Creek No. 2 (Norris City) Pump Station	354.1	Stony Creek No. 2 (Norris City) Pump	1960	127,000	R4.0	45	58.50	130	R4.0130	0.05022	2.26	60.76	0.9628	122,276	4,724	7,429,500	287,020	7,716,520	5,715,000
354.1	354.1	Stony Creek No. 3 (Germantown) Pump Station	354.1	Stony Creek No. 3 (Germantown) Pu	1960	62,000	R4.0	45	58.50	130	R4.0130	0.05022	2.26	60.76	0.9628	59,684	2,306	3,627,000	140,120	3,767,120	2,790,000
354.1	354.1	Sandra Lane Pump Station	354.1	Sandra Lane Pump Station	1975	67,000	R4.0	45	43.50	97	R4.0097	0.16103	7.25	50.75	0.85714	57,428	9,572	2,914,500	485,750	3,400,250	3,015,000
354.1	354.1	Burnside Avenue Pump Station	354.1	Burnside Avenue Pump Station	1994	310,000	R4.0	45	24.50	54	R4.0054	0.47586	21.42	45.92	0.53354	165,387	144,603	7,595,000	6,640,200	14,235,200	13,950,000
354.1	354.1	Schultz Road Pump Station	354.1	Schultz Road Pump Station	1975	55,000	R4.0	45	43.50	97	R4.0097	0.16103	7.25	50.75	0.85714	47,143	7,857	2,392,500	398,750	2,791,250	2,475,000
354.1	354.1	Whitehall Road Pump Station	354.1	Whitehall Road Pump Station	1975	52,000	R4.0	45	43.50	97	R4.0097	0.16103	7.25	50.75	0.85714	44,571	7,429	2,262,000	377,000	2,639,000	2,340,000
354.1	354.1	Felton Road Pump Station	354.1	Felton Road Pump Station	1975	52,000	R4.0	45	43.50	97	R4.0097	0.16103	7.25	50.75	0.85714	44,571	7,429	2,262,000	377,000	2,639,000	2,340,000
354.1	354.1	Einstein	354.1	Einstein	2012	1,539,000	R4.0	45	6.50	14	R4.0014	0.86031	38.71	45.21	0.14377	221,262	1,317,738	10,003,500	59,574,690	69,578,190	69,255,000
		Total Account 354.10				**2,300,000**										**845,143**	**1,504,857**	**43,917,000**	**68,474,890**	**111,991,890**	**109,780,000**
Account		**Pump Station Power Generator Equipment**																			
355	355	Stony Creek No. 1 (Timberlake) Pump Station	355	Stony Creek No. 1 (Timberlake) Pum	1960	8,000	R3.0	35	58.50	167	R3.0167	0.00641	0.22	58.72	0.99625	7,970	30	468,000	1,760	469,760	280,000
355	355	1996 Upgrade	355	1996 Upgrade	1996	77,000	R3.0	35	22.50	64	R3.0064	0.42683	14.94	37.44	0.60096	46,274	30,726	1,732,500	1,150,380	2,882,880	2,695,000
355	355	Stony Creek No. 2 (Norris City) Pump Station	355	Stony Creek No. 2 (Norris City) Pump	1960	12,000	R3.0	35	58.50	167	R3.0167	0.00641	0.22	58.72	0.99625	11,955	45	702,000	2,640	704,640	420,000
355	355	1996 Upgrade	355	1996 Upgrade	1996	113,000	R3.0	35	22.50	64	R3.0064	0.42683	14.94	37.44	0.60096	67,908	45,092	2,542,500	1,688,220	4,230,720	3,955,000
355	355	Stony Creek No. 3 (Germantown) Pump Station	355	Stony Creek No. 3 (Germantown) Pu	1960	6,000	R3.0	35	58.50	167	R3.0167	0.00641	0.22	58.72	0.99625	5,978	23	351,000	1,320	352,320	210,000
355	355	1996 Upgrade	355	1996 Upgrade	1996	55,000	R3.0	35	22.50	64	R3.0064	0.42683	14.94	37.44	0.60096	33,053	21,947	1,237,500	821,700	2,059,200	1,925,000
355	355	Sandra Lane Pump Station	355	Sandra Lane Pump Station	1975	6,000	R3.0	35	43.50	124	R3.0124	0.11382	3.98	47.48	0.91618	5,497	503	261,000	23,880	284,880	210,000
355	355	1985 Upgrade	355	1985 Upgrade	1985	7,449	R3.0	35	33.50	96	R3.0096	0.2213	7.75	41.25	0.81212	6,049	1,400	249,542	57,730	307,271	260,715
355	355	Burnside Avenue Pump Station	355	Burnside Avenue Pump Station	1994	29,000	R3.0	35	24.50	70	R3.0070	0.38261	13.39	37.89	0.64661	18,752	10,248	710,500	388,310	1,098,810	1,015,000
355	355	Schultz Road Pump Station	355	Schultz Road Pump Station	1975	5,000	R3.0	35	43.50	124	R3.0124	0.11382	3.98	47.48	0.91618	4,581	419	217,500	19,900	237,400	175,000
355	355	Whitehall Road Pump Station	355	Whitehall Road Pump Station	1975	5,000	R3.0	35	43.50	124	R3.0124	0.11382	3.98	47.48	0.91618	4,581	419	217,500	19,900	237,400	175,000
355	355	Felton Road Pump Station	355	Felton Road Pump Station	1975	5,000	R3.0	35	43.50	124	R3.0124	0.11382	3.98	47.48	0.91618	4,581	419	217,500	19,900	237,400	175,000
355	355	Einstein	355	Einstein	2012	144,000	R3.0	35	6.50	19	R3.0019	0.81568	28.55	35.05	0.18545	26,705	117,295	936,000	4,111,200	5,047,200	5,040,000
355	355	**Total Account 355.00**	355			**472,449**			**20.83**				**17.58**	**38.42**	**0.51621**	**243,883**	**228,566**	**9,843,042**	**8,306,840**	**18,149,881**	**16,538,715**
Account		**Service Laterals**																			
363	363	4" VCP Laterals in the cartway(3,715 connections @ 15 ft long)	363	4" VCP Laterals in the cartway(3,715	1971	899,959	R3.0	55	47.50	86	R3.0086	0.27673	15.22	62.72	0.75733	681,568	218,393	42,748,041	13,697,372	56,445,413	49,497,731
363	363	4" VCP Laterals out of the cartway(3,715 connections @ 10 ft long	363	4" VCP Laterals out of the cartway(3,7	1971	196,152	R3.0	55	47.50	86	R3.0086	0.27673	15.22	62.72	0.75733	148,552	47,600	9,317,220	2,985,433	12,302,653	10,788,360
363	363	6" VCP Laterals in the cartway(650 connections @ 15 ft long)	363	6" VCP Laterals in the cartway(650 co	1971	183,020	R3.0	55	47.50	86	R3.0086	0.27673	15.22	62.72	0.75733	123,460	39,560	7,743,450	2,481,164	10,224,614	8,966,100
363	363	6" VCP Laterals out of the cartway(650 connections @ 10 ft long)	363	6" VCP Laterals out of the cartway(65	1971	38,090	R3.0	55	47.50	86	R3.0086	0.27673	15.22	62.72	0.75733	28,847	9,243	1,809,275	579,730	2,389,005	2,094,950
363	363	4" PVC Laterals in the cartway(485 connections @ 15 ft long)	363	4" PVC Laterals in the cartway(485 co	1990	338,105	R3.0	55	28.50	52	R3.0052	0.52142	28.68	57.18	0.49843	167,525	168,580	9,578,993	9,639,491	19,218,484	18,485,775
363	363	4" PVC Laterals out of the cartway(485 connections @ 10 ft long)	363	4" PVC Laterals out of the cartway(48	1990	66,397	R3.0	55	28.50	52	R3.0052	0.52142	28.68	57.18	0.49843	33,094	33,302	1,892,300	1,904,252	3,796,552	3,651,808
363	363	6" PVC Laterals in the cartway(105 connections @ 15 ft long)	363	6" PVC Laterals in the cartway(105 co	1990	74,781	R3.0	55	28.50	52	R3.0052	0.52142	28.68	57.18	0.49843	37,273	37,508	2,131,259	2,144,719	4,275,978	4,112,955
363	363	6" PVC Laterals out of the cartway(105 connections @ 10 ft long)	363	6" PVC Laterals out of the cartway(10	1990	15,719	R3.0	55	28.50	52	R3.0052	0.52142	28.68	57.18	0.49843	7,835	7,884	447,977	450,807	898,784	864,518
		Total Account 363.00				**1,790,222**										**1,228,151**	**562,071**	**75,609,514**	**33,882,969**	**109,561,483**	**98,482,197**
Account		**Flow Meters**																			
364	364	Stony Creek No. 1 (Timberlake) Pump Station	364	Stony Creek No. 1 (Timberlake) Pum	1960	3,000	R3.0	35	58.50	167	R3.0167	0.00641	0.22	58.72	0.99625	2,989	11	175,500	660	176,160	105,000
364	364	1996 Upgrade	364	1996 Upgrade	1996	38,000	R3.0	35	22.50	64	R3.0064	0.42683	14.94	37.44	0.60096	22,836	15,164	855,000	567,720	1,422,720	1,330,000
364	364	Stony Creek No. 2 (Norris City) Pump Station	364	Stony Creek No. 2 (Norris City) Pump	1960	4,000	R3.0	35	58.50	167	R3.0167	0.00641	0.22	58.72	0.99625	3,985	15	234,000	880	234,880	140,000
364	364	1996 Upgrade	364	1996 Upgrade	1996	57,000	R3.0	35	22.50	64	R3.0064	0.42683	14.94	37.44	0.60096	34,255	22,745	1,282,500	851,580	2,134,080	1,995,000

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Determination of the Depreciated Original Cost

(1)	(2)	(3)	(41)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)
Account	Account	Asset Description	Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at October 29, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy	Normal Service Life (NSL)
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assmt NARUC Code	Acct Input NARUC Code	Typ Asset Description (Eng Assmt)	Acct Input	Eng Assmt Descrip	Eng Assmt Year	Eng Assmt Original Cost	Acct Input Iowa	Acct Input Normal Life	2018 (45)-(45) age	Col (50) / (49) Age%	Col (51) & (50) IowaLookup	Iowa Condition Percent of Original Value Curves Life Tables @ col (51) Iowa Condition	Col (49) * (54) Rem Life	Col (49) + (53) Total Life	Col (53) / (54) Theo%	Col (49) * (55) Theo Reserve	Col (49) - (56) Net Book	Col (49) * (49) OC wtd Age	Col (49) * (53) OC wtd Rem Life	Col (49) * (54) OC wtd Total Life	Col (49) * (48) OC wtd Normal Life
Account		Pumping Equipment																			
371	371	Stony Creek No. 1 (Timberlake) Pump Station	371	Stony Creek No. 1 (Timberlake) Pum	1960	11,000	R3.0	35	58.50	167	R3.0167	0.00641	0.22	58.72	0.99625	10,959	41	843,500	2,420	845,920	385,000
371	371	1996 Upgrade	371	1996 Upgrade	1996	814,000	R3.0	35	22.50	64	R3.0064	0.42663	14.94	37.44	0.60096	368,989	245,011	13,815,000	9,173,160	22,988,160	21,490,000
371	371	Stony Creek No. 2 (Norris City) Pump Station	371	Stony Creek No. 2 (Norris City) Pump	1960	16,000	R3.0	35	58.50	167	R3.0167	0.00641	0.22	58.72	0.99625	15,940	60	936,000	3,520	939,520	560,000
371	371	1996 Upgrade	371	1996 Upgrade	1996	907,000	R3.0	35	22.50	64	R3.0064	0.42663	14.94	37.44	0.60096	545,071	361,929	20,407,500	13,550,580	33,958,080	31,745,000
371	371	Stony Creek No. 3 (Germantown) Pump Station	371	Stony Creek No. 3 (Germantown) Pur	1960	8,000	R3.0	35	58.50	167	R3.0167	0.00641	0.22	58.72	0.99625	7,970	30	468,000	1,760	469,760	280,000
371	371	1996 Upgrade	371	1996 Upgrade	1996	440,000	R3.0	35	22.50	64	R3.0064	0.42663	14.94	37.44	0.60096	264,422	175,578	9,900,000	6,573,600	16,473,600	15,400,000
371	371	Sandra Lane Pump Station	371	Sandra Lane Pump Station	1975	8,000	R3.0	35	43.50	124	R3.0124	0.11382	3.98	47.48	0.91618	7,329	671	348,000	31,840	379,840	280,000
371	371	1985 Upgrade	371	1985 Upgrade	1985	59,580	R3.0	35	33.50	96	R3.0096	0.2213	7.75	41.25	0.81212	48,384	11,196	1,996,265	481,823	2,478,088	2,085,850
371	371	Burnside Avenue Pump Station	371	Burnside Avenue Pump Station	1994	39,000	R3.0	25	24.50	70	R3.0070	0.38261	13.39	37.89	0.64861	25,218	13,782	955,500	522,210	1,477,710	1,365,000
371	371	Schultz Road Pump Station	371	Schultz Road Pump Station	1975	7,000	R3.0	35	43.50	124	R3.0124	0.11382	3.98	47.48	0.91618	6,413	587	304,500	27,860	332,360	245,000
371	371	1999 Pumps replaced	371	1999 Pumps replaced	1999	34,000	R3.0	35	19.50	56	R3.0056	0.48804	17.12	36.62	0.5325	12,780	11,220	468,000	410,880	878,880	840,000
371	371	Whitehall Road Pump Station	371	Whitehall Road Pump Station	1975	7,000	R3.0	35	43.50	124	R3.0124	0.11382	3.98	47.48	0.91618	6,413	587	304,500	27,860	332,360	245,000
371	371	1999 Repairs	371	1999 Repairs	1999	8,929	R3.0	35	19.50	56	R3.0056	0.48804	17.12	36.62	0.5325	3,888	3,238	133,057	118,573	253,630	242,410
371	371	2014 Pump replacement	371	2014 Pump replacement	2014	5,800	R3.0	35	4.50	13	R3.0013	0.87314	30.56	35.06	0.12835	744	5,056	28,100	177,248	203,348	203,000
371	371	2018 Procurement of packaged station (not installed)	371	2018 Procurement of packaged static	2018	35,769	R3.0	35	0.50	1	R3.0001	0.99015	34.66	35.16	0.01422	508	35,260	17,885	1,239,754	1,257,638	1,251,915
371	371	Felton Road Pump Station	371	Felton Road Pump Station	1975	7,000	R3.0	35	43.50	124	R3.0124	0.11382	3.98	47.48	0.91618	6,413	587	304,500	27,860	332,360	245,000
371	371	Einstein	371	Einstein	2012	192,000	R3.0	35	6.50	19	R3.0019	0.81568	28.55	35.05	0.18545	35,606	156,394	1,248,000	5,481,600	6,729,600	6,720,000
		Total Account 371.00				2,368,086										1,388,860	1,021,226	52,279,387	37,832,647	31,679,174	29,402,575
Account		Communication Equipment																			
396	396	Stony Creek No. 1 (Timberlake) Pump Station	396	Stony Creek No. 1 (Timberlake) Pum	1960	3,000	R3.0	12	58.50	488	R3.0488	0	0	58.5	1	3,000	-	175,500	-	175,500	36,000
396	396	1996 Upgrade	396	1996 Upgrade	1996	38,000	R3.0	12	22.50	188	R3.0188	0	0	22.5	1	38,000	-	855,000	-	855,000	456,000
396	396	Stony Creek No. 2 (Norris City) Pump Station	396	Stony Creek No. 2 (Norris City) Pump	1960	4,000	R3.0	12	58.50	488	R3.0488	0	0	58.5	1	4,000	-	234,000	-	234,000	48,000
396	396	1996 Upgrade	396	1996 Upgrade	1996	57,000	R3.0	12	22.50	188	R3.0188	0	0	22.5	1	57,000	-	1,282,500	-	1,282,500	684,000
396	396	Stony Creek No. 3 (Germantown) Pump Station	396	Stony Creek No. 3 (Germantown) Pur	1960	2,000	R3.0	12	58.50	488	R3.0488	0	0	58.5	1	2,000	-	117,000	-	117,000	24,000
396	396	1996 Upgrade	396	1996 Upgrade	1996	28,000	R3.0	12	22.50	188	R3.0188	0	0	22.5	1	28,000	-	630,000	-	630,000	336,000
396	396	Sandra Lane Pump Station	396	Sandra Lane Pump Station	1975	2,000	R3.0	12	43.50	363	R3.0363	0	0	43.5	1	2,000	-	87,000	-	87,000	24,000
396	396	1985 Upgrade	396	1985 Upgrade	1985	3,724	R3.0	12	33.50	279	R3.0279	0	0	33.5	1	3,724	-	124,754	-	124,754	44,688
396	396	Burnside Avenue Pump Station	396	Burnside Avenue Pump Station	1994	10,000	R3.0	12	24.50	204	R3.0204	0	0	24.5	1	10,000	-	245,000	-	245,000	120,000
396	396	Schultz Road Pump Station	396	Schultz Road Pump Station	1975	2,000	R3.0	12	43.50	363	R3.0363	0	0	43.5	1	2,000	-	87,000	-	87,000	24,000
396	396	Whitehall Road Pump Station	396	Whitehall Road Pump Station	1975	2,000	R3.0	12	43.50	363	R3.0363	0	0	43.5	1	2,000	-	87,000	-	87,000	24,000
396	396	Felton Road Pump Station	396	Felton Road Pump Station	1975	2,000	R3.0	12	43.50	363	R3.0363	0	0	43.5	1	2,000	-	87,000	-	87,000	24,000
396	396	Einstein	396	Einstein	2012	48,000	R3.0	12	6.50	54	R3.0054	0.50513	6.06	12.56	0.51752	24,841	23,159	312,000	290,880	602,880	576,000
		Total Account 396.00				201,724										179,566	23,159	4,323,754	290,880	4,614,634	2,420,688

EAST NORRITON TOWNSHIP
SANITARY SEWER SYSTEM
ASSET INVENTORY REPORT

Account		Collection Mains - Force																			
360.1	360.1	Stony Creek No. 1 (Timberlake)	360.1	Stony Creek No. 1 (Timberlake)	1963	32,336	R3.0	60	55.50	93	R3.0093	0.23866	14.22	69.72	0.79604	25,743	6,596	1,794,773	459,850	2,254,623	1,940,299
360.1	360.1	Stony Creek No. 2 (Norris City)	360.1	Stony Creek No. 2 (Norris City)	1963	81,092	R3.0	60	55.50	93	R3.0093	0.23866	14.22	69.72	0.79604	64,553	16,540	4,500,608	1,153,129	5,653,737	4,865,522
360.1	360.1	Stony Creek No. 3 (Germantown)	360.1	Stony Creek No. 3 (Germantown)	1963	92,460	R3.0	60	55.50	93	R3.0093	0.23866	14.22	69.72	0.79604	73,602	18,858	5,131,535	1,314,783	6,446,318	5,547,606
360.1	360.3	Stony Creek No. 3 (Germantown)	360.3	Stony Creek No. 3 (Germantown)	2012	104,471	R3.0	60	6.50	11	R3.0011	0.89247	53.55	60.05	0.10824	11,308	93,163	679,059	5,584,398	6,273,457	6,268,234
360.1	360.1	Felton Road	360.1	Felton Road	1975	13,404	R3.0	60	43.50	73	R3.0073	0.36135	21.68	65.18	0.66738	8,946	4,458	583,073	290,566	873,671	804,239

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Determination of the Depreciated Original Cost

(1)	(2)	(3)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)
Account	Account	Asset Description	Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at October 29, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy	Normal Service Life (NSL)
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assmt NARUC Code	Acct Incl. NARUC Code	Last Norriton Wastewater Collection System (Engineer's Assessment) (Eng. Assmt.) Asset Description	Acct Input Acct	Eng Assmt Descrip	Eng Assmt Year	Eng Assmt Original Cost	Auto Input Iowa	Auto Input Normal Life	2019 (45)+0.5) age	Col (46) / (48) AgeP	Col (47) & (50) IowaLookup	Lookup Iowa Curves Life Tables @ col (51) Iowa Condition	Col (48) * (52) Rem Life	Col (49) + (53) Total Life	Col (53) / (54) Theo%	Col (55) * (56) Theo Reserve	Col (46) - (56) Net Book	Col (49) * (44) OC wtd Age	Col (49) * (53) OC wtd Rem Life	Col (49) * (54) OC wtd Total Life	Col (49) * (48) OC wtd Normal Life
360.1	360.1	Sandra Lane	360.1	Sandra Lane	1975	81,184	R3.0	60	43.50	73	R3.0073	0.36135	21.68	65.18	0.66738	54,180	27,003	3,531,492	1,760,063	5,291,555	4,871,023
360.2	360.2	Burnside Road	360.2	Burnside Road	1994	117,615	R3.0	60	24.50	41	R3.0041	0.61453	36.87	61.37	0.39922	46,954	70,661	2,881,566	4,336,463	7,218,030	7,058,897
360.1	360.1	Schultz Road	360.1	Schultz Road	1975	71,214	R3.0	60	43.50	73	R3.0073	0.36135	21.68	65.18	0.66738	47,527	23,687	3,097,823	1,543,927	4,641,750	4,272,859
360.1	360.1	Whitehall Rd	360.1	Whitehall Rd	1975	24,285	R3.0	60	43.50	73	R3.0073	0.36135	21.68	65.18	0.66738	16,207	8,078	1,056,407	526,503	1,582,910	1,457,113
360.3	360.3	Einstein	360.3	Einstein	2012	139,785	R3.0	60	6.50	11	R3.0011	0.89247	53.55	60.05	0.10624	15,130	124,655	908,603	7,485,487	8,394,089	8,387,100
		Total				757,848										364,150	393,698	24,164,939	24,465,201	48,630,140	45,470,589
		Collection Mains - Gravity																			
Account		SEWER DISTRICT NO. 1 PHASE I																			
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE I -	1963	1,678,647	R3.0	80	55.50	69	R3.0069	0.38962	31.19	86.69	0.64021	1,074,687	603,960	93,164,902	52,356,997	145,521,899	134,291,751
361.2	361.2	SEWER DISTRICT NO. 1 PHASE I - Mains CIP	361.2	SEWER DISTRICT NO. 1 PHASE I -	1963	1,429	R3.0	80	55.50	69	R3.0069	0.38962	31.19	86.69	0.64021	915	514	79,334	44,585	123,919	114,356
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE I -	1963	33,403	R3.0	80	55.50	69	R3.0069	0.38962	31.19	86.69	0.64021	21,385	12,018	1,853,861	1,041,836	2,895,697	2,672,232
361.2	361.2	SEWER DISTRICT NO. 1 PHASE I - Mains CIP	361.2	SEWER DISTRICT NO. 1 PHASE I -	1963	3,069	R3.0	80	55.50	69	R3.0069	0.38962	31.19	86.69	0.64021	1,965	1,104	170,305	95,708	266,013	245,484
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE I -	1963	25,566	R3.0	80	55.50	69	R3.0069	0.38962	31.19	86.69	0.64021	16,368	9,198	1,418,923	797,409	2,216,332	2,045,294
361.1	361.1	SEWER DISTRICT NO. 1 PHASE I - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE I -	1963	41,727	R3.0	80	55.50	69	R3.0069	0.38962	31.19	86.69	0.64021	26,714	15,013	2,315,830	1,301,455	3,617,285	3,338,134
361.5	361.5	SEWER DISTRICT NO. 1 PHASE I - Mains RCP	361.5	SEWER DISTRICT NO. 1 PHASE I -	1963	8,582	R3.0	80	55.50	69	R3.0069	0.38962	31.19	86.69	0.64021	5,494	3,088	476,277	267,659	743,936	686,526
361.5	361.5	SEWER DISTRICT NO. 1 PHASE I - Mains RCP	361.5	SEWER DISTRICT NO. 1 PHASE I -	1963	50,570	R3.0	80	55.50	69	R3.0069	0.38962	31.19	86.69	0.64021	32,375	18,194	2,806,614	1,577,267	4,383,881	4,045,570
361.5	361.5	SEWER DISTRICT NO. 1 PHASE I - Mains RCP	361.5	SEWER DISTRICT NO. 1 PHASE I -	1963	9,646	R3.0	80	55.50	69	R3.0069	0.38962	31.19	86.69	0.64021	6,175	3,470	535,342	300,853	836,194	771,664
361.7	361.7	SEWER DISTRICT NO. 1 PHASE I - Manholes	361.7	SEWER DISTRICT NO. 1 PHASE I -	1963	360,661	R3.0	80	55.50	69	R3.0069	0.38962	31.19	86.69	0.64021	230,899	129,762	20,018,688	11,249,005	31,265,971	28,852,851
		Total				2,213,298										1,416,976	796,323	122,838,056	69,032,773	191,870,828	177,063,862
Account		SEWER DISTRICT NO. 1 PHASE II																			
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE II -	1970	700,070	R3.0	80	48.50	61	R3.0061	0.44974	35.98	84.48	0.5741	401,910	298,160	33,953,377	25,188,505	59,141,882	56,005,570
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE II -	1970	58,656	R3.0	80	48.50	61	R3.0061	0.44974	35.98	84.48	0.5741	33,677	24,979	2,830,950	2,100,830	4,940,794	4,694,464
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE II -	1970	23,023	R3.0	80	48.50	61	R3.0061	0.44974	35.98	84.48	0.5741	13,217	9,805	1,116,607	828,361	1,944,969	1,841,826
361.1	361.1	SEWER DISTRICT NO. 1 PHASE II - Mains VCP	361.1	SEWER DISTRICT NO. 1 PHASE II -	1970	59,836	R3.0	80	48.50	61	R3.0061	0.44974	35.98	84.48	0.5741	34,353	25,485	2,902,158	2,152,982	5,055,140	4,787,084
361.7	361.7	SEWER DISTRICT NO. 1 PHASE II - Manholes	361.7	SEWER DISTRICT NO. 1 PHASE II -	1970	167,862	R3.0	80	48.50	61	R3.0061	0.44974	35.98	84.48	0.5741	96,370	71,493	8,141,321	6,039,685	14,181,006	13,428,983
		Total 361 Phase II				1,009,349										579,467	429,882	48,963,419	36,310,371	85,269,790	80,747,907
Account		AUTUMN RIDGE																			
361.3	361.3	AUTUMN RIDGE - Mains 8" PVC	361.3	AUTUMN RIDGE - Mains 8" PVC	2000	217,624	R3.0	80	18.50	23	R3.0023	0.77789	62.23	80.73	0.22916	49,917	167,907	4,029,741	13,555,179	17,584,920	17,425,908
361.7	361.7	AUTUMN RIDGE - Manholes	361.7	AUTUMN RIDGE - Manholes	2000	54,863	R3.0	80	18.50	23	R3.0023	0.77789	62.23	80.73	0.22916	12,527	42,136	1,011,264	3,401,673	4,412,937	4,373,033
		Total				272,487										62,443	210,044	5,041,005	16,956,852	21,997,857	21,798,941
Account		OLD ARCH CROSSING																			
361.3	361.3	OLD ARCH CROSSING - Mains 8" PVC	361.3	OLD ARCH CROSSING - Mains 8" P	1966	129,814	R3.0	80	32.50	41	R3.0041	0.61453	49.16	81.66	0.39799	51,665	78,150	4,218,965	6,381,671	10,600,636	10,385,145
361.7	361.7	OLD ARCH CROSSING - Manholes	361.7	OLD ARCH CROSSING - Manholes	1966	39,479	R3.0	50	32.50	41	R3.0041	0.61453	49.16	81.66	0.39799	15,712	23,767	1,283,060	1,940,777	3,223,837	3,158,302
		Total				169,293										67,377	101,918	5,502,025	8,322,448	13,824,473	13,543,447
Account		NEW HOPE VILLAGE																			
361.1	361.1	NEW HOPE VILLAGE - Mains 8" VCP	361.1	NEW HOPE VILLAGE - Mains 8" VC	1960	27,126	R3.0	60	38.50	46	R3.0046	0.55461	44.37	82.87	0.46458	12,602	14,524	1,044,370	1,203,602	2,247,972	2,170,118
361.7	361.7	NEW HOPE VILLAGE - Manholes	361.7	NEW HOPE VILLAGE - Manholes	1960	14,221	R3.0	50	38.50	46	R3.0046	0.55461	44.37	82.87	0.46458	6,607	7,614	547,528	631,008	1,178,535	1,137,720
		Total				41,348										19,209	22,139	1,591,897	1,834,610	3,426,507	3,307,839
Account		VILLAGE EAST																			
361.1	361.1	VILLAGE EAST - Mains 8" VCP	361.1	VILLAGE EAST - Mains 8" VCP	1978	50,928	R3.0	60	40.50	51	R3.0051	0.52965	42.37	82.87	0.48872	24,889	26,038	2,062,579	2,157,814	4,220,393	4,074,230
361.7	361.7	VILLAGE EAST - Manholes	361.7	VILLAGE EAST - Manholes	1978	17,617	R3.0	50	40.50	51	R3.0051	0.52965	42.37	82.87	0.48872	8,610	9,007	713,474	746,417	1,459,890	1,409,331
		Total				68,545										33,499	35,045	2,776,053	2,904,231	5,680,284	5,483,561
Account		FOX HUNT																			
361.3	361.3	FOX HUNT - Mains 8" PVC	361.3	FOX HUNT - Mains 8" PVC	1994	84,604	R3.0	60	24.50	31	R3.0031	0.7038	56.3	80.8	0.30322	25,654	58,950	2,072,782	4,763,192	6,835,984	6,766,301
361.7	361.7	FOX HUNT - Manholes	361.7	FOX HUNT - Manholes	1994	23,760	R3.0	50	24.50	31	R3.0031	0.7038	56.3	80.8	0.30322	7,204	16,556	582,110	1,337,666	1,919,776	1,900,769
		Total				108,363										32,858	75,505	2,654,903	6,100,858	8,755,761	8,669,070
Account		RESERVE AT PENN CROSSING																			
361.3	361.3	RESERVE AT PENNS CROSSING - Mains 8" PVC	361.3	RESERVE AT PENNS CROSSING -	2003	259,599	R3.0	60	15.50	19	R3.0019	0.61568	65.25	80.75	0.19195	49,830	209,769	4,023,787	16,936,845	20,962,632	20,767,932
361.7	361.7	RESERVE AT PENNS CROSSING - Manholes	361.7	RESERVE AT PENNS CROSSING -	2003	84,961	R3.0	50	15.50	19	R3.0019	0.61568	65.25	80.75	0.19195	16,308	68,653	1,316,894	5,543,699	6,860,594	6,796,873
		Total				344,560										66,138	278,422	5,340,681	22,482,544	27,823,226	27,564,806
Account		KIMBERLY KNOLL																			

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Determination of the Depreciated Original Cost

(1)	(2)	(3)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)
Account	Account	Asset Description	Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at October 29, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy	Normal Service Life (NSL)
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assmt NARUC Code	Acct Input NARUC Code	Asset Description	Acct	Descrip	Eng Assmt Year	Eng Assmt Original Cost	Acct Input Iowa	Acct Input Normal Life	2018 (2018-5) age	Col (48) / (49) AgeP	Col (47) & (50) IowaLookup	Lookup Iowa Curves Life Tables Col (51) Iowa Condition	Col (48) * (52) Rem Life	Col (48) + (53) Total Life	Col (53) / (54) Theo%	Col (46) * (55) Theo Reserve	Col (46) - (56) Net Book	Col (46) * (49) OC wtd Age	Col (46) * (53) OC wtd Rem Life	Col (46) * (54) OC wtd Total Life	Col (46) * (48) OC wtd Normal Life
361.1	361.1	KIMBERLY KNOLL - Mains 8" VCP	361.1	KIMBERLY KNOLL - Mains 8" VCP	1979	145,421	R3.0	80	39.50	49	R3.0049	0.54624	43.7	83.2	0.47478	69,040	76,381	5,744,129	6,354,897	12,099,027	11,633,680
361.7	361.7	KIMBERLY KNOLL - Manholes	361.7	KIMBERLY KNOLL - Manholes	1979	27,853	R3.0	80	39.50	49	R3.0049	0.54624	43.7	83.2	0.47478	13,223	14,629	1,100,186	1,217,168	2,317,354	2,226,225
		Total				173,274										82,263	91,010	6,844,315	7,572,065	14,416,381	13,861,906
Account		EVERGREEN TERRACE																			
361.3	361.3	EVERGREEN TERRACE - Mains 8" PVC	361.3	EVERGREEN TERRACE - Mains 8"	2010	18,869	R3.0	80	8.50	11	R3.0011	0.89247	71.4	79.9	0.10638	2,007	16,862	160,387	1,347,253	1,507,640	1,509,527
361.7	361.7	EVERGREEN TERRACE - Manholes	361.7	EVERGREEN TERRACE - Manholes	2010	8,591	R3.0	80	8.50	11	R3.0011	0.89247	71.4	79.9	0.10638	914	7,677	73,020	613,369	686,389	687,248
		Total				27,460										2,921	24,539	233,407	1,960,622	2,194,029	2,196,775
Account		THOMAS END																			
361.6	361.6	THOMAS END - Mains 8" Unknown	361.6	THOMAS END - Mains 8" Unknown	1983	64,598	R3.0	80	35.50	39	R3.0039	0.63205	56.68	92.36	0.38428	24,824	39,774	2,293,216	3,674,314	5,967,531	5,813,768
361.7	361.7	THOMAS END - Manholes	361.7	THOMAS END - Manholes	1983	13,894	R3.0	80	35.50	44	R3.0044	0.58856	47.09	82.58	0.42983	5,972	7,922	493,235	954,268	1,147,501	1,111,518
		Total				78,492										30,796	47,696	2,786,451	4,329,580	7,116,031	6,925,303
Account		BARLY SHEAF																			
361.3	361.3	BARLEY SHEAF - Mains 8" PVC	361.3	BARLEY SHEAF - Mains 8" PVC	1986	106,949	R3.0	80	32.50	41	R3.0041	0.61453	49.16	81.66	0.39799	42,565	64,384	3,475,832	5,257,597	8,733,430	8,555,895
361.4	361.4	BARLEY SHEAF - Mains 8" DIP	361.4	BARLEY SHEAF - Mains 8" DIP	1986	5,478	R3.0	80	32.50	41	R3.0041	0.61453	49.16	81.66	0.39799	2,180	3,298	178,049	269,320	447,369	438,275
361.7	361.7	BARLEY SHEAF - Manholes	361.7	BARLEY SHEAF - Manholes	1986	48,223	R3.0	80	32.50	41	R3.0041	0.61453	49.16	81.66	0.39799	19,192	29,031	1,567,236	2,370,626	3,937,862	3,857,812
		Total				160,650										63,937	96,713	5,221,116	7,897,543	13,118,660	12,851,982
Account		MARION AVENUE SEWER EXTENSION																			
361.3	361.3	MARION AVENUE SEWER EXTENSION - 8" PVC	361.3	MARION AVENUE SEWER EXTENE	2009	137,641	R3.0	80	9.50	12	R3.0012	0.68279	70.62	80.12	0.11857	16,320	121,321	1,307,588	9,720,180	11,027,768	11,011,249
361.7	361.7	MARION AVENUE SEWER EXTENSION - Manholes	361.7	MARION AVENUE SEWER EXTENE	2009	25,101	R3.0	80	9.50	12	R3.0012	0.68279	70.62	80.12	0.11857	2,976	22,125	238,460	1,772,637	2,011,097	2,008,085
		Total				162,742										19,296	143,445	1,546,048	11,492,818	13,038,864	13,019,334
Account		WHITEHALL ROAD PROJECT																			
361.1	361.1	WHITEHALL ROAD PROJECT - Mains 8" VCP	361.1	WHITEHALL ROAD PROJECT - Mai	1980	307,303	R3.0	80	38.50	48	R3.0048	0.55461	44.37	82.87	0.46458	142,767	164,536	11,831,160	13,635,027	25,466,187	24,584,228
361.7	361.7	WHITEHALL ROAD PROJECT Manholes	361.7	WHITEHALL ROAD PROJECT Manl	1980	58,486	R3.0	80	38.50	48	R3.0048	0.55461	44.37	82.87	0.46458	27,162	31,324	2,250,947	2,594,143	4,845,090	4,677,292
		Total				365,789										169,929	195,860	14,082,107	16,229,171	30,311,277	29,261,520
Account		WOODLANDS AT WHITEHALL																			
361.3	361.3	WOODLANDS AT WHITEHALL - Mains 8" PVC	361.3	WOODLANDS AT WHITEHALL - Ma	1993	62,034	R3.0	80	25.50	32	R3.0032	0.69469	55.58	81.08	0.3145	19,510	42,524	1,581,866	3,447,847	5,029,712	4,962,716
361.7	361.7	WOODLANDS AT WHITEHALL - Manholes	361.7	WOODLANDS AT WHITEHALL - Ma	1993	20,346	R3.0	80	25.50	32	R3.0032	0.69469	55.58	81.08	0.3145	6,399	13,947	518,833	1,130,854	1,649,687	1,627,713
		Total				82,380										25,909	56,472	2,100,699	4,578,700	6,679,399	6,590,429
Account		SUNSET KNOLL																			
361.3	361.3	SUNSET KNOLL - Mains 8" PVC	361.3	SUNSET KNOLL - Mains 8" PVC	1986	82,598	R3.0	80	32.50	41	R3.0041	0.61453	49.16	81.66	0.39799	32,873	49,725	2,684,441	4,060,527	6,744,968	6,607,865
361.7	361.7	SUNSET KNOLL - Manholes	361.7	SUNSET KNOLL - Manholes	1986	16,773	R3.0	80	32.50	41	R3.0041	0.61453	49.16	81.66	0.39799	6,676	10,098	545,126	824,565	1,369,691	1,341,848
		Total				99,371										39,549	59,823	3,229,567	4,885,092	8,114,659	7,949,703
Account		HEATHERWOOD																			
361.3	361.3	HEATHERWOOD - Mains 8" PVC	361.3	HEATHERWOOD - Mains 8" PVC	2006	147,277	R3.0	80	12.50	16	R3.0016	0.8443	67.54	80.04	0.15617	23,000	124,277	1,840,968	9,947,118	11,788,084	11,782,193
361.7	361.7	HEATHERWOOD - Manholes	361.7	HEATHERWOOD - Manholes	2006	41,621	R3.0	80	12.50	16	R3.0016	0.8443	67.54	80.04	0.15617	6,500	35,121	520,260	2,811,070	3,331,330	3,329,665
		Total				188,898										29,500	159,398	2,361,229	12,758,186	15,119,413	15,111,858
Account		LINFOOT WALKER																			
361.1	361.1	LINFOOT WALKER - Mains 8" VCP	361.1	LINFOOT WALKER - Mains 8" VCP	1985	28,008	R3.0	80	33.50	42	R3.0042	0.60583	48.47	81.97	0.40869	11,447	16,561	936,272	1,357,554	2,295,826	2,240,650
361.7	361.7	LINFOOT WALKER - Manholes	361.7	LINFOOT WALKER - Manholes	1985	10,239	R3.0	80	33.50	42	R3.0042	0.60583	48.47	81.97	0.40869	4,185	6,054	343,010	496,290	839,300	819,128
		Total				38,247										15,631	22,616	1,281,282	1,853,844	3,135,126	3,059,779
Account		PIMLICO FARMS																			
361.3	361.3	PIMLICO FARMS - Mains 8" PVC	361.3	PIMLICO FARMS - Mains 8" PVC	2007	269,212	R3.0	80	11.50	14	R3.0014	0.8635	69.08	80.58	0.14272	38,422	230,790	3,095,940	18,597,179	21,693,119	21,536,976
361.4	361.4	PIMLICO FARMS - Mains 8" DIP	361.4	PIMLICO FARMS - Mains 8" DIP	2007	16,716	R3.0	80	11.50	14	R3.0014	0.8635	69.08	80.58	0.14272	2,386	14,330	192,236	1,154,756	1,346,993	1,337,297
361.7	361.7	PIMLICO FARMS - Manholes	361.7	PIMLICO FARMS - Manholes	2007	97,217	R3.0	80	11.50	14	R3.0014	0.8635	69.08	80.58	0.14272	13,875	83,342	1,117,991	6,715,723	7,833,713	7,777,328
		Total				383,146										54,682	328,463	4,406,168	26,467,657	30,873,825	30,651,601
Account		WHITEHALL ESTATES																			
361.1	361.1	WHITEHALL ESTATES - Mains 8" VCP	361.1	WHITEHALL ESTATES - Mains 8" VI	1985	79,147	R3.0	80	33.50	42	R3.0042	0.60583	48.47	81.97	0.40869	32,347	46,801	2,651,430	3,836,263	6,487,693	6,331,773
361.7	361.7	WHITEHALL ESTATES - Manholes	361.7	WHITEHALL ESTATES - Manholes	1985	20,478	R3.0	80	33.50	42	R3.0042	0.60583	48.47	81.97	0.40869	8,369	12,109	686,020	992,579	1,678,599	1,638,257
		Total				99,625										40,716	58,909	3,337,450	4,828,842	8,166,292	7,970,030

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Determination of the Depreciated Original Cost

(1)	(2)	(3)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)
Account	Account	Asset Description	Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at October 29, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy	Normal Service Life (NSL)
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assmt NARUC Code	Acct Input NARUC Code	East Norriton Wastewater Collection System Engineer's Assessment Eng. Assmt.	Acct Input	Eng Assmt	Eng Assmt	Eng Assmt	Acct Input	Acct Input	2018 (45)+(0.5)	Col (49) / (48)	Col (47) & (50)	Lookup Iowa Curves Life Tables @ col (51)	Col (48) * (52)	Col (48) + (53)	Col (53) / (54)	Col (48) * (55)	Col (46) - (56)	Col (48) * (49)	Col (48) * (53)	Col (48) * (54)	Col (48) * (48)
		Asset Description	Acct	Descrip	Year	Original Cost	Iowa	Normal Life	age	AgeP	IowaLookup	Iowa Condition	Rem Life	Total Life	Theo%	Theo Reserve	Net Book	OC wtd Age	OC wtd Rem Life	OC wtd Total Life	OC wtd Normal Life
Account		VILLGE OF CARALEA																			
361.3	361.3	VILLAGE OF CARALEA - Mains 8" PVC	361.3	VILLAGE OF CARALEA - Mains 8" P	2007	232,559	R3.0	80	11.50	14	R3.0014	0.8635	69.08	80.58	0.14272	33,191	199,369	2,674,433	16,065,202	18,739,635	18,604,751
361.4	361.4	VILLAGE OF CARALEA - Mains 8" DIP	361.4	VILLAGE OF CARALEA - Mains 8" D	2007	8,013	R3.0	80	11.50	14	R3.0014	0.8635	69.08	80.58	0.14272	858	5,155	59,150	415,380	484,530	481,042
361.7	361.7	VILLAGE OF CARALEA - Manholes	361.7	VILLAGE OF CARALEA - Manholes	2007	54,441	R3.0	80	11.50	14	R3.0014	0.8635	69.08	80.58	0.14272	7,770	46,671	626,075	3,760,605	4,386,680	4,355,304
		Total				293,014										41,819	251,195	3,359,658	20,241,387	23,611,044	23,441,097
Account		NORRITON BUSINESS CAMPUS																			
361.3	361.3	NORRITON BUSINESS CAMPUS - Mains 8" PVC	361.3	NORRITON BUSINESS CAMPUS - I	2007	419,022	R3.0	80	11.50	14	R3.0014	0.8635	69.08	80.58	0.14272	59,803	359,219	4,818,756	28,946,058	33,764,814	33,521,781
361.7	361.7	NORRITON BUSINESS CAMPUS - Manholes	361.7	NORRITON BUSINESS CAMPUS - I	2007	147,769	R3.0	80	11.50	14	R3.0014	0.8635	69.08	80.58	0.14272	21,090	126,680	1,699,346	10,207,898	11,907,244	11,821,536
		Total				566,791										80,892	485,899	6,518,102	39,153,956	45,672,058	45,343,318
Account		STONEBRIDGE ESTATES																			
361.3	361.3	STONEBRIDGE ESTATES - Mains 8" PVC	361.3	STONEBRIDGE ESTATES - Mains E	1994	129,784	R3.0	80	24.50	31	R3.0031	0.7038	56.3	80.8	0.30322	39,353	90,431	3,179,712	7,306,849	10,486,562	10,382,734
361.4	361.4	STONEBRIDGE ESTATES - Mains 8" DIP	361.4	STONEBRIDGE ESTATES - Mains E	1994	33,229	R3.0	80	24.50	31	R3.0031	0.7038	56.3	80.8	0.30322	10,076	23,153	814,104	1,870,778	2,684,882	2,658,299
361.7	361.7	STONEBRIDGE ESTATES - Manholes	361.7	STONEBRIDGE ESTATES - Manhol	1994	31,679	R3.0	80	24.50	31	R3.0031	0.7038	56.3	80.8	0.30322	9,606	22,074	776,147	1,783,555	2,559,702	2,534,358
		Total				194,692										59,035	135,658	4,769,964	10,961,182	15,731,146	15,575,391
Account		ELIZABETH MYERS																			
361.1	361.1	ELIZABETH MYERS - Mains 8" VCP	361.1	ELIZABETH MYERS - Mains 8" VCP	1965	58,107	R3.0	80	33.50	42	R3.0042	0.60583	48.47	81.97	0.40869	23,748	34,359	1,946,582	2,816,443	4,763,025	4,648,555
361.3	361.3	ELIZABETH MYERS - Mains 8" PVC	361.3	ELIZABETH MYERS - Mains 8" PVC	2000	20,084	R3.0	80	18.50	23	R3.0023	0.77789	62.23	80.73	0.22916	4,602	15,481	371,546	1,249,800	1,621,346	1,606,685
361.7	361.7	ELIZABETH MYERS - Manholes	361.7	ELIZABETH MYERS - Manholes	1965	12,267	R3.0	80	33.50	42	R3.0042	0.60583	48.47	81.97	0.40869	5,022	7,245	411,612	585,547	1,007,160	982,954
361.7	361.7	ELIZABETH MYERS - Manholes	361.7	ELIZABETH MYERS - Manholes	2000	6,074	R3.0	80	18.50	23	R3.0023	0.77789	62.23	80.73	0.22916	1,392	4,682	112,383	377,964	490,326	485,893
		Total				96,551										34,763	81,788	2,842,103	5,039,754	7,881,857	7,724,087
Account		GLEN MOORE																			
361.1	361.1	GLEN MOORE - Mains 8" VCP	361.1	GLEN MOORE - Mains 8" VCP	1978	36,395	R3.0	80	40.50	51	R3.0051	0.52965	42.37	82.87	0.48872	17,298	18,097	1,433,503	1,499,692	2,933,194	2,831,810
361.7	361.7	GLEN MOORE - Manholes	361.7	GLEN MOORE - Manholes	1978	5,776	R3.0	80	40.50	51	R3.0051	0.52965	42.37	82.87	0.48872	3,311	3,464	274,413	287,083	561,496	542,050
		Total				42,171										20,610	21,561	1,707,916	1,786,776	3,494,691	3,373,860
Account		WOODLAND MANOR																			
361.1	361.1	WOODLAND MANOR - Mains 8" VCP	361.1	WOODLAND MANOR - Mains 8" VC	1975	56,474	R3.0	80	43.50	54	R3.0054	0.50513	40.41	83.91	0.51841	29,277	27,197	2,456,625	2,282,120	4,738,745	4,517,931
361.7	361.7	WOODLAND MANOR - Manholes	361.7	WOODLAND MANOR - Manholes	1975	12,372	R3.0	80	43.50	54	R3.0054	0.50513	40.41	83.91	0.51841	6,414	5,958	538,176	499,947	1,038,123	989,749
		Total				68,846										35,690	33,156	2,994,801	2,782,067	5,776,868	5,507,680
Account		NICK & LES																			
361.3	361.3	NICK & LES - Mains 8" PVC	361.3	NICK & LES - Mains 8" PVC	1996	99,663	R3.0	80	22.50	28	R3.0028	0.73133	58.51	81.01	0.27774	27,680	71,983	2,242,424	5,831,300	8,073,724	7,973,064
361.7	361.7	NICK & LES - Manholes	361.7	NICK & LES - Manholes	1996	30,178	R3.0	80	22.50	28	R3.0028	0.73133	58.51	81.01	0.27774	8,382	21,796	679,003	1,765,709	2,444,712	2,414,233
		Total				129,841										36,062	93,779	2,921,427	7,597,009	10,518,436	10,387,297
Account		TANGLEWOOD																			
361.1	361.1	TANGLEWOOD - Mains 8" VCP	361.1	TANGLEWOOD - Mains 8" VCP	1975	69,624	R3.0	80	43.50	54	R3.0054	0.50513	40.41	83.91	0.51841	36,094	33,530	3,028,853	2,813,514	5,842,168	5,569,937
361.7	361.7	TANGLEWOOD - Manholes	361.7	TANGLEWOOD - Manholes	1975	16,496	R3.0	80	43.50	54	R3.0054	0.50513	40.41	83.91	0.51841	8,552	7,944	717,568	666,596	1,384,165	1,319,666
		Total				86,120										44,645	41,475	3,746,222	3,480,111	7,226,332	6,889,603
Account		VALLEY FORGE GREENE																			
361.3	361.3	VALLEY FORGE GREENE - Mains 8" PVC	361.3	VALLEY FORGE GREENE - Mains 8	1996	12,480	R3.0	80	22.50	28	R3.0028	0.73133	58.51	81.01	0.27774	3,466	9,014	280,792	730,183	1,010,975	996,370
361.7	361.7	VALLEY FORGE GREENE - Manholes	361.7	VALLEY FORGE GREENE - Manhol	1996	8,230	R3.0	80	22.50	28	R3.0028	0.73133	58.51	81.01	0.27774	2,286	5,944	185,183	481,557	666,740	656,427
		Total				20,710										5,752	14,958	465,974	1,211,740	1,677,715	1,652,797
Account		WOODSTREAM CROSSING II																			
361.1	361.1	WOODSTREAM CROSSING II - Mains 8" VCP	361.1	WOODSTREAM CROSSING II - Mai	1975	121,636	R3.0	80	43.50	54	R3.0054	0.50513	40.41	83.91	0.51841	63,058	58,579	5,291,166	4,915,329	10,206,515	9,730,917
361.7	361.7	WOODSTREAM CROSSING II - Manholes	361.7	WOODSTREAM CROSSING II - Mai	1975	24,744	R3.0	80	43.50	54	R3.0054	0.50513	40.41	83.91	0.51841	12,827	11,916	1,076,353	999,894	2,076,247	1,979,499
		Total				146,380										75,885	70,495	6,367,539	5,915,224	12,282,762	11,710,416
Account		HOLLY HILL EAST																			
361.1	361.1	HOLLY HILL EAST - Mains 8" VCP	361.1	HOLLY HILL EAST - Mains 8" VCP	1975	87,645	R3.0	80	43.50	54	R3.0054	0.50513	40.41	83.91	0.51841	45,436	42,209	3,812,572	3,541,748	7,354,319	7,011,626
361.7	361.7	HOLLY HILL EAST - Manholes	361.7	HOLLY HILL EAST - Manholes	1975	19,589	R3.0	80	43.50	54	R3.0054	0.50513	40.41	83.91	0.51841	10,155	9,434	852,112	791,583	1,643,695	1,567,103
		Total				107,234										55,591	51,643	4,664,684	4,333,331	8,998,015	8,578,729
Account		TIOGA LEASING																			
361.1	361.1	TIOGA LEASING - Mains 8" VCP	361.1	TIOGA LEASING - Mains 8" VCP	1975	65,442	R3.0	80	43.50	54	R3.0054	0.50513	40.41	83.91	0.51841	33,926	31,516	2,846,728	2,644,512	5,491,240	5,235,362

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Replacement Cost New (RCN)

East Norriton Township Pennsylvania
East Norriton Sanitary Sewer System
Wastewater Collection and Treatment System
Investor-Owned Utility
As of October 29, 2018

Determination of the Depreciated Original Cost

(1)	(2)	(3)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	(61)
Account	Account	Asset Description	Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at October 29, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy	Normal Service Life (NSL)
Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Eng Assmt NARUC Code	Acct Input NARUC Code	East Norriton Wastewater Collection System's Engineer's Assessment (Eng. Assmt.)	Acct Input	Eng Assmt Descrip	Eng Assmt Year	Eng Assmt Original Cost	Acct Input Iowa	Acct Input Normal Life	2018 (45)+0.5) age	Col (46) / (48) AgeP	Calc (47) & (50) IowaLookup	Lookup Iowa Curves Life Tables @ (51) Iowa Condition	Col (48) * (52) Rem Life	Col (48) + (53) Total Life	Col (53) / (54) Theo%	Col (46) * (55) Theo Reserve	Col (46) - (56) Net Book	Col (49) * (46) OC wtd Age	Col (48) * (53) OC wtd Rem Life	Col (48) * (54) OC wtd Total Life	Col (48) * (51) OC wtd Normal Life
361.7	361.7	TIOGA LEASING - Manholes	361.7	TIOGA LEASING - Manholes	1975	12,372	R3.0	80	43.50	54	R3.0054	0.50513	40.41	83.91	0.51841	6,414	5,958	539,176	409,947	1,038,123	969,749
		Total				**77,814**										**40,340**	**37,474**	**3,384,904**	**3,144,469**	**6,529,384**	**6,225,111**
Account		EINSTEIN MEDICAL CENTER																			
361.3	361.3	EINSTEIN MEDICAL CENTER - Mains 8" PVC	361.3	EINSTEIN MEDICAL CENTER - Mair	2012	94,421	R3.0	80	6.50	8	R3.0008	0.9218	73.73	80.23	0.08102	7,650	86,771	813,736	6,961,879	7,575,417	7,553,700
361.7	361.7	EINSTEIN MEDICAL CENTER - Manholes	361.7	EINSTEIN MEDICAL CENTER - Mair	2012	31,806	R3.0	80	6.50	8	R3.0008	0.9218	73.73	80.23	0.08102	2,577	29,229	306,742	2,345,088	2,551,828	2,544,512
		Total				**126,226**										**10,227**	**116,001**	**820,480**	**9,306,765**	**10,127,245**	**10,098,212**
Account		UNKNOWN SEWER EXTENSIONS																			
361.6	361.6	UNKNOWN SEWER EXTENSIONS - Mains 8" Unknown	361.6	UNKNOWN SEWER EXTENSIONS - I	1981	34,325	R3.0	90	37.50	42	R3.0042	0.60563	54.52	92.02	0.40752	13,988	20,337	1,287,186	1,871,397	3,158,583	3,089,247
361.7	361.7	UNKNOWN SEWER EXTENSIONS - Manholes	361.7	UNKNOWN SEWER EXTENSIONS - I	1981	8,468	R3.0	80	37.50	47	R3.0047	0.56303	45.04	82.54	0.45433	2,848	3,540	243,304	292,224	535,528	519,048
		Total				**46,913**										**16,836**	**23,877**	**1,530,490**	**2,163,621**	**3,694,111**	**3,608,296**
		Total Collection Sewers - Gravity				**8,084,501**										**3,411,340**	**4,673,160**	**298,252,139**	**366,821,167**	**674,153,325**	**647,749,348**
		Total				**16,246,829**										**7,828,597**	**8,407,007**	**602,364,433**	**662,582,101**	**1,006,411,868**	**962,852,146**

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
East Norriton Wastewater Collection System
Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

Cost Approach
Cost Indices

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

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
East Norriton Wastewater Collection System
Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

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

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

Bulletin No. 188

1912 to July 1, 2018

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

Trends of Construction Costs

COMPILED & PUBLISHED BY

Whitman, Requardt & Associates, LLP

Engineers, Architects and Planners

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Baltimore, Maryland 21231

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TRENDS OF PUBLIC UTILITY CONSTRUCTION COSTS

TRENDS OF PUBLIC UTILITY CONSTRUCTION COSTS

GEOGRAPHIC REGIONS

FOREWORD

Tradition of Quality

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

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

Whitman, Requardt and Associates, LLP

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

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

Tradition of Quality Continued

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

The firm has steadily expanded its engineering capabilities, providing complete services for civil, sanitary, structural, mechanical and electrical engineering and architectural projects from job inception through construction management. Construction cost data from utility projects of all types are available from design and valuation assignments. The staff is composed of specialists in these and related disciplines who bring a diverse professional and academic expertise to each assignment. A full-time staff is maintained specifically for preparing the Handy-Whitman Index.

Methods of Preparation of Indexes

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

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

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

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

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

Geographic Regions

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

Use of Index Numbers

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

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

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

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

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

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

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

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

Total Electric Plant and Function

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

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

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

Value of Index Numbers

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

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

Comments on Bulletin No. 188

During the twelve month period ending July 1, 2018, the average index of all geographical regions for Total Gas Plant increased 6.4%. and the comparable index for Electric Plant-All Steam Generation increased 4.8%.

November 2018
Whitman, Requardt and Associates, LLP

Cost Trends Of

Water Utility Construction

COST TREND TABLES
1912 to July 1, 2018

W-1

COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
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																
54																
55																
56																

W-1

COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
1	**Source of Supply Plant**															
2	Collecting & Impounding Res.	305	17	17	17	17	17	16	14	14	15	15	15	17	17	17
3																
4																
5																
6																
7	**Pumping Plant**															
8	Structures & Improvements	304	19	18	18	18	17	16	15	15	16	16	16	18	18	18
9	Electric Pumping Equipment	311	23	23	23	22	22	22	22	23	24	24	25	26	26	26
10																
11																
12																
13																
14	**Water Treatment Plant**															
15	Structures & Improvements	304	19	18	18	18	17	16	15	15	16	16	16	18	18	18
16	Large Treatment Plant Equip.	320	20	20	20	20	20	19	17	17	18	18	18	20	20	20
17	Small Treatment Plant Equip.	320	20	20	20	20	20	19	17	17	19	19	19	21	21	21
18																
19																
20																
21																
22	**Transmission Plant**															
23	Steel Reservoirs	330	12	12	12	12	11	10	9	9	12	11	12	14	14	14
24	Elevated Steel Tanks	330	11	10	10	10	10	9	8	8	10	10	11	12	13	13
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Steel Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Concrete Cylinder Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30																
31																
32																
33	**Distribution Plant**															
34	Mains-Average All Types	331	21	21	20	20	20	20	18	18	19	19	20	21	22	22
35	Cast Iron Mains	331	23	21	20	21	21	20	18	18	20	20	21	23	24	24
36	Cement-Asbestos Mains	331	-	-	-	-	-	-	-	-	-	-	31	32	32	33
37	Steel Mains	331	15	15	15	16	16	16	14	13	14	14	14	16	16	16
38	PVC Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Services Installed	333	13	13	13	14	14	14	13	11	12	13	13	14	14	14
40	Meters	334	37	37	37	37	37	37	37	35	26	26	26	31	32	32
41	Meter Installations	334	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	Hydrants Installed	335	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43																
44																
45	**Miscellaneous Items**															
46	Flocculating Equipment-Installed		23	22	22	22	21	20	20	20	21	21	23	26	25	25
47	Clarifier Equipment-Installed		-	-	-	-	-	-	-	-	-	-	-	17	23	24
48	Filter Gallery Piping-Installed		19	18	18	18	18	18	15	16	18	18	18	19	20	20
49																
50																
51																
52																
53																
54																
55																
56																

W-1

COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
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																

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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
1	**Source of Supply Plant**															
2	Collecting & Impounding Res.	305	39	41	44	47	49	51	52	53	55	56	57	59	61	64
3																
4																
5																
6																
7	**Pumping Plant**															
8	Structures & Improvements	304	41	43	46	49	50	52	53	53	54	55	56	57	59	61
9	Electric Pumping Equipment	311	55	56	63	69	73	74	74	71	71	71	73	74	78	81
10																
11																
12																
13																
14	**Water Treatment Plant**															
15	Structures & Improvements	304	41	43	46	49	50	52	53	53	54	55	56	57	59	61
16	Large Treatment Plant Equip.	320	44	45	48	50	52	54	55	56	58	59	60	62	64	67
17	Small Treatment Plant Equip.	320	46	47	50	53	54	56	58	58	60	60	62	63	66	68
18																
19																
20																
21																
22	**Transmission Plant**															
23	Steel Reservoirs	330	32	33	38	42	37	36	35	35	35	41	44	45	46	47
24	Elevated Steel Tanks	330	31	33	35	38	38	38	38	37	36	37	38	38	41	44
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	47	50	52	56	57	61	62	63	64	65	66	67	69	71
28	Steel Mains	331	44	46	49	52	55	57	57	58	59	60	61	63	65	67
29	Concrete Cylinder Mains	331	48	50	52	54	56	59	60	60	61	62	62	64	66	70
30																
31																
32																
33	**Distribution Plant**															
34	Mains-Average All Types	331	51	53	57	60	63	65	68	69	71	72	73	74	75	76
35	Cast Iron Mains	331	56	59	62	66	68	72	73	75	77	79	79	80	80	81
36	Cement-Asbestos Mains	331	68	70	75	78	81	84	86	86	87	89	88	81	82	82
37	Steel Mains	331	38	40	43	46	48	51	53	55	56	58	60	63	65	66
38	PVC Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Services Installed	333	35	36	39	41	44	46	48	50	51	53	55	58	60	63
40	Meters	334	67	70	77	78	78	78	78	78	84	87	87	93	101	101
41	Meter Installations	334	38	40	44	45	46	48	51	52	54	55	57	59	62	65
42	Hydrants Installed	335	44	44	48	50	51	53	54	55	56	57	58	58	61	64
43																
44																
45	**Miscellaneous Items**															
46	Flocculating Equipment-Installed		52	53	57	58	58	59	60	61	61	62	65	66	67	68
47	Clarifier Equipment-Installed		50	49	53	55	57	58	58	59	60	60	63	65	66	67
48	Filter Gallery Piping-Installed		44	46	48	50	53	54	56	57	58	59	60	61	63	65
49																
50																
51																
52																
53																
54																
55																
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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
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																

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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
1	**Source of Supply Plant**															
2	Collecting & Impounding Res.	305	197	206	217	227	234	238	248	255	258	262	270	282	295	302
3																
4																
5																
6																
7	**Pumping Plant**															
8	Structures & Improvements	304	198	206	218	225	233	239	251	265	271	274	281	294	308	316
9	Electric Pumping Equipment	311	260	271	277	282	284	299	311	330	349	355	368	386	428	442
10																
11																
12																
13																
14	**Water Treatment Plant**															
15	Structures & Improvements	304	198	206	218	225	233	239	251	265	271	274	281	294	308	316
16	Large Treatment Plant Equip.	320	227	242	251	262	269	276	286	301	313	322	332	342	348	357
17	Small Treatment Plant Equip.	320	243	259	268	279	286	293	303	317	328	334	343	354	360	366
18																
19																
20																
21																
22	**Transmission Plant**															
23	Steel Reservoirs	330	210	182	184	181	184	196	220	216	229	253	261	248	246	250
24	Elevated Steel Tanks	330	244	197	200	198	207	219	260	268	278	285	277	249	242	252
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	208	222	225	236	235	242	253	266	273	279	284	295	305	305
28	Steel Mains	331	215	223	230	234	232	241	255	272	279	287	293	302	316	324
29	Concrete Cylinder Mains	331	203	213	218	232	239	243	258	269	277	288	295	303	311	317
30																
31																
32																
33	**Distribution Plant**															
34	Mains-Average All Types	331	231	239	244	254	255	263	280	295	301	307	311	321	327	332
35	Cast Iron Mains	331	223	245	253	264	263	269	282	296	304	313	320	329	339	341
36	Cement-Asbestos Mains	331	253	244	249	255	259	275	315	340	338	332	319	335	338	354
37	Steel Mains	331	233	228	231	237	242	248	265	277	281	288	295	302	304	311
38	PVC Mains	331	137	151	149	151	150	160	197	217	211	200	183	193	191	204
39	Services Installed	333	198	207	215	221	226	230	245	258	262	272	283	292	300	307
40	Meters	334	128	141	148	135	135	137	140	150	159	162	196	195	175	200
41	Meter Installations	334	207	230	239	247	255	259	269	282	294	310	320	337	347	358
42	Hydrants Installed	335	245	264	270	285	296	307	320	343	363	372	378	385	391	398
43																
44																
45	**Miscellaneous Items**															
46	Flocculating Equipment-Installed		458	496	506	540	560	575	579	580	565	528	539	555	562	566
47	Clarifier Equipment-Installed		356	389	398	431	442	446	451	455	442	416	435	458	492	514
48	Filter Gallery Piping-Installed		201	217	223	234	237	243	251	266	279	289	297	309	319	321
49																
50																
51																
52																
53																
54																
55																
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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
								2001		2002		2003		2004	
			1996	1997	1998	1999	2000	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	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															
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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

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

NORTH ATLANTIC REGION (1973=100)

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

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			2018		2019		2020		2021		2022		2023		2024	
			Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	**Source of Supply Plant**															
2	Collecting & Impounding Res.	305	559	570												
3																
4																
5																
6																
7	**Pumping Plant**															
8	Structures & Improvements	304	687	706												
9	Electric Pumping Equipment	311	1146	1216												
10																
11																
12																
13																
14	**Water Treatment Plant**															
15	Structures & Improvements	304	687	706												
16	Large Treatment Plant Equip.	320	797	812												
17	Small Treatment Plant Equip.	320	911	934												
18																
19																
20																
21																
22	**Transmission Plant**															
23	Steel Reservoirs	330	801	820												
24	Elevated Steel Tanks	330	1181	1200												
25	Concrete Reservoirs	330	-	-												
26																
27	Cast Iron Mains	331	810	825												
28	Steel Mains	331	733	770												
29	Concrete Cylinder Mains	331	620	626												
30																
31																
32																
33	**Distribution Plant**															
34	Mains-Average All Types	331	790	801												
35	Cast Iron Mains	331	855	864												
36	Cement-Asbestos Mains	331	763	770												
37	Steel Mains	331	704	717												
38	PVC Mains	331	397	397												
39	Services Installed	333	661	667												
40	Meters	334	434	434												
41	Meter Installations	334	750	750												
42	Hydrants Installed	335	1012	1024												
43																
44																
45	**Miscellaneous Items**															
46	Flocculating Equipment-Installed		2223	2264												
47	Clarifier Equipment-Installed		1369	1401												
48	Filter Gallery Piping-Installed		801	808												
49																
50																
51																
52																
53																
54																
55																
56																

Cost Trends Of

Building Construction

COST TREND TABLES
1912 to July 1, 2018

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COST TRENDS OF BUILDING CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927
1	**Building Construction**																
2	Reinf. Conc. Bldg. Construction	8	8	8	8	12	18	19	19	20	15	14	17	17	17	17	16
3	Brick Building Construction	8	8	8	9	11	15	17	19	21	17	16	18	19	18	18	18
4	Structural Steel Erected	9	9	9	8	16	29	26	22	22	16	15	19	19	17	17	16
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7																	
8	**Building Material**																
9	Ready-Mix Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Lumber for Reinf. Concrete	7	7	7	7	9	13	19	19	20	14	13	15	19	19	15	15
11	Steel Bars for Reinf. Concrete	15	15	15	17	34	47	37	35	37	24	22	28	29	27	25	24
12	Common Brick	10	10	10	14	16	19	20	27	34	31	30	33	30	28	28	28
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14																	
15	**Labor**																
16	Building Trades Labor	6	6	6	6	6	7	8	10	11	11	11	12	13	14	15	15
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	5	5	5	5	5	6	8	10	11	9	9	10	11	11	11	11
19	Common Labor	4	4	4	4	5	5	8	10	11	9	8	9	9	9	9	9
20	Electricians	5	5	5	6	6	6	8	9	10	11	11	11	12	13	14	14
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Plumbers	6	6	6	6	6	7	8	9	9	11	11	12	12	13	14	14
23																	

Line	CONSTRUCTION, MATERIAL, AND LABOR	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943
1	**Building Construction**																
2	Reinf. Conc. Bldg. Construction	16	16	15	14	12	13	15	15	15	16	16	16	17	18	20	20
3	Brick Building Construction	18	17	17	16	14	14	16	16	16	17	17	17	17	19	20	20
4	Structural Steel Erected	16	16	15	13	11	12	14	15	15	17	15	15	15	19	20	20
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Reinf. Concrete (Plant-Mix)	16	16	15	14	12	13	15	15	15	17	17	17	17	18	19	19
7																	
8	**Building Material**																
9	Ready-Mix Concrete	-	-	-	-	-	-	32	32	32	33	33	32	31	31	32	33
10	Lumber for Reinf. Concrete	15	15	14	12	10	12	16	13	13	15	15	15	16	19	21	22
11	Steel Bars for Reinf. Concrete	24	25	22	20	20	21	24	23	25	31	29	28	27	28	28	28
12	Common Brick	25	23	20	20	19	19	22	20	20	20	20	20	20	21	22	22
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14																	
15	**Labor**																
16	Building Trades Labor	15	15	15	15	14	12	13	13	13	15	15	15	16	17	18	18
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	11	11	10	10	9	9	11	11	11	12	13	13	14	14	14	15
19	Common Labor	9	9	9	9	8	6	8	9	9	10	10	11	11	12	12	13
20	Electricians	14	15	15	16	16	14	14	14	15	16	16	17	17	18	19	19
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Plumbers	14	15	15	15	13	13	14	14	14	15	16	16	17	17	18	18
23																	

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COST TRENDS OF BUILDING CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
1	**Building Construction**																
2	Reinf. Conc. Bldg. Construction	20	20	24	28	32	34	35	37	38	40	42	44	48	52	53	55
3	Brick Building Construction	21	21	24	28	32	34	35	37	38	39	41	42	46	49	50	52
4	Structural Steel Erected	20	20	24	30	37	39	41	43	43	47	48	50	59	66	67	67
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	35	37	39	41	43	46	48	50
7																	
8	**Building Material**																
9	Ready-Mix Concrete	33	33	35	39	44	45	46	47	49	50	54	57	60	63	66	66
10	Lumber for Reinf. Concrete	23	23	29	33	38	34	37	37	38	36	39	42	44	45	44	47
11	Steel Bars for Reinf. Concrete	28	28	30	34	37	43	45	47	48	51	53	56	61	68	70	72
12	Common Brick	23	27	31	33	38	42	43	47	47	48	50	51	52	53	54	54
13	Concrete Block	-	-	-	-	-	56	58	62	63	63	62	67	69	70	69	73
14																	
15	**Labor**																
16	Building Trades Labor	18	19	21	23	26	27	28	31	31	33	34	36	37	39	41	43
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	15	16	18	22	24	25	26	27	29	30	32	33	35	37	39	41
19	Common Labor	13	14	17	19	21	23	24	25	27	28	30	31	33	35	37	40
20	Electricians	19	19	20	23	25	27	28	30	32	33	34	35	37	38	41	42
21	Pipefitters	-	-	-	-	-	26	27	28	29	31	32	33	35	35	39	41
22	Plumbers	18	18	19	22	25	27	28	29	30	32	34	35	37	38	40	41
23																	

Line	CONSTRUCTION, MATERIAL, AND LABOR	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
1	**Building Construction**																
2	Reinf. Conc. Bldg. Construction	55	54	55	55	57	58	59	62	65	70	75	84	91	100	121	134
3	Brick Building Construction	53	52	53	54	56	57	59	61	64	68	74	84	91	100	118	127
4	Structural Steel Erected	66	62	62	62	63	63	65	66	69	74	77	83	89	100	140	161
5	Reinf. Concrete (Ready-Mix)	51	52	53	54	55	57	59	61	64	69	77	88	94	100	111	119
6	Reinf. Concrete (Plant-Mix)	49	48	50	51	52	53	56	58	61	66	73	83	91	100	108	115
7																	
8	**Building Material**																
9	Ready-Mix Concrete	66	66	66	65	64	64	65	65	68	73	82	91	94	100	112	123
10	Lumber for Reinf. Concrete	47	39	41	40	39	38	41	42	46	53	53	63	75	100	93	91
11	Steel Bars for Reinf. Concrete	72	72	72	72	74	81	82	81	81	81	84	91	91	100	157	156
12	Common Brick	56	56	56	57	58	58	60	62	65	65	68	78	84	100	123	126
13	Concrete Block	68	70	70	70	70	67	70	72	75	77	81	90	98	100	109	113
14																	
15	**Labor**																
16	Building Trades Labor	45	46	48	50	52	54	56	59	62	68	76	87	96	100	108	115
17	Heavy Constr. Trades Labor	-	45	47	48	50	53	56	58	61	67	76	86	96	100	107	116
18	Labor for Reinf. Concrete	43	45	47	49	51	53	56	58	62	67	77	88	96	100	108	116
19	Common Labor	42	44	45	47	49	52	55	58	61	66	75	88	97	100	109	117
20	Electricians	43	45	48	49	51	53	55	57	60	64	72	82	91	100	108	117
21	Pipefitters	41	44	45	45	48	50	52	55	57	62	70	85	97	100	107	114
22	Plumbers	43	44	46	48	49	51	53	56	58	64	71	86	96	100	107	114
23																	

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COST TRENDS OF BUILDING CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS														
		1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1988	1989	1990	1991
1	**Building Construction**															
2	Reinf. Conc. Bldg. Construction	134	139	150	167	184	190	189	196	211	222	229	246	258	262	257
3	Brick Building Construction	130	136	148	164	183	192	197	206	217	225	233	252	265	271	272
4	Structural Steel Erected	153	154	170	193	225	227	202	202	225	240	249	272	286	286	261
5	Reinf. Concrete (Ready-Mix)	124	131	140	154	166	176	191	201	210	220	225	238	244	251	260
7																
8	**Building Material**															
9	Ready-Mix Concrete	126	133	143	163	185	207	226	227	235	248	245	254	244	250	255
10	Lumber for Reinf. Concrete	106	118	130	148	139	138	135	143	144	140	140	143	148	147	145
11	Steel Bars for Reinf. Concrete	145	147	166	206	215	216	203	190	198	202	205	227	232	222	199
12	Common Brick	130	136	159	190	232	247	255	257	256	246	258	292	320	320	316
13	Concrete Block	116	120	139	185	210	228	260	260	262	278	285	285	301	288	288
14																
15	**Labor**															
16	Building Trades Labor	122	129	135	143	152	164	184	199	212	221	229	245	256	268	285
17	Heavy Constr. Trades Labor	123	131	137	146	155	165	184	199	210	220	229	244	255	264	279
18	Labor for Reinf. Concrete	122	130	137	147	157	166	184	198	210	220	227	242	253	262	277
19	Common Labor	124	133	141	152	163	172	190	204	214	223	231	243	254	265	280
20	Electricians	124	129	135	143	150	164	186	207	224	234	239	261	271	280	298
21	Pipefitters	122	131	135	143	154	170	192	207	219	228	236	248	263	276	290
22	Plumbers	122	131	136	141	152	168	191	205	217	226	235	242	257	279	294
23																

Line	CONSTRUCTION, MATERIAL, AND LABOR	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001		2002		2003	
											Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	**Building Construction**															
2	Reinf. Conc. Bldg. Construction	262	279	298	305	311	322	324	330	342	345	357	358	364	364	363
3	Brick Building Construction	278	290	304	310	315	328	337	345	359	364	374	377	384	385	385
4	Structural Steel Erected	260	278	305	317	325	334	336	344	360	363	373	377	373	375	373
5	Reinf. Concrete (Ready-Mix)	268	279	291	296	304	312	320	327	336	340	351	357	366	367	368
6	Reinf. Concrete (Plant-Mix)	247	265	281	279	286	298	296	299	304	305	321	316	328	322	323
7																
8	**Building Material**															
9	Ready-Mix Concrete	257	262	270	281	295	286	301	307	315	321	328	351	346	355	357
10	Lumber for Reinf. Concrete	150	193	227	196	206	218	186	182	168	158	199	159	173	149	144
11	Steel Bars for Reinf. Concrete	194	212	234	236	236	250	246	229	225	218	230	218	223	220	239
12	Common Brick	315	310	313	315	311	335	369	384	412	424	427	427	426	426	427
13	Concrete Block	288	263	262	258	258	285	306	332	354	360	362	377	381	383	383
14																
15	**Labor**															
16	Building Trades Labor	296	307	318	326	331	344	353	362	376	384	392	401	413	419	419
17	Heavy Constr. Trades Labor	291	300	311	319	325	337	348	358	372	377	387	393	405	406	406
18	Labor for Reinf. Concrete	289	297	308	314	320	333	343	354	366	373	382	390	403	402	402
19	Common Labor	293	303	315	315	327	338	349	359	376	380	391	394	402	403	403
20	Electricians	309	324	336	343	353	365	377	390	401	407	412	431	442	449	449
21	Pipefitters	305	317	323	335	342	352	361	374	388	399	410	417	425	425	425
22	Plumbers	305	320	330	339	348	355	363	368	385	395	406	412	427	434	434
23																

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COST TRENDS OF BUILDING CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		2004		2005		2006		2007		2008		2009		2010		2011	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	**Building Construction**																
2	Reinf. Conc. Bldg. Construction	394	402	415	422	431	436	446	472	493	501	505	486	497	498	515	515
3	Brick Building Construction	407	412	425	431	441	443	457	472	492	497	506	494	506	507	521	518
4	Structural Steel Erected	419	434	443	452	462	471	480	534	550	563	555	509	511	511	531	532
5	Reinf. Concrete (Ready-Mix)	386	383	402	409	414	418	434	446	469	476	484	484	500	506	516	517
7																	
8	**Building Material**																
9	Ready-Mix Concrete	355	334	351	371	371	379	382	425	425	425	429	430	430	437	431	439
10	Lumber for Reinf. Concrete	175	186	182	215	195	195	150	164	157	162	162	159	158	149	147	152
11	Steel Bars for Reinf. Concrete	275	280	348	360	324	361	380	420	398	490	334	326	358	416	417	406
12	Common Brick	427	429	429	439	439	439	457	457	460	460	460	453	453	453	453	434
13	Concrete Block	388	390	406	406	428	450	460	386	390	390	390	390	443	432	430	432
14																	
15	**Labor**																
16	Building Trades Labor	437	437	458	458	478	478	499	499	527	527	550	550	572	572	590	590
17	Heavy Constr. Trades Labor	424	424	446	446	459	459	483	483	517	517	542	542	564	564	584	584
18	Labor for Reinf. Concrete	422	422	439	439	452	452	476	476	512	512	541	541	562	562	579	579
19	Common Labor	418	418	428	428	436	436	475	475	510	510	550	550	572	572	590	590
20	Electricians	467	467	497	497	512	512	543	543	564	564	582	582	615	615	632	632
21	Pipefitters	464	464	488	488	514	514	526	526	566	566	590	590	607	607	642	642
22	Plumbers	450	450	469	469	502	502	520	520	545	545	580	580	597	597	610	610
23																	

Line	CONSTRUCTION, MATERIAL, AND LABOR	2012		2013		2014		2015		2016		2017		2018		2019	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	**Building Construction**																
2	Reinf. Conc. Bldg. Construction	524	527	537	534	546	549	557	549	552	558	569	576	589	611		
3	Brick Building Construction	530	532	542	539	550	552	585	580	586	589	604	608	633	647		
4	Structural Steel Erected	538	542	558	553	561	567	568	555	549	556	561	569	579	617		
5	Reinf. Concrete (Ready-Mix)	525	526	527	527	541	543	556	554	564	567	581	585	602	609		
6	Reinf. Concrete (Plant-Mix)	464	467	470	468	482	482	497	490	497	505	519	527	541	561		
7																	
8	**Building Material**																
9	Ready-Mix Concrete	441	441	436	436	441	452	455	461	471	471	481	485	488	488		
10	Lumber for Reinf. Concrete	150	165	170	168	174	170	188	182	178	204	222	240	244	309		
11	Steel Bars for Reinf. Concrete	393	391	365	356	363	373	368	326	288	307	316	349	342	393		
12	Common Brick	448	451	458	452	449	449	617	617	618	618	636	637	725	725		
13	Concrete Block	428	428	445	445	444	499	505	485	483	429	427	411	411	443		
14																	
15	**Labor**																
16	Building Trades Labor	607	607	619	619	636	636	646	646	660	660	678	678	696	696		
17	Heavy Constr. Trades Labor	596	596	605	605	620	620	640	640	659	659	673	673	696	696		
18	Labor for Reinf. Concrete	591	591	598	598	616	616	633	633	651	651	666	666	690	690		
19	Common Labor	604	604	604	604	620	620	644	644	661	661	674	674	705	705		
20	Electricians	665	665	674	674	691	691	702	702	724	724	731	731	753	753		
21	Pipefitters	658	658	668	668	694	694	704	704	717	717	738	738	755	755		
22	Plumbers	623	623	634	634	655	655	668	668	674	674	696	696	716	716		
23																	

M

UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
1	Boilers	6	6	6	7	8	13	17	15	16	14	12	14	15	15
2	Coal & Ash Handling Equipment	12	12	12	12	19	31	29	20	28	24	21	23	23	21
3	Pumps	9	9	9	12	14	16	18	18	18	17	16	16	16	17
4	Steam Pipe	17	17	17	12	18	39	44	35	37	35	34	36	37	37
5	Cranes	6	6	6	7	7	7	7	8	8	9	9	9	9	10
6	Regulators	32	32	32	32	32	39	47	45	49	50	49	50	53	52
7	Switchboards	20	20	20	20	21	23	26	35	44	49	43	40	43	43
8	Power Transformers	23	23	23	23	23	32	41	41	49	48	42	43	46	46
9	Oil Switches	27	27	27	27	27	30	38	45	49	53	50	50	51	51
10	Motors	21	21	21	21	21	28	31	37	42	43	34	29	29	29
11	Line Transformers	48	48	48	48	48	51	69	72	77	79	69	67	69	68
12	Meters-Electric	37	37	37	37	37	41	46	51	53	57	53	50	50	48
13	Treated Pine Poles	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Standard Cross Arms	7	7	7	7	7	9	10	12	12	11	12	12	12	13
15	Standard Galv. Steel Guy Wire	12	12	12	14	15	19	22	23	22	22	21	21	20	20
16	Fibre Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Plastic Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Mercury Luminaires w/Standard	-	-	-	-	-	-	-	-	-	-	-	-	27	26
19	Power Wire & Control Cable	23	23	23	30	36	42	48	51	49	37	29	33	31	34
20	Overhead Conductor-Transmission	28	26	23	25	45	49	54	53	51	31	28	32	31	32
21	Underground Conductor-Transmission	15	13	12	12	19	22	25	27	26	21	21	26	23	23
22	Overhead Conductor-Distribution	25	23	20	23	40	43	48	47	45	28	25	28	28	29
23	Underground Conductor-Distribution	16	15	14	14	22	25	28	30	29	22	22	28	25	25
24	Service Cable	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Condensers & Tubes	7	7	7	7	11	13	20	21	21	20	17	17	18	18
26	Turbo-Generators	9	9	9	9	13	13	17	18	21	23	20	19	19	19
27															
28	Gas Compressors	18	18	18	18	18	19	25	25	27	26	25	25	25	25
29	Gas Transmission Line Pipe	23	24	23	24	34	44	44	45	44	43	40	41	43	43
30	Steel Distribution Pipe	15	16	16	17	24	36	40	36	34	32	28	30	31	31
31	Plastic Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Meters-Gas	17	18	18	18	19	23	33	33	32	33	30	30	28	27
33	House Regulators	24	25	25	25	26	31	47	46	45	45	41	41	39	37
34															
35	Cast Iron Pipe	16	17	16	17	23	40	44	48	53	44	39	45	47	40
36	Cast Iron Fittings	10	10	10	13	13	24	27	25	34	29	25	25	25	27
37	Ductile Iron Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Chemical Feeders-Small	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Chemical Feeders-Large	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	Gate Valves	15	15	15	17	17	17	24	24	30	28	25	29	29	27
41	Meter Yokes	24	24	24	24	24	24	29	29	31	31	29	29	29	29
42	Corporation Stops	27	27	27	27	27	27	25	25	25	25	25	25	24	24
43	Curb Stops	20	20	20	20	20	20	22	22	22	22	22	22	21	21
44	Hydrants	23	23	23	23	23	23	23	24	27	27	23	26	27	26
45	Meters-Water	23	23	23	23	26	29	35	37	37	37	37	37	37	37
46															
47															
48															
49															
50	Construction Equipment	-	-	-	11	15	19	26	28	30	22	19	23	21	22
51															
52															
53															
54															
55															
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UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
1	Boilers	15	15	14	14	14	14	12	12	15	15	16	18	19	20
2	Coal & Ash Handling Equipment	21	20	20	20	19	17	16	17	20	20	20	21	20	20
3	Pumps	19	19	19	20	20	19	18	18	19	19	19	21	22	22
4	Steam Pipe	37	37	37	36	36	36	35	32	31	31	32	36	35	35
5	Cranes	10	10	11	11	11	11	10	10	10	10	10	10	10	11
6	Regulators	42	41	40	41	42	43	42	43	48	48	48	52	53	53
7	Switchboards	44	44	45	48	48	47	43	43	48	48	48	52	53	53
8	Power Transformers	46	43	41	42	40	40	39	40	46	47	47	50	52	52
9	Oil Switches	51	49	49	51	53	52	51	55	59	59	59	63	65	65
10	Motors	29	28	28	29	29	29	29	30	33	32	32	32	32	32
11	Line Transformers	63	59	58	62	61	59	57	59	61	62	62	66	67	67
12	Meters-Electrric	48	48	48	48	48	48	48	50	54	55	55	55	55	55
13	Treated Pine Poles	28	27	26	25	24	23	21	22	23	24	23	24	23	23
14	Standard Cross Arms	10	9	9	9	9	8	8	9	10	11	11	12	12	12
15	Standard Galv. Steel Guy Wire	18	17	16	16	15	14	14	15	17	17	17	18	19	18
16	Fibre Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Plastic Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Mercury Luminaires w/Standard	26	23	26	27	28	29	29	29	30	30	30	30	30	30
19	Power Wire & Control Cable	33	30	27	29	26	21	19	23	26	27	29	35	29	26
20	Overhead Conductor-Transmission	29	27	32	38	26	22	19	23	28	27	29	32	27	27
21	Underground Conductor-Transmission	22	21	23	27	20	19	19	21	23	23	25	27	24	24
22	Overhead Conductor-Distribution	26	24	28	34	23	19	17	20	25	24	26	28	24	24
23	Underground Conductor-Distribution	24	22	25	29	22	21	20	22	25	25	27	29	26	26
24	Service Cable	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Condensers & Tubes	18	16	15	19	20	19	18	19	21	24	24	27	27	27
26	Turbo-Generators	19	19	20	21	22	22	21	22	25	25	26	29	30	30
27															
28	Gas Compressors	24	23	24	24	24	24	24	24	24	24	23	23	23	23
29	Gas Transmission Line Pipe	43	43	43	43	43	43	42	35	35	35	34	35	34	34
30	Steel Distribution Pipe	31	31	31	31	30	29	29	26	29	29	26	28	26	25
31	Plastic Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Meters-Gas	27	27	27	27	27	26	25	25	25	25	25	26	26	26
33	House Regulators	37	38	38	38	37	36	34	34	34	34	34	35	37	40
34															
35	Cast Iron Pipe	40	34	29	30	30	28	25	30	34	35	36	39	39	38
36	Cast Iron Fittings	27	25	25	25	24	21	19	20	22	23	23	23	24	24
37	Ductile Iron Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Chemical Feeders-Small	18	19	22	22	20	15	17	17	17	17	17	17	17	17
39	Chemical Feeders-Large	-	-	-	-	-	-	-	-	-	12	12	13	13	13
40	Gate Valves	26	26	28	28	28	24	23	23	22	22	23	25	26	26
41	Meter Yokes	29	29	29	29	29	29	28	28	28	28	28	28	29	29
42	Corporation Stops	24	24	24	24	24	24	24	22	21	21	21	21	21	21
43	Curb Stops	21	21	21	21	21	21	21	21	21	21	21	21	21	21
44	Hydrants	24	24	25	25	25	23	23	23	20	22	22	24	25	25
45	Meters-Water	37	37	37	37	37	37	37	35	26	26	26	31	32	32
46															
47															
48															
49															
50	Construction Equipment	21	22	21	22	22	20	19	19	20	21	21	23	23	23
51															
52															
53															
54															
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UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
1	Boilers	20	21	21	21	21	21	22	25	31	36	37	41	41	43
2	Coal & Ash Handling Equipment	20	23	25	25	24	24	29	35	42	44	47	50	51	55
3	Pumps	22	23	24	24	24	24	26	32	35	37	40	47	47	48
4	Steam Pipe	35	35	35	35	35	35	37	42	45	50	52	53	53	55
5	Cranes	11	11	11	11	12	17	20	23	26	29	31	33	35	38
6	Regulators	53	53	53	53	52	51	57	63	65	69	70	74	74	81
7	Switchboards	53	53	51	50	45	44	50	58	59	59	62	72	72	77
8	Power Transformers	52	52	51	49	46	45	50	60	62	67	70	78	78	83
9	Oil Switches	65	65	65	65	59	58	67	78	79	79	89	102	102	110
10	Motors	31	32	33	33	31	32	37	45	46	49	53	63	63	66
11	Line Transformers	67	69	68	64	64	64	72	90	93	96	100	113	113	121
12	Meters-Electrric	55	55	55	55	55	55	61	69	74	80	80	80	78	81
13	Treated Pine Poles	23	24	27	28	33	39	37	41	43	43	42	44	46	49
14	Standard Cross Arms	13	16	17	19	22	23	25	35	37	34	36	41	42	42
15	Standard Galv. Steel Guy Wire	17	17	17	18	18	18	19	29	35	38	40	42	43	51
16	Fibre Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Plastic Conduit	-	-	-	-	-	-	-	-	-	-	-	-	179	170
18	Mercury Luminaires w/Standard	30	30	31	31	31	31	32	40	44	48	47	53	52	51
19	Power Wire & Control Cable	31	39	40	40	40	40	48	56	65	66	66	75	77	74
20	Overhead Conductor-Transmission	29	28	31	32	32	32	40	48	52	48	52	59	63	69
21	Underground Conductor-Transmission	25	29	30	29	28	28	34	41	50	56	56	59	61	59
22	Overhead Conductor-Distribution	26	25	27	28	28	28	35	43	46	43	46	52	56	61
23	Underground Conductor-Distribution	27	31	32	32	31	31	36	44	54	59	59	63	64	64
24	Service Cable	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Condensers & Tubes	27	27	27	27	26	27	30	32	33	36	37	40	40	43
26	Turbo-Generators	30	30	30	30	30	31	36	44	47	49	49	54	54	58
27															
28	Gas Compressors	24	25	27	27	26	28	31	31	35	40	40	41	42	43
29	Gas Transmission Line Pipe	34	34	34	34	34	34	36	41	44	48	50	51	52	54
30	Steel Distribution Pipe	25	25	25	25	25	25	28	33	37	41	43	46	47	52
31	Plastic Pipe	-	-	-	-	-	-	-	-	-	-	-	-	175	175
32	Meters-Gas	26	26	26	26	26	26	33	41	42	45	48	55	55	55
33	House Regulators	48	48	48	48	48	48	53	63	64	68	69	74	74	74
34															
35	Cast Iron Pipe	39	39	40	39	39	40	45	58	69	68	67	73	73	73
36	Cast Iron Fittings	24	26	27	27	27	28	33	42	49	48	48	54	56	59
37	Ductile Iron Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Chemical Feeders-Small	17	17	17	17	17	18	22	26	31	34	38	40	40	40
39	Chemical Feeders-Large	13	14	15	15	16	19	20	24	29	35	40	42	42	42
40	Gate Valves	26	28	29	29	29	29	34	39	42	45	52	57	57	57
41	Meter Yokes	29	29	30	30	30	31	37	39	40	39	41	48	48	48
42	Corporation Stops	22	22	23	23	23	24	31	36	37	37	37	45	45	45
43	Curb Stops	22	23	23	23	23	25	31	36	38	37	38	45	45	45
44	Hydrants	25	27	27	27	27	27	32	36	39	43	50	55	55	55
45	Meters-Water	33	35	37	37	37	37	40	42	48	52	59	61	61	65
46															
47															
48															
49															
50	Construction Equipment	24	25	28	29	29	29	34	37	39	40	42	45	46	49
51															
52															
53															
54															
55															
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UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
1	Boilers	45	47	54	61	63	65	65	66	66	66	68	70	71	74
2	Coal & Ash Handling Equipment	56	58	68	76	77	79	77	72	72	72	73	73	74	76
3	Pumps	49	50	55	56	56	62	68	68	69	69	70	70	74	77
4	Steam Pipe	56	57	61	67	69	71	71	71	71	71	73	73	73	74
5	Cranes	40	43	45	47	49	52	54	55	55	55	56	56	58	64
6	Regulators	83	85	98	105	108	108	108	96	96	90	87	84	83	84
7	Switchboards	79	81	96	105	108	106	98	81	78	77	77	78	82	90
8	Power Transformers	85	87	100	103	107	103	95	88	84	76	81	84	87	91
9	Oil Switches	112	110	115	131	136	132	109	75	74	64	70	82	80	88
10	Motors	67	68	79	89	93	96	92	87	86	85	85	87	87	88
11	Line Transformers	123	123	127	135	130	125	122	118	107	100	100	101	101	105
12	Meters-Electrric	83	79	82	87	89	92	92	91	90	89	89	88	88	89
13	Treated Pine Poles	51	51	55	59	60	57	57	56	56	56	56	56	58	61
14	Standard Cross Arms	42	42	49	50	47	46	46	44	44	44	44	45	47	46
15	Standard Galv. Steel Guy Wire	54	55	58	62	63	63	63	63	63	63	63	63	63	63
16	Fibre Conduit	-	-	-	-	-	-	82	86	86	86	86	84	76	71
17	Plastic Conduit	170	157	159	159	154	154	154	150	146	146	143	139	141	136
18	Mercury Luminaires w/Standard	59	59	60	66	68	68	68	67	67	66	67	66	72	82
19	Power Wire & Control Cable	71	68	72	65	50	50	40	38	40	40	44	55	67	72
20	Overhead Conductor-Transmission	67	73	80	81	79	72	73	73	74	63	69	73	76	78
21	Underground Conductor-Transmission	60	65	72	65	63	65	66	64	63	63	69	77	77	79
22	Overhead Conductor-Distribution	59	67	72	63	58	63	64	62	62	62	64	71	75	78
23	Underground Conductor-Distribution	64	71	78	69	67	70	71	69	67	68	74	82	83	85
24	Service Cable	-	-	93	89	74	69	68	69	67	62	66	68	71	74
25	Condensers & Tubes	44	45	48	53	56	56	56	56	56	57	61	65	71	75
26	Turbo-Generators	59	61	72	80	84	84	78	72	70	70	70	71	72	73
27															
28	Gas Compressors	44	46	49	54	58	61	61	61	61	64	68	73	74	78
29	Gas Transmission Line Pipe	55	56	59	65	67	69	69	69	69	69	71	71	71	72
30	Steel Distribution Pipe	54	56	60	68	69	71	71	71	71	71	71	71	71	73
31	Plastic Pipe	154	147	146	142	140	139	137	133	132	132	128	123	126	126
32	Meters-Gas	55	56	63	66	71	71	71	73	79	79	79	79	86	88
33	House Regulators	74	74	74	76	80	80	80	81	82	82	82	80	80	80
34															
35	Cast Iron Pipe	79	80	86	91	95	95	95	95	95	95	95	95	95	95
36	Cast Iron Fittings	62	64	67	69	72	74	74	74	73	72	72	72	72	75
37	Ductile Iron Pipe	-	-	-	-	-	-	-	96	96	96	96	96	96	96
38	Chemical Feeders-Small	40	41	45	48	49	54	60	60	63	63	64	69	73	77
39	Chemical Feeders-Large	42	44	54	61	68	68	68	68	71	72	71	70	72	79
40	Gate Valves	55	51	57	59	58	58	58	59	62	63	62	62	68	72
41	Meter Yokes	51	57	64	61	59	59	62	63	65	65	66	70	75	77
42	Corporation Stops	46	54	59	59	59	60	62	62	65	65	66	71	79	81
43	Curb Stops	46	54	59	59	59	60	62	63	65	65	67	71	79	82
44	Hydrants	55	52	58	59	59	59	59	59	59	59	59	59	61	66
45	Meters-Water	67	70	77	78	78	78	78	78	84	87	87	93	101	101
46															
47															
48															
49															
50	Construction Equipment	49	51	55	59	62	64	65	67	67	68	70	71	73	76
51															
52															
53															
54															
55															
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UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
1	Boilers	76	78	83	89	94	100	119	143	159	172	186	203	221	245
2	Coal & Ash Handling Equipment	79	84	88	93	95	100	124	150	154	162	175	192	213	225
3	Pumps	78	80	85	89	93	100	127	154	177	183	195	212	235	259
4	Steam Pipe	78	82	86	92	98	100	112	131	143	155	178	206	223	236
5	Cranes	68	72	78	82	88	100	122	139	147	171	186	215	237	267
6	Regulators	84	87	90	92	97	100	128	150	165	170	174	179	189	206
7	Switchboards	92	93	94	96	97	100	131	196	212	222	234	238	261	295
8	Power Transformers	93	95	97	95	93	100	129	157	162	172	182	193	210	223
9	Oil Switches	96	92	93	93	95	100	123	140	143	174	186	195	203	229
10	Motors	89	94	100	104	100	100	110	155	167	186	186	188	195	210
11	Line Transformers	109	106	105	104	100	100	110	133	136	147	158	166	165	194
12	Meters-Electrric	92	95	98	101	101	100	107	126	135	140	144	148	144	160
13	Treated Pine Poles	62	66	69	73	77	100	150	205	192	190	206	234	265	289
14	Standard Cross Arms	44	50	65	60	58	100	162	157	146	155	161	223	244	252
15	Standard Galv. Steel Guy Wire	63	64	72	86	97	100	133	153	151	162	178	205	214	244
16	Fibre Conduit	72	78	83	82	85	100	119	130	133	149	173	203	218	235
17	Plastic Conduit	116	105	100	98	100	100	118	133	129	144	161	187	199	190
18	Mercury Luminaires w/Standard	74	78	94	101	102	100	125	173	194	211	234	263	288	314
19	Power Wire & Control Cable	81	86	84	74	86	100	115	95	97	95	101	109	135	142
20	Overhead Conductor-Transmission	75	84	97	107	103	100	121	167	204	220	189	201	232	250
21	Underground Conductor-Transmission	76	82	86	83	89	100	149	142	142	154	148	188	238	259
22	Overhead Conductor-Distribution	75	84	97	107	102	100	121	166	203	220	192	210	246	257
23	Underground Conductor-Distribution	76	86	94	92	100	100	135	130	132	140	148	196	231	222
24	Service Cable	71	77	92	98	99	100	105	124	126	131	149	183	221	217
25	Condensers & Tubes	80	84	89	94	99	100	109	128	142	157	171	189	209	229
26	Turbo-Generators	72	75	81	89	96	100	111	131	144	158	170	188	206	230
27															
28	Gas Compressors	84	88	91	91	90	100	120	150	161	172	188	213	237	265
29	Gas Transmission Line Pipe	75	80	83	89	98	100	122	145	172	187	212	225	253	290
30	Steel Distribution Pipe	73	76	82	89	97	100	127	142	155	170	194	213	225	254
31	Plastic Pipe	123	111	98	96	100	100	112	116	120	125	129	142	152	142
32	Meters-Gas	88	89	94	100	100	100	111	128	131	136	139	143	149	158
33	House Regulators	81	83	92	98	100	100	106	125	132	136	144	171	201	210
34															
35	Cast Iron Pipe	95	95	96	100	100	100	153	178	180	183	195	201	217	235
36	Cast Iron Fittings	77	80	87	99	99	100	144	142	148	152	163	173	194	209
37	Ductile Iron Pipe	96	96	97	100	100	100	153	182	186	189	201	207	215	228
38	Chemical Feeders-Small	81	81	86	90	92	100	126	180	209	230	249	257	287	316
39	Chemical Feeders-Large	80	81	87	92	94	100	125	177	194	195	201	212	232	249
40	Gate Valves	74	74	79	91	96	100	127	160	191	197	220	252	270	289
41	Meter Yokes	79	87	93	95	95	100	132	139	160	227	246	262	296	320
42	Corporation Stops	85	90	96	99	99	100	126	133	133	136	139	154	168	178
43	Curb Stops	86	90	96	99	99	100	126	133	135	140	146	161	177	187
44	Hydrants	71	76	84	94	95	100	143	185	214	229	261	279	293	315
45	Meters-Water	101	107	108	108	106	100	93	93	98	101	105	108	122	127
46															
47															
48															
49															
50	Construction Equipment	80	84	88	93	95	100	117	141	153	164	178	197	222	246
51															
52															
53															
54															
55															
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UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
1	Boilers	264	273	283	292	298	307	330	344	364	380	385	404	413	425
2	Coal & Ash Handling Equipment	224	229	240	246	250	255	270	289	296	300	302	308	318	325
3	Pumps	276	281	284	292	296	300	310	327	342	353	361	391	406	419
4	Steam Pipe	254	226	215	215	215	231	271	264	241	229	222	199	199	216
5	Cranes	302	328	344	384	411	423	442	458	474	482	490	537	598	615
6	Regulators	216	225	227	229	231	236	239	248	253	257	257	256	260	241
7	Switchboards	318	317	319	333	338	343	366	398	429	439	449	499	496	572
8	Power Transformers	231	226	229	237	242	253	264	291	327	337	343	360	371	388
9	Oil Switches	279	280	275	271	268	273	336	380	402	411	399	358	369	395
10	Motors	224	250	260	261	257	266	285	339	365	357	348	376	478	495
11	Line Transformers	208	210	211	212	213	211	212	221	224	222	223	226	230	225
12	Meters-Electric	188	201	200	202	207	205	187	175	174	186	190	189	174	169
13	Treated Pine Poles	291	280	276	283	289	284	289	300	310	323	332	367	416	445
14	Standard Cross Arms	249	240	243	230	228	226	250	291	333	366	381	419	441	464
15	Standard Galv. Steel Guy Wire	254	236	227	233	233	235	249	253	252	252	251	253	254	255
16	Fibre Conduit	175	210	231	225	221	225	301	470	379	260	230	198	222	228
17	Plastic Conduit	158	183	197	189	188	199	280	409	366	316	289	237	251	260
18	Mercury Luminaires w/Standard	333	326	343	358	352	321	321	334	345	353	361	389	408	430
19	Power Wire & Control Cable	132	131	123	107	110	123	137	139	136	130	126	119	121	127
20	Overhead Conductor-Transmission	247	271	246	242	242	218	359	366	355	372	379	334	352	399
21	Underground Conductor-Transmission	270	268	256	242	277	281	298	328	405	461	469	477	477	485
22	Overhead Conductor-Distribution	252	266	259	249	244	229	349	366	354	363	366	322	341	386
23	Underground Conductor-Distribution	206	201	196	202	216	222	223	243	254	258	259	254	253	263
24	Service Cable	207	198	229	209	194	201	250	285	271	264	258	227	240	271
25	Condensers & Tubes	247	256	257	247	222	239	263	268	268	270	270	275	288	308
26	Turbo-Generators	242	256	266	270	270	274	292	302	306	312	315	325	333	343
27															
28	Gas Compressors	280	284	295	301	303	307	325	354	371	388	405	438	446	455
29	Gas Transmission Line Pipe	315	271	262	254	265	272	301	298	269	257	250	233	235	243
30	Steel Distribution Pipe	268	270	282	272	237	250	291	316	318	323	323	327	370	381
31	Plastic Pipe	132	149	157	146	146	159	218	283	285	290	275	230	235	244
32	Meters-Gas	158	146	147	158	166	165	170	177	185	190	190	191	189	190
33	House Regulators	217	221	230	237	236	243	247	253	269	280	283	297	303	302
34															
35	Cast Iron Pipe	234	254	247	265	244	244	266	282	278	275	275	275	278	266
36	Cast Iron Fittings	216	232	229	240	259	289	296	317	324	324	324	350	377	370
37	Ductile Iron Pipe	228	262	249	281	246	246	275	278	271	271	271	271	273	250
38	Chemical Feeders-Small	341	353	358	366	373	379	398	410	424	430	432	444	453	453
39	Chemical Feeders-Large	273	286	294	306	324	341	353	379	402	418	423	438	437	477
40	Gate Valves	321	358	375	395	417	441	468	517	530	540	548	561	524	540
41	Meter Yokes	336	389	389	383	394	399	445	470	478	507	516	551	566	603
42	Corporation Stops	189	200	207	212	220	220	240	254	257	273	279	303	308	318
43	Curb Stops	198	210	220	225	233	233	254	270	273	289	296	321	330	348
44	Hydrants	352	384	385	414	439	456	480	521	558	560	560	559	561	577
45	Meters-Water	128	141	148	135	135	137	140	143	152	160	173	195	175	200
46															
47															
48															
49															
50	Construction Equipment	263	269	273	276	280	286	295	281	298	320	316	324	331	333
51															
52															
53															
54															
55															
56															

M

UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
						2000		2001		2002		2003		2004	
		1996	1997	1998	1999	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	Boilers	433	443	452	460	464	466	471	474	478	481	483	490	493	519
2	Coal & Ash Handling Equipment	328	333	344	351	350	354	355	356	360	357	360	362	365	399
3	Pumps	440	476	496	510	520	531	530	530	506	531	531	548	549	555
4	Steam Pipe	215	204	190	183	176	180	177	166	169	166	166	158	158	173
5	Cranes	615	656	689	728	742	749	749	749	749	749	749	749	749	817
6	Regulators	234	232	234	237	241	243	241	240	239	238	255	254	255	258
7	Switchboards	620	656	662	689	720	738	800	805	841	893	939	979	1035	1059
8	Power Transformers	370	371	400	400	400	400	400	400	400	377	377	374	376	513
9	Oil Switches	399	409	415	415	411	408	409	409	405	398	396	391	385	382
10	Motors	475	467	476	497	531	534	534	534	539	540	543	543	543	602
11	Line Transformers	219	206	210	210	208	208	211	217	221	224	223	229	217	240
12	Meters-Electric	172	187	193	181	172	172	186	205	229	242	252	252	295	295
13	Treated Pine Poles	463	473	471	473	464	472	474	493	496	508	508	518	514	541
14	Standard Cross Arms	466	477	443	413	411	416	425	437	448	431	420	423	376	379
15	Standard Galv. Steel Guy Wire	261	280	314	313	313	319	319	231	213	222	222	228	228	276
16	Fibre Conduit	204	209	199	225	258	240	246	217	222	293	293	238	238	239
17	Plastic Conduit	252	256	251	266	281	273	298	285	295	327	328	302	312	312
18	Mercury Luminaires w/Standard	460	471	469	472	474	478	486	492	499	526	566	573	573	579
19	Power Wire & Control Cable	121	121	119	112	106	109	114	107	105	105	96	99	105	105
20	Overhead Conductor-Transmission	402	405	420	354	335	419	419	428	428	402	402	402	410	463
21	Underground Conductor-Transmission	487	487	487	493	480	482	495	459	459	462	462	462	462	539
22	Overhead Conductor-Distribution	386	387	399	345	331	397	398	405	405	382	384	385	395	443
23	Underground Conductor-Distribution	266	263	265	268	262	270	277	250	250	246	239	240	236	262
24	Service Cable	267	264	264	249	249	263	264	264	266	254	260	264	274	300
25	Condensers & Tubes	305	306	309	290	283	283	287	286	289	292	291	305	314	400
26	Turbo-Generators	348	364	369	371	385	385	391	360	375	378	387	395	401	387
27															
28	Gas Compressors	461	470	478	480	481	484	484	485	494	496	495	496	501	502
29	Gas Transmission Line Pipe	269	272	273	267	270	261	261	258	256	255	256	257	257	400
30	Steel Distribution Pipe	376	388	389	399	430	427	427	422	423	418	423	424	521	576
31	Plastic Pipe	249	251	252	255	256	256	292	292	304	304	305	305	316	316
32	Meters-Gas	192	196	196	191	201	202	202	210	215	197	197	197	180	183
33	House Regulators	303	303	307	306	306	307	301	313	320	318	318	321	311	322
34															
35	Cast Iron Pipe	268	279	281	285	287	292	292	299	299	299	299	299	308	287
36	Cast Iron Fittings	368	379	379	378	378	378	378	378	400	496	510	496	496	519
37	Ductile Iron Pipe	251	268	270	279	283	292	292	292	292	292	292	292	292	269
38	Chemical Feeders-Small	462	476	514	522	523	554	554	561	567	561	561	561	579	603
39	Chemical Feeders-Large	493	506	537	569	569	560	560	576	612	612	612	612	612	600
40	Gate Valves	553	592	611	630	645	646	668	691	691	691	691	691	691	703
41	Meter Yokes	670	673	677	679	684	701	708	708	708	708	726	740	740	769
42	Corporation Stops	329	329	329	329	329	341	341	341	341	341	353	353	353	367
43	Curb Stops	361	361	361	361	361	374	374	374	374	374	387	387	387	403
44	Hydrants	625	795	840	874	899	901	935	970	970	970	970	970	970	981
45	Meters-Water	207	197	197	198	200	206	206	206	207	207	207	207	207	207
46															
47															
48															
49															
50	Construction Equipment	336	351	380	385	387	390	390	391	390	397	398	403	403	412
51															
52															
53															
54															
55															
56															

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UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

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

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UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

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

M

UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		2018		2019		2020		2021		2022		2023		2024	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	Boilers	683	707												
2	Coal & Ash Handling Equipment	596	608												
3	Pumps	1248	1345												
4	Steam Pipe	407	462												
5	Cranes	1041	1083												
6	Regulators	420	430												
7	Switchboards	4461	4629												
8	Power Transformers	868	879												
9	Oil Switches	505	507												
10	Motors	910	917												
11	Line Transformers	982	1008												
12	Meters-Electric	304	304												
13	Treated Pine Poles	665	668												
14	Standard Cross Arms	450	450												
15	Standard Galv. Steel Guy Wire	515	515												
16	Fibre Conduit	511	511												
17	Plastic Conduit	514	514												
18	Mercury Luminaires w/Standard	964	1008												
19	Power Wire & Control Cable	246	253												
20	Overhead Conductor-Transmission	838	838												
21	Underground Conductor-Transmission	1252	1271												
22	Overhead Conductor-Distribution	785	801												
23	Underground Conductor-Distribution	561	572												
24	Service Cable	496	544												
25	Condensers & Tubes	516	569												
26	Turbo-Generators	507	537												
27															
28	Gas Compressors	747	759												
29	Gas Transmission Line Pipe	615	693												
30	Steel Distribution Pipe	1218	1382												
31	Plastic Pipe	410	410												
32	Meters-Gas	475	477												
33	House Regulators	533	533												
34															
35	Cast Iron Pipe	867	868												
36	Cast Iron Fittings	1481	1565												
37	Ductile Iron Pipe	715	715												
38	Chemical Feeders-Small	1618	1738												
39	Chemical Feeders-Large	900	939												
40	Gate Valves	771	789												
41	Meter Yokes	1706	1706												
42	Corporation Stops	723	723												
43	Curb Stops	780	780												
44	Hydrants	1735	1759												
45	Meters-Water	434	434												
46															
47															
48															
49															
50	Construction Equipment	580	575												
51															
52															
53															
54															
55															
56															

BULLETIN NO. 189

1912 to January 1, 2019

THE

HANDY-WHITMAN INDEX

Of

Public Utility Construction Costs©

TRENDS OF CONSTRUCTION COSTS

Preliminaries

Compiled and Published by

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801 South Caroline Street
Baltimore, Maryland 21231
(410) 235-3450

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

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4	618	538	595	541	565	598
5	616	499	583	457	491	619
6	553	439	523	406	447	559
9	489	638	589	579	563	573
10	255	323	286	315	328	323
11	403	415	411	409	404	421
12	1092	1077	879	1023	1457	779
13	429	235	436	590	391	391
16	707	472	646	467	485	693
17	705	499	624	459	478	675
18	699	489	622	436	469	676
19	712	486	592	439	470	683
20	775	441	639	492	485	735
21	768	530	650	500	557	769
22	734	507	652	507	555	783

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

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2	620
3	1401
4	485
5	1358
6	436
7	1017
8	901
9	1[illegible]
10	1[illegible]
11	1[illegible]
12	306
13	1[illegible]
14	1[illegible]
15	1[illegible]
16	543
17	1[illegible]
18	1[illegible]
19	2[illegible]
20	885
21	1329
22	818
23	605
24	1910
25	583
26	560
28	779
29	1716
30	1432
31	1[illegible]19
32	5[illegible]1
33	558
35	878
36	1627
37	721
38	1792
39	965
40	812
41	1706
42	723
43	780
44	1803
45	443
50	600

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 189

WATER INDEXES 1/1/19

LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
2	576	488	555	479	514	555
8	717	602	683	587	665	718
9	1261	1261	1261	1261	1261	1261
15	717	602	683	587	665	718
16	832	741	793	739	750	851
17	960	886	931	890	900	985
23	832	832	832	832	832	832
24	1244	1244	1244	1244	1244	1244
27	844	801	824	810	819	865
28	792	721	758	747	732	794
29	639	576	614	577	586	643
34	819	752	783	726	743	810
35	883	856	879	829	846	888
36	784	634	691	613	642	673
37	734	631	684	620	634	736
38	401	347	379	343	349	388
39	674	525	611	526	527	656
40	443	443	443	443	443	443
41	758	615	699	620	631	746
42	1049	984	1005	986	987	1069
46	2360	2340	2355	2381	2358	2425
47	1462	1356	1447	1374	1417	1487
48	825	670	771	700	745	866

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
East Norriton Wastewater Collection System
Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

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

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

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AUS Telephone Plant Index

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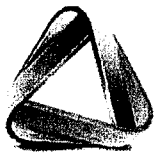
Cost Trend Tables from 1946 to January 1, 2019

For information contact:

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



aus consultants

AUS Telephone Plant Index

155 Gaither Drive
Suite A
Mount Laurel, NJ 08054
856.234.9200

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

An AUS Consultants Company

Bulletin No. 59

To January 1, 2019

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Table of Contents

FOREWORD

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

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

Telephone Plant Index Description

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

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

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

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

Index History

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

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

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

Index Design

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

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

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

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

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

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

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

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

Index Functions

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

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

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

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

North Atlantic

AUS TELEPHONE PLANT INDEX

NORTH ATLANTIC REGION 1973=100

LINE NO	PLANT IN SERVICE DESCRIPTION	FCC Acct	COST INDEX NUMBER																LINE NO
			1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	
1	Total Plant		85	89	91	91	92	95	96	96	94	94	97	97	96	96	97	96	1
2																			2
3																			3
4	Motor Vehicles	2112	57	57	63	67	67	70	74	74	74	77	81	84	87	89	88	87	4
5	Aircraft	2113	56	56	62	66	66	69	73	73	73	75	80	83	86	88	86	86	5
6	Special Purpose Vehicles	2114	30	34	38	41	42	46	47	48	49	51	56	60	62	65	66	67	6
7	Garage Work Equipment	2115	36	38	42	44	46	51	51	52	53	56	61	65	67	69	70	70	7
8	Other Work Equipment	2116	50	50	52	54	55	59	59	61	62	64	67	70	71	74	75	77	8
9																			9
10																			10
11	Buildings	2121	24	28	32	34	35	37	38	39	41	42	46	49	50	52	53	52	11
12	Furniture	2122	43	43	46	47	50	56	56	57	57	60	64	68	70	70	71	71	12
13	Office Equipment	2123	67	67	69	69	70	75	74	76	77	79	82	85	87	88	88	89	13
14	General Purpose Computer	2124	67	67	69	69	70	75	74	76	77	79	82	85	87	88	88	89	14
15																			15
16																			16
17	Analog Electronic Switching	2211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
18	Digital Electronic Switching	2212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
19																			19
20																			20
21	Electro Mechanical Switching	2215	36	48	49	57	62	64	67	66	64	65	68	70	69	72	70	72	21
22																			22
23	Operator Systems	2220	37	50	51	59	64	67	69	68	66	67	70	72	71	73	71	74	23
24																			24
25																			25
26	Radio System—Analog																		26
27	Radio Systems—Digital	22311	51	57	62	63	63	66	64	60	58	58	49	49	46	47	36	36	27
28	Circuit Equipment—Analog	22312	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
29	Circuit Equipment—Digital	22321	347	392	417	411	410	423	410	401	348	311	319	317	303	299	312	297	29
30		22322	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
31																			31
32	Public Telephone Term Eq	2351	148	151	145	145	148	154	143	144	146	158	159	164	164	164	165	165	32
33																			33
34																			34
35	Poles	2411	33	37	39	41	42	45	47	49	51	50	54	58	59	59	60	61	35
36	Aerial Cable—Metallic	24211	44	47	49	49	51	58	61	64	64	68	74	72	70	71	72	70	36
37	Aerial Cable—Fiber	24212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
38	Underground Cable—Metallic	24221	48	52	54	53	55	64	67	71	69	75	82	78	75	76	78	75	38
39	Underground Cable—Fiber	24222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
40	Buried Cable—Metallic	24231	50	54	56	55	57	66	70	74	72	78	85	81	77	78	80	76	40
41	Buried Cable—Fiber	24232	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
42	Submarine Cable—Metallic	24241	43	45	48	48	50	56	59	62	61	65	71	69	68	69	71	70	42
43	Submarine Cable—Fiber	24242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
44	Intra Building Cable—Metallic	24261	43	47	49	48	50	58	61	64	63	68	74	71	69	70	72	70	44
45	Intra Building Cable—Fiber	24262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
46	Aerial Wire	2431	33	36	38	38	40	45	47	50	50	55	58	57	57	59	61	62	46
47	Conduit Systems	2441	54	55	57	59	60	63	64	64	65	65	67	69	71	72	73	74	47
48																			48
49	Aerial Cable-FTTP (Distribution)	24213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
50	Underground Cable-FTTP (Dist.)	24223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51	Buried Cable-FTTP (Distribution)	24233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52	Submarine Cable-FTTP (Dist.)	24243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
53	Intra Building Cable-FTTP (Dist.)	24263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
54																			54

AUS TELEPHONE INDEX BULLETIN NO. 59

AUS TELEPHONE PLANT INDEX

NORTH ATLANTIC REGION 1973=100

LINE NO	COST INDEX NUMBER																						LINE NO
	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974 Jan 1	1974 July 1	1975 Jan 1	1975 July 1	1976 Jan 1	1976 July 1	1977 Jan 1	1977 July 1	1978 Jan 1	1978 July 1	1979 Jan 1	1979 July 1	
1	95	94	94	94	95	96	96	97	101	101	102	105	108	113	116	116	117	120	122	123	125	128	131	135	1
2																									2
3																									3
4	87	86	86	85	85	86	88	89	92	97	99	100	102	105	116	116	123	124	131	132	140	143	149	155	4
5	85	85	84	84	84	84	86	88	91	96	99	100	102	109	119	123	128	131	136	140	146	151	157	163	5
6	67	68	70	72	74	77	81	85	89	93	96	100	103	114	130	141	147	151	158	162	171	177	187	195	6
7	71	71	72	73	76	79	82	85	90	94	96	100	114	118	134	139	143	147	153	159	165	172	180	189	7
8	78	79	79	79	81	85	88	93	98	100	100	100	100	111	118	122	119	122	124	130	131	137	141	147	8
9																									9
10																									10
11	53	54	56	57	59	61	64	68	74	84	91	100	107	119	125	128	126	131	132	136	140	148	154	163	11
12	71	71	72	72	73	77	80	83	89	91	93	100	103	114	130	128	129	135	136	144	149	155	160	171	12
13	89	90	90	90	91	92	93	93	96	97	99	100	101	105	109	111	110	112	111	113	114	118	119	123	13
14	89	90	90	90	91	92	93	93	96	97	99	100	100	100	102	103	100	100	98	90	90	90	90	90	14
15																									15
16																									16
17	0	0	0	0	0	0	0	0	0	0	0	104	103	106	110	111	111	113	113	113	115	119	122	125	17
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	105	105	100	95	95	95	96	96	18
19																									19
20																									20
21	71	76	78	75	72	71	75	81	84	88	98	104	106	110	115	120	124	127	132	136	140	145	151	156	21
22																									22
23	73	77	79	76	72	71	76	81	85	89	98	104	106	108	111	114	117	119	121	122	125	128	132	136	23
24																									24
25																									25
26																									26
27	46	49	52	60	58	63	62	66	78	97	102	104	102	102	102	102	97	98	103	104	106	106	103	103	27
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
29	273	234	228	214	224	210	173	159	163	128	108	104	105	108	111	112	111	111	115	118	118	119	120	122	29
30	0	0	0	0	0	0	0	0	0	0	0	104	104	104	105	105	110	116	121	126	126	127	123	120	30
31																									31
32	165	165	166	130	122	123	120	118	108	107	108	107	106	107	110	109	109	111	112	114	116	119	123	127	32
33																									33
34																									34
35	62	63	65	66	68	71	76	79	83	88	97	107	119	131	144	157	158	160	164	169	176	183	196	208	35
36	70	70	70	73	77	81	84	88	96	97	100	107	114	125	129	126	130	135	140	144	148	152	158	170	36
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
38	74	73	72	75	80	84	87	91	100	99	100	107	114	127	130	125	129	134	138	143	145	149	155	168	38
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
40	76	74	73	77	81	85	88	91	101	99	100	107	114	128	131	124	128	133	138	142	144	147	153	167	40
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
42	70	70	71	73	77	81	84	88	95	96	101	107	113	123	128	126	131	136	141	145	150	154	160	171	42
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
44	70	70	70	73	77	81	84	88	96	96	100	107	114	125	129	126	130	136	140	145	148	152	158	170	44
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
46	63	65	66	70	73	75	78	84	91	93	100	107	114	125	130	131	134	139	142	146	145	150	158	172	46
47	74	77	78	79	82	84	84	87	89	94	102	107	111	117	127	130	135	139	144	150	159	163	169	180	47
48																									48
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
54																									54

AUS TELEPHONE INDEX BULLETIN NO. 59

AUS TELEPHONE PLANT INDEX

NORTH ATLANTIC REGION 1973=100

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

AUS TELEPHONE INDEX BULLETIN NO. 59

AUS TELEPHONE PLANT INDEX

NORTH ATLANTIC REGION 1973=100

LINE NO	COST INDEX NUMBER																						LINE NO
	1988		1989		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		
	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	
1	150	153	158	165	164	165	167	165	165	165	167	168	169	170	174	178	182	182	184	185	186	184	184	181	1
2																									2
3																									3
4	221	222	231	229	236	232	244	241	254	251	258	261	267	271	275	270	279	276	277	271	270	263	273	266	4
5	234	234	234	240	246	254	261	271	274	284	285	291	297	300	304	312	318	322	326	328	327	328	329	330	5
6	289	293	298	309	312	319	325	328	333	337	343	348	348	351	353	360	362	368	370	374	377	382	383	388	6
7	273	279	286	294	298	305	309	316	318	322	324	328	332	336	338	345	349	354	356	359	361	364	366	368	7
8	206	210	215	218	221	228	230	234	235	240	240	243	244	250	250	254	254	258	258	260	260	262	263	265	8
9																									9
10																									10
11	242	254	257	268	268	272	272	274	270	279	283	290	295	306	310	310	311	312	323	329	331	338	341	343	11
12	255	263	269	274	278	284	287	290	291	294	296	299	302	309	309	315	320	322	326	328	330	330	330	333	12
13	147	149	151	153	154	154	152	153	153	156	154	155	155	155	154	156	155	156	155	157	156	157	156	157	13
14	45	43	37	31	30	29	26	24	23	21	21	21	21	21	21	20	17	15	14	14	14	14	13	13	14
15																									15
16																									16
17	204	207	210	212	214	211	212	214	213	213	213	216	215	216	213	212	211	204	204	200	196	194	193	192	17
18	52	50	45	40	39	38	36	33	32	31	31	31	32	32	32	31	28	27	26	26	26	26	25	25	18
19																									19
20																									20
21	278	284	289	291	291	292	296	302	303	304	309	317	316	324	329	327	334	333	336	339	331	336	338	342	21
22																									22
23	213	216	217	218	218	218	220	223	224	224	227	231	231	236	238	236	239	240	239	239	234	237	237	239	23
24																									24
25																									25
26																									26
27	80	80	81	81	81	82	81	82	84	85	86	87	87	87	89	89	91	91	91	93	94	95	95	96	27
28	117	117	117	118	118	118	116	116	117	118	119	120	119	120	120	121	121	122	123	125	125	123	123	124	28
29	140	141	142	144	145	144	145	146	147	147	147	149	150	150	152	149	149	146	146	145	143	143	142	143	29
30	36	35	35	35	35	34	34	34	37	38	39	39	39	39	37	37	37	38	35	36	36	36	36	35	30
31																									31
32	205	209	212	214	216	213	213	215	214	214	213	216	215	216	213	212	211	204	204	200	196	195	194	192	32
33																									33
34																									34
35	278	285	291	295	300	304	310	315	319	327	331	338	352	365	368	369	379	385	400	402	406	413	418	421	35
36	226	237	257	275	273	277	282	277	279	275	281	282	283	282	294	310	319	323	325	328	333	324	322	314	36
37	94	87	85	89	89	89	90	90	89	90	89	89	88	87	88	89	90	91	91	92	93	94	94	95	37
38	210	221	244	265	261	265	270	261	263	256	262	260	260	257	270	289	299	304	305	308	312	299	297	285	38
39	84	75	73	77	76	76	77	77	76	76	75	74	73	72	72	73	74	75	75	76	76	77	77	77	39
40	204	215	240	262	257	261	265	256	257	249	256	253	252	249	262	283	293	298	298	301	306	291	288	275	40
41	82	73	71	75	74	74	75	75	74	74	73	72	71	69	70	71	72	73	73	73	74	74	75	75	41
42	235	244	260	274	274	277	283	278	282	279	285	286	287	288	298	310	319	323	324	327	332	325	325	319	42
43	114	107	106	111	111	111	113	113	113	114	113	114	113	113	114	115	118	119	119	120	121	122	123	123	43
44	227	238	257	275	273	277	282	277	279	275	281	282	282	282	293	309	318	323	324	328	333	324	322	314	44
45	95	87	85	90	89	89	90	91	90	90	89	89	88	87	88	89	91	92	92	93	94	94	95	95	45
46	249	261	270	278	279	283	290	291	293	298	302	305	307	312	320	324	329	332	334	337	341	344	342	342	46
47	269	277	301	309	311	309	316	308	307	310	314	320	325	331	336	340	345	347	350	353	355	358	362	366	47
48																									48
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
54																									54

SCHEDULE No. T-1

AUS TELEPHONE PLANT INDEX

NORTH ATLANTIC REGION 1973=100

LINE NO	PLANT IN SERVICE DESCRIPTION	FCC Acct	COST INDEX NUMBER																LINE NO
			2000		2001		2002		2003		2004		2005		2006		2007		
			Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	
1	Total Plant		182	185	188	190	191	193	194	197	201	206	210	213	227	244	244	249	1
2																			2
3																			3
4	Motor Vehicles	2112	275	269	276	266	270	263	264	257	268	266	272	261	262	258	264	257	4
5	Aircraft	2113	334	343	351	359	362	364	369	377	387	393	408	417	424	438	447	450	5
6	Special Purpose Vehicles	2114	388	392	392	392	392	398	400	404	404	413	428	445	449	462	465	472	6
7	Garage Work Equipment	2115	369	372	373	377	376	376	377	378	379	387	393	403	408	416	422	430	7
8	Other Work Equipment	2116	266	267	268	273	271	272	271	273	273	275	276	278	278	275	278	279	8
9																			9
10																			10
11	Buildings	2121	353	359	364	374	377	384	385	385	407	412	425	431	441	443	457	472	11
12	Furniture	2122	335	337	338	341	341	341	344	346	346	350	360	368	372	376	380	386	12
13	Office Equipment	2123	156	157	157	158	159	158	158	157	159	160	158	162	161	161	160	161	13
14	General Purpose Computer	2124	12	11	9	9	7	7	6	4.8	3.4	3.4	3.3	3.3	3.0	2.8	2.6	2.7	14
15																			15
16																			16
17	Analog Electronic Switching	2211	193	193	193	190	189	190	189	190	189	190	190	189	187	193	196	186	17
18	Digital Electronic Switching	2212	25	24	22	23	23	23	21	22	22	22	22	22	22	23	23	23	18
19																			19
20																			20
21	Electro Mechanical Switching	2215	344	348	350	358	366	376	379	386	391	395	403	405	414	421	430	432	21
22																			22
23	Operator Systems	2220	241	242	243	247	251	257	258	261	264	266	271	272	276	282	287	287	23
24																			24
25																			25
26																			26
27	Radio System—Analog	22311	96	96	96	95	95	95	95	95	95	96	95	95	94	97	98	94	27
28	Radio Systems—Digital	22312	125	125	126	127	128	127	125	125	125	126	127	127	128	129	130	130	28
29	Circuit Equipment—Analog	22321	143	144	144	142	143	143	143	144	143	145	145	145	144	148	150	144	29
30	Circuit Equipment—Digital	22322	36	36	36	37	37	38	38	39	38	38	39	39	39	40	40	41	30
31																			31
32	Public Telephone Term Eq	2351	193	193	193	191	190	190	190	191	190	191	190	189	187	193	195	186	32
33																			33
34																			34
35	Poles	2411	421	429	434	446	451	459	463	472	477	490	495	503	502	521	526	529	35
36	Aerial Cable—Metallic	24211	313	322	328	333	335	338	340	349	357	371	379	386	430	486	477	492	36
37	Aerial Cable—Fiber	24212	96	98	100	102	104	105	105	108	110	112	114	116	118	119	121	122	37
38	Underground Cable—Metallic	24221	281	289	295	299	298	299	299	307	314	326	334	340	394	461	448	466	38
39	Underground Cable—Fiber	24222	78	80	82	83	84	86	85	87	89	91	92	94	95	96	98	98	39
40	Buried Cable—Metallic	24231	271	278	284	287	285	289	286	293	300	312	320	326	383	456	441	460	40
41	Buried Cable—Fiber	24232	76	77	79	80	81	83	82	84	85	87	89	90	91	92	93	94	41
42	Submarine Cable—Metallic	24241	320	327	334	338	341	343	346	353	362	372	379	384	417	459	454	466	42
43	Submarine Cable—Fiber	24242	125	127	130	132	134	136	136	138	141	144	146	148	149	150	153	154	43
44	Intra Building Cable—Metallic	24261	313	322	328	333	335	338	340	349	357	370	378	385	429	483	474	489	44
45	Intra Building Cable—Fiber	24262	97	99	101	103	104	106	106	108	110	113	115	117	118	120	121	122	45
46	Aerial Wire	2431	348	355	362	368	372	377	381	391	399	412	419	427	446	466	465	472	46
47	Conduit Systems	2441	375	380	391	395	403	412	418	422	432	442	453	458	474	478	495	493	47
48																			48
49	Aerial Cable-FTTP (Distribution)	24213	0	0	0	0	0	0	0	0	0	100	97	95	92	89	88	87	49
50	Underground Cable-FTTP (Dist.)	24223	0	0	0	0	0	0	0	0	0	100	99	98	98	97	96	96	50
51	Buried Cable-FTTP (Distribution)	24233	0	0	0	0	0	0	0	0	0	100	102	105	104	103	103	102	51
52	Submarine Cable-FTTP (Dist.)	24243	0	0	0	0	0	0	0	0	0	100	99	98	98	97	96	96	52
53	Intra Building Cable-FTTP (Dist.)	24263	0	0	0	0	0	0	0	0	0	100	100	100	100	100	101	103	53
54																			54

AUS TELEPHONE INDEX BULLETIN NO. 59

AUS TELEPHONE PLANT INDEX
NORTH ATLANTIC REGION 1973=100

LINE NO	COST INDEX NUMBER																						LINE NO
	2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		
	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1	
1	251	256	245	248	258	260	279	282	282	282	285	283	284	285	289	287	283	282	288	290	298	304	305		1
2																									2
3																									3
4	263	257	272	273	274	269	272	273	280	279	286	282	291	287	291	295	299	298	305	301	307	304	309		4
5	461	471	495	480	485	490	497	502	514	520	523	528	532	537	541	543	543	547	548	553	557	562	567		5
6	476	485	499	504	503	503	507	518	529	541	548	555	557	564	566	570	572	576	577	581	583	578	602		6
7	435	445	457	457	456	458	462	474	479	485	489	494	497	503	505	509	510	513	514	519	522	533	541		7
8	281	286	290	286	286	288	288	290	291	294	295	296	304	307	309	315	318	322	322	324	327	330	330		8
9																									9
10																									10
11	492	497	506	494	506	507	521	518	530	532	542	539	550	552	585	580	586	589	604	608	633	647	661		11
12	389	402	417	415	418	420	415	429	433	437	433	437	439	450	449	454	454	455	457	461	464	482	491		12
13	162	171	184	171	169	169	170	171	173	173	164	165	166	166	171	172	172	172	173	171	171	169	170		13
14	2.7	2.6	2.6	2.1	2.01	1.98	1.97	1.49	0.82	0.66	0.67	0.50	0.57	0.60	0.55	0.63	0.64	0.65	0.73	0.71	0.67	0.67	0.64		14
15																									15
16																									16
17	180	179	178	178	177	177	174	175	174	174	174	175	176	176	176	176	177	177	177	179	177	179	178		17
18	24	24	25	25	25	25	25	25	26	26	26	27	27	27	27	28	28	28	28	29	29	29	29		18
19																									19
20																									20
21	439	445	456	458	460	469	474	481	486	478	484	491	497	495	499	499	496	497	502	502	509	506	513		21
22																									22
23	288	292	297	299	300	305	307	311	313	309	312	317	320	319	322	322	320	321	324	325	328	327	330		23
24																									24
25																									25
26																									26
27	91	90	90	90	89	89	88	89	88	88	88	88	89	89	89	89	89	89	89	90	90	90	90		27
28	131	132	134	134	135	137	138	138	137	138	138	138	138	138	139	140	140	140	140	141	141	142	143		28
29	140	139	139	139	138	138	137	138	137	137	137	138	139	139	140	140	141	141	141	142	142	143	143		29
30	41	41	41	41	40	40	40	41	41	42	42	42	43	43	44	44	44	45	45	45	46	46	47		30
31																									31
32	180	179	177	178	177	177	174	175	173	174	173	174	175	175	176	176	177	177	177	179	177	179	178		32
33																									33
34																									34
35	537	547	554	563	570	578	576	587	594	600	603	607	605	616	620	621	629	633	634	652	643	652	658		35
36	494	507	461	473	506	509	573	582	577	576	582	572	573	573	578	570	555	551	566	568	590	604	604		36
37	123	124	126	127	128	130	131	133	135	136	137	138	140	142	143	144	146	148	149	151	153	155	157		37
38	465	481	421	435	475	476	555	562	554	552	556	544	542	540	544	533	513	506	523	524	548	563	560		38
39	100	100	102	103	103	105	106	108	109	110	111	112	113	114	116	116	118	119	120	122	123	125	127		39
40	459	475	410	425	467	467	553	560	550	547	552	538	536	533	537	524	501	493	511	511	537	552	548		40
41	95	96	97	98	99	100	101	103	104	105	106	107	108	109	111	111	113	114	115	116	118	120	121		41
42	468	479	447	458	484	486	535	541	539	540	545	539	541	542	547	544	534	532	546	548	566	578	580		42
43	155	157	159	161	163	164	166	168	170	172	173	174	177	179	181	183	185	187	189	191	194	196	199		43
44	491	504	459	471	504	507	570	578	573	573	578	569	569	570	575	567	553	549	564	566	588	602	602		44
45	124	125	127	128	129	131	132	134	135	137	138	139	141	142	144	145	147	148	150	152	154	156	158		45
46	475	488	469	478	496	501	519	528	525	527	531	530	533	538	543	543	540	541	551	556	569	580	585		46
47	502	507	525	530	516	521	526	532	545	550	549	552	559	565	571	577	581	586	591	596	611	618	626		47
48																									48
49	82	77	75	73	65	58	55	53	52	50	50	50	50	50	50	49	50	49	49	50	50	51	51		49
50	94	92	89	87	83	80	75	70	66	62	58	54	54	54	53	53	54	54	54	53	52	53	53		50
51	92	82	78	74	71	68	66	63	61	59	57	54	54	55	54	54	54	53	53	54	54	55	55		51
52	94	92	89	87	83	80	75	70	66	62	58	54	54	54	53	53	54	54	54	53	52	53	53		52
53	104	105	90	75	68	61	54	47	43	39	39	39	39	39	38	38	39	44	43	43	43	43	43		53
54																									54

AUS TELEPHONE INDEX BULLETIN NO. 59

Township of East Norriton
Utility Valuation Experts' (UVE) Valuation of
East Norriton Wastewater Collection System
Montgomery County, Pennsylvania

Appraisal Work Papers
As of October 29, 2018

Cost Approach
United States Bureau of Labor Statistics Cost Indices
General Inflation Indices
Communications Equipment Indices

Professional Labor Indices

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

AUS Consultants
Bureau of Labor Statistics Indexes

Index	Table	Region	Year	Begin Date	End Date	CPI	1	2 Communic Equipment pcu3342	3 Technical Labor ecu11122I linked CIU20154
Earliest Year							1913	1986	1985
Index	Table	Region					1	2	3
BLS	BLS	All	1913	1/1/1913	12/31/1913		10	7	6
BLS	BLS	All	1914	1/1/1914	12/31/1914		10	7	6
BLS	BLS	All	1915	1/1/1915	12/31/1915		10	7	6
BLS	BLS	All	1916	1/1/1916	12/31/1916		11	8	7
BLS	BLS	All	1917	1/1/1917	12/31/1917		13	10	8
BLS	BLS	All	1918	1/1/1918	12/31/1918		15	11	9
BLS	BLS	All	1919	1/1/1919	12/31/1919		17	12	10
BLS	BLS	All	1920	1/1/1920	12/31/1920		20	14	12
BLS	BLS	All	1921	1/1/1921	12/31/1921		18	13	11
BLS	BLS	All	1922	1/1/1922	12/31/1922		17	12	10
BLS	BLS	All	1923	1/1/1923	12/31/1923		17	12	10
BLS	BLS	All	1924	1/1/1924	12/31/1924		17	12	10
BLS	BLS	All	1925	1/1/1925	12/31/1925		18	13	11
BLS	BLS	All	1926	1/1/1926	12/31/1926		18	13	11
BLS	BLS	All	1927	1/1/1927	12/31/1927		17	12	10
BLS	BLS	All	1928	1/1/1928	12/31/1928		17	12	10
BLS	BLS	All	1929	1/1/1929	12/31/1929		17	12	10
BLS	BLS	All	1930	1/1/1930	12/31/1930		17	12	10
BLS	BLS	All	1931	1/1/1931	12/31/1931		15	11	9
BLS	BLS	All	1932	1/1/1932	12/31/1932		14	10	8
BLS	BLS	All	1933	1/1/1933	12/31/1933		13	9	7
BLS	BLS	All	1934	1/1/1934	12/31/1934		13	9	7
BLS	BLS	All	1935	1/1/1935	12/31/1935		14	10	7
BLS	BLS	All	1936	1/1/1936	12/31/1936		14	10	7
BLS	BLS	All	1937	1/1/1937	12/31/1937		14	10	7
BLS	BLS	All	1938	1/1/1938	12/31/1938		14	10	7
BLS	BLS	All	1939	1/1/1939	12/31/1939		14	10	7
BLS	BLS	All	1940	1/1/1940	12/31/1940		14	10	7
BLS	BLS	All	1941	1/1/1941	12/31/1941		15	11	8
BLS	BLS	All	1942	1/1/1942	12/31/1942		16	12	9
BLS	BLS	All	1943	1/1/1943	12/31/1943		17	13	10
BLS	BLS	All	1944	1/1/1944	12/31/1944		18	14	11
BLS	BLS	All	1945	1/1/1945	12/31/1945		18	14	11
BLS	BLS	All	1946	1/1/1946	12/31/1946		20	16	12
BLS	BLS	All	1947	1/1/1947	12/31/1947		22	18	13
BLS	BLS	All	1948	1/1/1948	12/31/1948		24	20	14
BLS	BLS	All	1949	1/1/1949	12/31/1949		24	20	14
BLS	BLS	All	1950	1/1/1950	12/31/1950		24	20	14
BLS	BLS	All	1951	1/1/1951	12/31/1951		26	22	15

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Index	Table	Region	Year	Begin Date	End Date	CPI	1	2 Communic Equipment pcu3342	3 Technical Labor ecu11122I linked CIU20154
Earliest Year							1913	1986	1985
Index	Table	Region					1	2	3
BLS	BLS	All	1952	1/1/1952	12/31/1952		27	23	16
BLS	BLS	All	1953	1/1/1953	12/31/1953		27	23	16
BLS	BLS	All	1954	1/1/1954	12/31/1954		27	23	16
BLS	BLS	All	1955	1/1/1955	12/31/1955		27	23	16
BLS	BLS	All	1956	1/1/1956	12/31/1956		27	23	16
BLS	BLS	All	1957	1/1/1957	12/31/1957		28	24	17
BLS	BLS	All	1958	1/1/1958	12/31/1958		29	25	18
BLS	BLS	All	1959	1/1/1959	12/31/1959		29	25	18
BLS	BLS	All	1960	1/1/1960	12/31/1960		30	26	19
BLS	BLS	All	1961	1/1/1961	12/31/1961		30	26	19
BLS	BLS	All	1962	1/1/1962	12/31/1962		30	26	19
BLS	BLS	All	1963	1/1/1963	12/31/1963		31	27	20
BLS	BLS	All	1964	1/1/1964	12/31/1964		31	27	20
BLS	BLS	All	1965	1/1/1965	12/31/1965		32	28	21
BLS	BLS	All	1966	1/1/1966	12/31/1966		32	28	21
BLS	BLS	All	1967	1/1/1967	12/31/1967		33	29	22
BLS	BLS	All	1968	1/1/1968	12/31/1968		35	31	23
BLS	BLS	All	1969	1/1/1969	12/31/1969		37	33	24
BLS	BLS	All	1970	1/1/1970	12/31/1970		39	35	25
BLS	BLS	All	1971	1/1/1971	12/31/1971		41	37	26
BLS	BLS	All	1972	1/1/1972	12/31/1972		42	38	27
BLS	BLS	All	1973	1/1/1973	12/31/1973		44	40	28
BLS	BLS	All	1974	1/1/1974	12/31/1974		49	44	31
BLS	BLS	All	1975	1/1/1975	12/31/1975		54	49	34
BLS	BLS	All	1976	1/1/1976	12/31/1976		57	52	36
BLS	BLS	All	1977	1/1/1977	12/31/1977		61	56	38
BLS	BLS	All	1978	1/1/1978	12/31/1978		65	60	40
BLS	BLS	All	1979	1/1/1979	12/31/1979		73	67	45
BLS	BLS	All	1980	1/1/1980	12/31/1980		82	75	50
BLS	BLS	All	1981	1/1/1981	12/31/1981		91	83	55
BLS	BLS	All	1982	1/1/1982	12/31/1982		97	89	59
BLS	BLS	All	1983	1/1/1983	12/31/1983		100	92	61
BLS	BLS	All	1984	1/1/1984	12/31/1984		104	96	63
BLS	BLS	All	1985	1/1/1985	12/31/1985		108	100	65
BLS	BLS	All	1986	1/1/1986	12/31/1986		110	102	66
BLS	BLS	All	1987	1/1/1987	12/31/1987		114	104	69
BLS	BLS	All	1988	1/1/1988	12/31/1988		118	104	72
BLS	BLS	All	1989	1/1/1989	12/31/1989		124	106	76
BLS	BLS	All	1990	1/1/1990	12/31/1990		131	108	80

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Index	Table	Region	Year	Begin Date	End Date	CPI	1	2 Communic Equipment pcu3342	3 Technical Labor ecu11122I linked CIU20154
Earliest Year							1913	1986	1985
Index	Table	Region					1	2	3
BLS	BLS	All	1991	1/1/1991	12/31/1991		136	109	84
BLS	BLS	All	1992	1/1/1992	12/31/1992		140	110	88
BLS	BLS	All	1993	1/1/1993	12/31/1993		145	112	92
BLS	BLS	All	1994	1/1/1994	12/31/1994		148	113	95
BLS	BLS	All	1995	1/1/1995	12/31/1995		152	114	97
BLS	BLS	All	1996	1/1/1996	12/31/1996		157	115	100
BLS	BLS	All	1997	1/1/1997	12/31/1997		161	116	102
BLS	BLS	All	1998	1/1/1998	12/31/1998		163	115	106
BLS	BLS	All	1999	1/1/1999	12/31/1999		167	113	109
BLS	BLS	All	2000	1/1/2000	12/31/2000		172	110	114
BLS	BLS	All	2001	1/1/2001	12/31/2001		177	109	119
BLS	BLS	All	2002	1/1/2002	12/31/2002		180	105	123
BLS	BLS	All	2003	1/1/2003	12/31/2003		184	102	127
BLS	BLS	All	2004	1/1/2004	12/31/2004		189	98	132
BLS	BLS	All	2005	1/1/2005	12/31/2005		195	97	135
BLS	BLS	All	2006	1/1/2006	12/31/2006		202	97	139
BLS	BLS	All	2007	1/1/2007	12/31/2007		207	96	146
BLS	BLS	All	2008	1/1/2008	12/31/2008		215	97	152
BLS	BLS	All	2009	1/1/2009	12/31/2009		215	97	155
BLS	BLS	All	2010	1/1/2010	12/31/2010		218	97	157
BLS	BLS	All	2011	1/1/2011	12/31/2011		225	96	161
BLS	BLS	All	2012	1/1/2012	12/31/2012		230	96	164
BLS	BLS	All	2013	1/1/2013	12/31/2013		233	95	167
BLS	BLS	All	2014	1/1/2014	12/31/2014		237	96	170
BLS	BLS	All	2015	1/1/2015	12/31/2015		237	96	173
BLS	BLS	All	2016	1/1/2016	12/31/2016		240	95	176
BLS	BLS	All	2017	1/1/2017	12/31/2017		245	94	179
BLS	BLS	All	2018	1/1/2018	12/31/2018		251	94	183
BLS	BLS	All	2019	1/1/2019	12/31/2019		251	93	184