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EXHIBIT Q

FAIR MARKET VALUE APPRAISAL  
GANNETT FLEMING VALUATION AND  
RATE CONSULTANTS, INC.

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EAST NORRITON TOWNSHIP  
WASTEWATER SYSTEM ASSETS

FAIR MARKET VALUE APPRAISAL

AT

FEBRUARY 28, 2019

Prepared by:

GANNETT FLEMING  
VALUATION AND RATE CONSULTANTS, LLC



Valley Forge, Pennsylvania



*Excellence Delivered **As Promised***

June 20, 2019

VIA EMAIL

Mr. William C. Packer  
Regional Controller  
Aqua Pennsylvania, Inc.  
762 W. Lancaster Ave  
Bryn Mawr, PA 19010

**Re: Fair Market Value Appraisal**

Dear Mr. Packer:

In accordance with your request, we have prepared a fair market value appraisal of East Norriton Township's sanitary wastewater collection system assets ("Wastewater System") as of February 28, 2019.

Fair market value is defined as "the price, expressed in terms of cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical willing and able seller, acting at arm's length in an open and unrestricted market, when neither is under compulsion to buy or sell and when both have reasonable knowledge of the relevant facts."

Based on our analysis, as described in the attached appraisal report, the estimate of the fair market value of the Wastewater System as of February 28, 2019 is \$24,284,000 (rounded).

Our appraisal was developed consistent with the Uniform Standards of Professional Appraisal Practices. Our fair market value appraisal of the Wastewater System was based on the Cost, Market and Income Approaches to valuation. We used seven methods under the Cost, Market and Income Approaches to valuation: Original Cost Method, Reproduction Cost Method, Capitalization of Earnings Method, Market Multiple Discounted Cash Flow Method, Capitalization Discounted Cash Flow Method, Market Multiples Method, and the Selected Transactions Method.

The attached narrative appraisal presents our findings and conclusions regarding the fair market value of the Wastewater System's assets of February 28, 2019. The report describes the valuation methodologies employed and the Exhibits that present the valuation results.

**Gannett Fleming Valuation and Rate Consultants, LLC**

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Mr. William C. Packer  
Bryn Mawr, PA 19010

June 20, 2019

The results of the analyses and calculations completed for each applicable approach are detailed throughout the report and the Exhibits and are summarized as follows:

<u>Valuation Approach</u>	<u>Indicated Value</u>
Cost Approach	\$33,467,936
Income Approach	10,383,787
Market Approach	24,368,094

We thank Aqua for this opportunity to provide valuation services in connection with the fair market value appraisal of the Wastewater System's assets.

Respectfully Submitted,

GANNETT FLEMING VALUATION  
AND RATE CONSULTANTS, LLC



HAROLD WALKER, III  
Manager, Financial Studies

HW:amp

## TABLE OF CONTENTS

INTRODUCTION .....	1
Introduction and Summary .....	1
Description of the Assignment.....	1
Standard and Premise of Value.....	1
Intended Use of the Valuation .....	2
Client and Users.....	2
Extraordinary Assumptions .....	2
Hypothetical Conditions .....	2
Limiting Conditions .....	2
Site Inspection.....	3
Sources of Information .....	3
Description of the East Norriton Township.....	4
Description of the Wastewater System.....	4
Demographics and Growth for the Wastewater System.....	6
HISTORY AND NATURE OF THE BUSINESS.....	7
Economic Outlook .....	7
Industry Review .....	8
QUANTITATIVE AND QUALITATIVE ANALYSIS .....	11
Comparison Review.....	11
Financial Review .....	13
Financial Benchmark Analysis .....	13
Risk Analysis .....	14
Property Plant & Equipment Analysis.....	17
Property Plant & Equipment Analysis for Contributions.....	17
Capital Expenditures Analysis.....	18
Growth Rate Analyses .....	18
Profit Margin Analyses.....	18
VALUATION.....	19
The Cost Approach .....	19
The Original Cost Method .....	22
The Reproduction Cost Method.....	23
Benchmark Metrics.....	24
The Income Approach.....	26
The Capitalization of Earnings Method.....	29
The DCF Method .....	31
The Market Approach.....	32
The Market Multiples Method.....	32
The Selected Transactions Method.....	36
Conclusion .....	39
COMPLIANCE & APPRAISAL CERTIFICATION .....	41
APPENDIX A - QUALIFICATIONS .....	42
EXHIBITS .....	47

## INTRODUCTION

Introduction and Summary. The following narrative report present our findings and conclusions regarding the fair market value of the wastewater system assets of East Norriton Township as of February 28, 2019. The report describes the valuation methodologies employed and the Exhibits that present the valuation results. Based upon the analyses, we believe the fair market value of the wastewater system assets of East Norriton Township is \$24.3 million. This conclusion is based upon the values suggested by the Cost, Income and Market approaches. During our analysis we found indications of value that ranged from \$10.4 million to \$33.5 million. However, most of the appropriate indicated values approximated \$24.3 million.

Description of the Assignment. Gannett Fleming Valuation and Rate Consultants, LLC was retained by Aqua Pennsylvania Wastewater, Inc. (“Aqua”) to estimate the fair market value of East Norriton Township’s wastewater system assets (“Wastewater System”) as of February 28, 2019.

Standard and Premise of Value. The fair market value appraisal of the Wastewater System complies with the Uniform Standards of Professional Appraisal Practices, employing the cost, market and income approaches. Fair market value is defined as “the price, expressed in terms of cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical willing and able seller, acting at arm’s length in an open and unrestricted market, when neither is under compulsion to buy or sell and when both have reasonable knowledge of the relevant facts.”<sup>1</sup>

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<sup>1</sup> The International Glossary of Business Valuation Standards

As stated, the standard of value for this engagement is fair market value. The premise of value is going concern. The going concern premise of business value assumes that the business will continue running normally using all of its assets to produce income and will continue operating beyond the valuation date.

We valued the Wastewater System's assets as a group under the premise that the assets collectively comprise an ongoing operating business enterprise. Additionally, in accordance with 66 Pa. C.S. Section 1329 the original source of funding for any part of the Wastewater System's assets was not relevant to the determination of the value of said assets.

Intended Use of the Valuation. The intended use of the valuation is to comply with 66 Pa. C.S. Section 1329, Valuation of Acquired Water and Sewer System and conduct a fair market value appraisal of the Wastewater System in compliance with the Uniform Standards of Professional Appraisal Practices, employing the cost, market and income approaches.

Client and Users. The client is Aqua Pennsylvania Wastewater, Inc. The intended users of the valuation are Aqua Pennsylvania Wastewater, Inc. and the Pennsylvania Public Utility Commission.

Extraordinary Assumptions. There were no extraordinary assumptions required for this appraisal.

Hypothetical Conditions. There were no hypothetical conditions assumed for this appraisal.

Limiting Conditions. We accepted all information and data provided by East Norriton Township and/or Aqua as it pertains to this assignment "as is" after a limited review. That is, we neither audited nor verified any data, engineering assessment, financial record or operating data provided for this assignment. We assumed all title to all assets included in the appraisal is good

and marketable, no hidden defects in the property or soil and no hazardous conditions or materials exist which could affect the assets.

Site Inspection. We viewed or observed the Wastewater System's facilities on May 1, 2019. We also relied on engineering assessment of the Wastewater System's facilities report, "East Norriton Township Sewage Facilities Assessment February 2019 (Rev. May 2019)" and related files prepared by Carroll Engineering Corporation, to confirm the condition of the Wastewater System's property and equipment.

Sources of Information. The following sources of information were reviewed during the assignment:

Engineer's assessment report "East Norriton Township Sewage Facilities Assessment February 2019 (Rev. May 2019)" and related files prepared by Carroll Engineering Corporation;

Township/Aqua provided electronic files (PDF and Excel);

Wastewater System's Customer data;

East Norriton Township Fee Schedule;

East Norriton-Plymouth-Whitpain Joint Sewer Authority's Chapter 94 Report;

East Norriton Township's Act 537 Plan;

Asset Purchase Agreement;

East Norriton Township's Audited Financials (2014-2017);

East Norriton Township's Budgets for Wastewater System (2018-2019);

Blue Chip Financial Forecasts;

US Census Bureau, various data files;

Value Line Investment Survey; and

S&P Research Insight.



Description of the East Norriton Township. The East Norriton Township (“Township”) is located in the southern tier of Montgomery County, Pennsylvania. The Township has the 34th largest land mass of Montgomery County’s 62 municipalities and was the 25th most populous with 14,082 people (2015) and 6,098 housing units (2015). The Township consists of 6.1 square miles and lies approximately 20 miles northwest of Philadelphia, Pennsylvania. The Township is bordered by Lower Providence, Plymouth, West Norriton, Whitpain and Worcester Townships and the municipality of Norristown, all located in Montgomery County, Pennsylvania.

According to U.S. Census figures, Township population grew 2.9% from 2000 to 2010, while population in Pennsylvania grew 3.4% and 6.6% in Montgomery County.

Description of the Wastewater System. The Township owns and operates the Wastewater System which consists of approximately 59 miles of gravity sewer collection mains and interceptors, nine pump stations, about four miles of force mains, associated infrastructure and appurtenances, and related land and land rights. The majority of the Wastewater System was constructed under two phases in the 1960s and 1970s. The remainder of the Wastewater System was built over the intervening years mostly as new developments were built in the Township. Currently, the Wastewater System provides service to 4,966 customers.

The Wastewater System is a collection system which conveys their raw sewage to the East Norriton-Plymouth-Whitpain Joint Sewer Authority for sewer treatment services under intermunicipal agreements. The Township is a member of the East Norriton-Plymouth-Whitpain Joint Sewer Authority as are Plymouth and Whitpain Townships.

The Township utilizes one enterprise fund, the Sewer Fund, to account for the Wastewater System’s operations. Exhibit 1 summarizes selected financial information from the Township’s annual reports and annual budget statements. For the year ended December 31, 2017, (Exhibit

1) the Wastewater System had operating revenues of \$3.206 million. At year end December 31, 2017 the Wastewater System was capitalized with \$3.406 million of fund equity and the Township's long-term debt attributable to the Wastewater System, of \$0.649 million, was not reported for the Sewer Fund. At the same point in time, the Wastewater System had total assets of \$3.549 million, including \$1.436 total net utility plant. As stated previously, the Township's audited financial statements did not report debt for the Wastewater System and therefore we relied on debt related information presented in the Township's annual budgets.

The Wastewater System is exempt from Pennsylvania Public Utility Commission ("PUC") regulation as a municipal utility. The Wastewater System's rate requirements are established by the needed funds to run the system. Most municipalities, including Wastewater System, use a Government Accounting Standards Board ("GASB") process of accounting or the PA Department of Community and Economic Development ("DCED") versus Financial Accounting Standards Board ("FASB") method of accounting used by investor owned utilities ("IOU"). Municipalities are not typically concerned with the return on and the return of their investments of their utility systems since they deem they are providing a public service to their tax payers. Municipalities typically expense (i.e., maintenance expense) minor collection, renewals replacement, and customer collection services capital expenditures and they do not typically fully account for the replacement of all capital assets which are all typically capitalized (i.e., construction of capital asset, construction expenditure, etc.) and "booked" at original cost by IOUs. For these reasons, we do not believe Wastewater System's financial statements should be fully relied upon without recognizing their limitations.

As shown on Exhibit 2, the Wastewater System provides service to 4,966 customers. The Wastewater System's business does not require large amounts of working capital. The

Wastewater System is not dependent on industrial customers.

Demographics and Growth for the Wastewater System. As shown on Exhibit 3, Table 3.1, according to U.S. Census figures, the U.S. population grew 9.7% from 2000 to 2010, and the population in Pennsylvania grew 3.4%. During this same period, Montgomery County's population grew 6.6% and the Township's population grew 2.9% (Exhibit 3, Table 3.2). The Township's population growth was ranked 994 of the 2,572 municipalities in Pennsylvania.

The Census Bureau and planning agencies provide population projections for future time periods. Population projections are a primary indicator of expected future growth, and they help determine predictable demand for utility services, housing, roads, business services and facilities. The Delaware Valley Regional Planning Commission ("DVRPC") publishes population projections and employment projections for the Township and the nine Delaware Valley counties ("Nine DVRPC Counties"). The DVRPC counties include Bucks County, Chester County, Delaware County, Montgomery County and Philadelphia County, in Pennsylvania, and Burlington County, Camden County, Gloucester County, and Mercer County, in New Jersey.

As shown on Page 2 of Exhibit 3, Table 3.3, Township's population growth is projected to be about 60% the growth rate projected for the Nine DVRPC Counties during each five-year period from 2015 through 2045. The Township's project population growth places them in the lower 35 percent or 35th percentile of the 369 municipalities analyzed by DVRPC. Conversely, page 2 of Exhibit 3, Table 3.4 shows Township's employment growth is projected to be about 20% more than the growth rate projected for the Nine DVRPC Counties during each five-year period from 2015 through 2045.

Currently, there are approximately 14,296 people (Exhibit 2) in the Waste System's service area. There are 6,149 household units in the Waste System's service area, and the ratio of people

in households to households is 2.32 persons per household. The Wastewater System's service area density is 2.9 people per customer based on an estimated population of 14,296 and 4,966 customers. The Wastewater System's service area density is lower than the 3.7 per customer density of water and wastewater systems (see Table 2 in this report) indicating higher market penetration.

## HISTORY AND NATURE OF THE BUSINESS

Economic Outlook. In the valuation of any company, the general economic outlook as of the valuation date is important since it influences how investors perceive alternative investment opportunities at that point in time. As part of our analysis, we considered the forecasts for the U.S. economy that prevailed as of February 28, 2019. In particular, we focused on the forecasts and economic commentary presented in Blue Chip Financial Forecasts in the February 1, 2019 edition. Some of these economic forecasts are presented in Table 1.

<u>Economic Indicators</u>			
	<u>Latest Qtr</u>	<u>Consensus Forecasts</u>	
	<u>4Q 2018</u>	<u>1Q 2019</u>	<u>2Q 2019</u>
<u>Key Assumptions</u>			
Real GDP	2.6	2.1	2.5
GDP Price Index	2.0	1.9	2.3
Consumer Price Index	1.8	1.6	2.2
<u>Interest Rates</u>			
3-mo. Treasury Bills	2.36	2.5	2.5
10 Year Notes	3.03	2.9	3.0
30 Year Notes	3.27	3.1	3.2
Aaa Corporate Bond Yield	4.28	4.1	4.2
Baa Corporate Bond Yield	5.09	5.1	5.3
State & Local Bonds	3.81	3.9	4.0
Home Mortgage Rate	4.78	4.6	4.8

**Table 1**

Industry Review. A review of the industry in which the company operates is important in determining value. The trends and stability of the specific economic environment affecting operations need to be reviewed to gain further insight regarding the prospects and risks associated with the industry and each company.

The wastewater utility industry has a Standard Industrial Classification ("SIC") code of 4952 (Sewerage Systems), has sewer utilities, and includes establishments primarily engaged in the collection and disposal of wastes conducted through a sewer system, including such treatment processes as may be provided. There are currently 1,861 U.S. Businesses with an SIC code of 4952.

The wastewater utility industry is a fragmented industry, although not as fragmented as the water supply industry. According to the U.S. Environmental Protection Agency's ("EPA") most recent survey of publicly-owned wastewater treatment facilities in 2012, there are approximately 15,000 such facilities in the nation, serving approximately 76% of the U.S. population. Eighty percent of domestic wastewater systems are government owned rather than IOUs. Currently, there are no wastewater utility companies that have actively traded stock.

A comparative industry to the wastewater utility industry is the water supply industry. The water supply industry has a SIC code of 4941 (Water Supply), has water utilities, and includes establishments primarily engaged in distributing water for sale for residential, commercial, and industrial uses. Government controlled establishments such as municipal service districts and public utilities dominate the industry. Private companies or IOUs are active in the construction and improvement of water supply facilities and infrastructure. There are currently 9,538 U.S. Businesses with an SIC code of 4941.

The water supply industry is the most fragmented of the major utility industries with more than 53,000 community water systems in the U.S. (82% of which serve less than 3,300 customers). The nation's water systems range in size from large municipally owned systems, such as the New York City water system that serves approximately 9 million people, to small systems, where a few customers share a common well.

An estimated 14% of all water supplies are managed or owned by IOUs. IOUs consist of companies with common stock that is either actively traded or inactively traded, as well as companies that are closely held, or not publicly traded. Currently (February 28, 2019), there are only about 10 investor owned water utility companies with publicly traded stock in the U.S.

The wastewater utility industry and water utility industry's increased compliance with state

and federal water purity levels and large infrastructure replacements are driving consolidation of the wastewater utility and water utility industries. Because many wastewater utility and water utility operations do not have the means to finance the significant capital expenditures needed to comply with these requirements, many have been selling their operations to larger, financially stronger operations.

The larger IOUs have been following an aggressive acquisition program to expand their operations by acquiring smaller wastewater and water systems. Generally, they enter a new market by acquiring one or several wastewater or water utilities. After their initial entry into a new market, the larger investor-owned water utility companies continually seek to expand their market share and services through the acquisition of wastewater and water utility businesses and operations that can be integrated with their existing operations. Such acquisitions may allow a company to expand market share and increase asset utilization by eliminating duplicate management, administrative, and operational functions.

Acquisitions of small, independent utilities can often add earning assets without necessarily incurring the costs associated with the SDWA if such acquisitions are contiguous to the potential purchaser.

In summary, the result of increased capital spending, to meet the SDWA requirements<sup>2</sup> and the replace the aging infrastructure of many systems, has moved the wastewater and water industries toward consolidation. Moreover, Federal and State regulations and controls

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<sup>2</sup> The SDWA, or Safe Drinking Water Act, is the principal federal law in the United States intended to ensure safe drinking water for the public. Pursuant to the act, the EPA is required to set standards for drinking water quality and oversee all states, localities, and water suppliers who implement these standards. The CWA, or Clean Water Act, is the primary federal law in the United States governing water pollution. The CWA's objective is to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands.

concerning water quality are still in the process of being developed and it is not possible to predict the scope or the enforceability of regulations or standards which may be established in the future, or the cost and effect of existing and potential regulations and legislation upon the sewer and water systems. However, as a medium to small sewer system, the Wastewater System faces the cost of compliance with significantly limited financial resources when compared to larger IOU water utilities.

## QUANTITATIVE AND QUALITATIVE ANALYSIS

Comparison Review. The comparison review considers the financial and operating statistics for the Wastewater System, and a group of companies (“Comparable Group”) that operate in the same basic or similar industry as the Wastewater System. Since no marketplace exists for the common stock of the Wastewater System, an alternative to estimate the value of the Wastewater System is to analyze the price investors are willing to pay for the publicly traded common stock of companies that are similar to the Wastewater System. We list the Comparable Group chosen for study in Table 2.

The Comparable Group were selected based upon: (1) the availability of financial information; (2) a February 28, 2019 market value of common stock, the product of multiplying the closing stock price by the number of common shares outstanding, greater than \$75.0 million; (3) inclusion in the Standard and Poor's Research Insight database; (4) were not the subject of a known acquisition at February 28, 2019; and (5) with a Global Industry Classification Standard (“GICS”) of 55104010 (i.e., Water Utility). The eight companies (“Comparable Group”) that met the criteria for selection are listed in Table 2.



<u>Acquisition Date Size Statistics</u>				
	<u>Revenues</u> (Mill. \$)	<u>Customers</u>	<u>Population</u>	<u>Customer Density</u>
East Norriton Township Wastewater System Assets	<u>\$3.320</u>	<u>4,966</u>	<u>14,296</u>	<u>2.9</u>
<u>Comparable Group</u>				
American States Water Co	\$440.603	283,223	1,000,000	3.5
American Water Works Co Inc	3,357.000	3,353,000	15,000,000	4.5
Aqua America Inc	809.525	982,949	3,000,000	3.1
Artesian Resources -CL A	82.235	86,500	290,000	3.4
California Water Service Gp	666.890	514,300	2,000,000	3.9
Middlesex Water Co	130.775	114,920	412,000	3.6
SJW Corp	389.225	244,133	1,100,200	4.5
York Water Co	<u>48.589</u>	<u>69,604</u>	<u>198,000</u>	<u>2.8</u>
Median	<u>\$414.914</u>	<u>263,678</u>	<u>1,050,100</u>	<u>3.7</u>

**Table 2**

We believe that similar economic, industry and business risks have affected the Comparable Group as those faced by the Wastewater System. However, consideration must be given to the fact that no two companies are exactly alike. Table 2 presents comparative statistics regarding total revenues, customers, population of the area served, and customer density (population ÷ customers). On average, the Comparable Group are much larger than the Wastewater System. The relative size difference between the group and the Wastewater System suggests that the risk of the Wastewater System is greater than the Comparable Group. We will discuss the difference in risk resulting from size later in this report.

Financial Review. We conducted a financial review that considered the financial and operating statistics for the Wastewater System and the Comparable Group for the three-year period, 2015 to 2017. It is our opinion that the economic, industry and business risks affecting the Comparable Group selected are similar to those faced by the Wastewater System. However, consideration must be given to the fact that no two companies are exactly alike.

The determination of reasonable water rates and sewer rates for the Comparable Group is subject to rate regulation. For the Comparable Group, rate regulation serves as a substitute for competition in the marketplace since utility companies are precluded from exercising complete control over the price to be charged their customers. Under rate regulation, a cost of service formula is used to set the price for service charged to customers. The cost of service formula equates revenues to the sum of annual operating expenses, taxes other than income, depreciation expense, income taxes, and the product of the rate base times a fair rate of return.

It is the responsibility of the utility seeking changes in rates to present sufficient evidence to their regulators in support of their request. Historically, the Wastewater System's rates have not considered a fair rate of return nor taxes. That is, the Wastewater System's rates would have been higher and their financial results would have been healthier if they included a provision for a fair rate of return and taxes. Therefore, the results of the Wastewater System's historical financial performance shown on Exhibits 4 and 6 should be viewed with this knowledge.

Financial Benchmark Analysis. To gain insight into the risk differences between the Wastewater System and the Comparable Group, we reviewed financial ratios and coverages. Unfortunately, there is no single measure that best indicates investment risk from a common stockholder's perspective. However, from a creditor's viewpoint, the best measure of investment risk is debt rating. The debt rating process generally provides a good measure of investment risk

for common stockholders because the factors considered in the debt rating process are usually relevant factors that a common stock investor would consider in assessing the risk of an investment.

The types of financial benchmarks applied by credit rating agencies such as Standard and Poor's ("S&P") for rating IOU public utility debt are broader than the traditional measure of financial risk, leverage. Besides reviewing the amounts of leverage employed (i.e., percentage of debt used in the capital structure), S&P also focuses on earnings protection and cash flow adequacy. During the period 2015-2017, the Wastewater System's financial benchmark ratios show (Exhibit 4) lower investment risk than the Comparable Group based on coverage and cash flow.

Risk Analysis. From an operations standpoint, the Wastewater System and the Comparable Group are indistinguishable. Both are required to meet SDWA and CWA requirements and are also required to provide safe and reliable services to their customers.

A basic premise of finance is the tradeoff between risk and return. That is, the higher the perceived risk, the higher the required return. Conversely, the lower the perceived risk, the lower the required return.

As mentioned previously, size is a determinant of risk. Based on size, the Wastewater System's risk is higher than the Comparable Group given Wastewater System's relatively small size. Table 2 details the large size difference between the Wastewater System and the Comparable Group. As shown on Table 2, the Wastewater System is many times smaller than the Comparable Group.

Size is a determinant of risk because the loss of a large customer impacts a small company much more than a large company because a large customer of a small company usually accounts

for a larger percentage of the small company's sales. Further, a larger company has much more diversification in customer mix, economic conditions, source of supplies, weather, demographic, and financing than the Wastewater System. Because the larger Comparable Group has a more diverse geographic operation than the Wastewater System, it enables them to sustain earnings fluctuations caused by adverse weather conditions in one portion of its service territory. Further, the larger Comparable Group has a more diverse customer base and is less susceptible to local downturns associated with regional economic conditions than the Wastewater System.

Exhibit 5, Table 5.1, provides an illustration which shows company size has been inversely related to returns and the volatility of their common stock. Specifically, Ibbotson Associates sorted 3,221 publicly traded common stocks based on size of market value (market price multiples by the number of shares) and placed them into four different portfolios (quartiles). The common stock quartile return and the resultant size premium, column B, increased at an increasing rate as you move from a larger stock quartile to a smaller stock quartile. Similarly, the total risk, or standard deviation of annual returns (a measure of risk), also increased with decreasing company size (column C).

The Comparable Group's market value on February 28, 2019 ranged from \$362 million to \$18,368 million as shown on Table 5.2 of Exhibit 5. Based on their market value, the Comparable Group's median market quartile was 3. Wastewater System's market value would place them in quartile 4 based upon Wastewater System's financial statements and since the largest company in quartile 4 had a market value of \$569 million.

The change in risk adjusted common stock return rate between quartile 3 and quartile 4 (column J) is 96 basis points. The results of the illustration shown on Exhibit 5 suggests the Wastewater System's common equity cost rate could be about 96 basis points higher than the

Comparable Group. The history of common stock returns indicates small company stocks are riskier than large company stocks because as one moves from the larger to smaller quartiles, the standard deviation (a measure of risk) of returns increases. Historically, common stock investors have been compensated for taking on this additional risk by the higher returns provided by small company stocks.

In general, it is reasonable to expect small companies to be more risky than large ones. Exhibit 5 shows small company stocks have been riskier over a long period of time than larger company stocks. This makes sense due to the various advantages that larger companies have over smaller companies. For example, small capitalized firms generally have less access to capital and, overall, not as many financial resources. Further, small capitalized stocks have lower trading liquidity than larger ones.

The bond market, particularly the corporate bond market, also differentiates between large and small bond issues, where many large institutional investors such as pension funds and insurance companies require large blocks of bonds for liquidity and performance. Because of this size preference, smaller bond issuers often pay a cost rate premium when compared to larger bond issuers.

A higher return requirement for companies the size of Wastewater System translates into a higher capitalization rate. All else being equal, a higher capitalization rate will produce a lower value. However, all things are seldom equal as shown by the array of market multiples for the companies that comprise the Comparable Group (Exhibit 16, page 2). As shown on Exhibit 16, the Comparable Group's current market multiples do not suggest a higher capitalization rate due to size as there are numerous other risks affecting the Comparable Group's market values.

Property Plant and Equipment Analysis. The Wastewater System can best be characterized as a wastewater collection system. The Wastewater System does not have the number of large treatment facilities that the Comparable Group has. The Wastewater System's gross property, plant and equipment is in relatively good condition given its age (Exhibit 6, Table 6.1) with 56% of their gross property, plant and equipment remaining undepreciated while 76% of the Comparable Group's gross property, plant and equipment remained undepreciated.

Property Plant and Equipment Analysis for Contributions. Most regulatory commissions determine rates for utilities based on a cost of service formula reflective of gross plant, property and equipment less accumulated depreciation (i.e., net property, plant and equipment) being roughly equal to investor provided capital (i.e., debt and equity capital) plus "cost free" capital such as customer contributions. Under 66 Pa. C.S. Section 1329 (Valuation of Acquired Water and Wastewater System'), the original source of funding for any part of the assets of a selling utility is not relevant to determining the value of a selling utility's assets.

We found a 26% (100% - 74%) differences between the Comparable Group's net property, plant and equipment and the Comparable Group's investor provided capital on the valuation date (Exhibit 6, page 1, Table 6.2). The difference between the Comparable Group's net property, plant and equipment and the Comparable Group's investor provided capital is comprised of "cost free" capital such as customer contributions.<sup>3</sup> This is evidenced by the 26% difference in the Comparable Group's net property, plant and equipment and the Comparable Group's investor provided capital (Exhibit 6, page 1, Table 6.2). Additionally, we verified 100% ( $26\% \div 26\%$ ) of

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<sup>3</sup> Under rate regulation "cost free" capital, such as customer contributions, is subtracted from plant assets in determining the dollar amount of property on which a utility may earn a "fair rate of return" and therefore, "cost free" capital has no economic value to investors.

known components of the Comparable Group’s “cost free” capital by reviewing their individual balance sheets (Exhibit 6, page 1, Table 6.2).

We did not analyze the Wastewater System’s property, plant and equipment for “cost free” capital, or customer contributions, because the original source of funding for any part of the assets of a selling utility is irrelevant to the valuation process under 66 Pa. C.S. Section 1329.

Capital Expenditures Analysis. The level of capital expenditures required for business purposes is an indicator of risk. The capital expenditures required over the next four years (2019-2022) for the Wastewater System was not available. Over the last four years, the Comparable Group had annual capital expenditures of about 8% of net plant (Exhibit 6, page 2, Table 6.3). During this same time, 2014-17, the Wastewater System had annual capital expenditures that averaged about 3% of net plant (based upon reported net plant). Therefore, the Wastewater System historical capital spending was substantially less than the Comparable Group’s average.

Growth Rate Analyses. Higher growth rates are an indication of less risk. A review of the growth rates in revenue, operating income plus depreciation and operating income, reveal that the Wastewater System’s revenues have been growing faster than the Comparable Group (Exhibit 6, page 4, Table 6.4) over the last three years but operating income plus depreciation and operating income have grown less. Prospectively, the Comparable Group may be able to enhance their growth rates through the continued acquisition of water and sewer systems outside their existing service territory.

Profit Margin Analyses. Higher profit margins are an indication of less risk. We compared earnings before interest and taxes (“EBIT”) to revenues to see how successful the Wastewater System’s management has been at generating income from the operation of the business. We also compared operating profitability or earnings before interest, tax, depreciation

and amortization (“EBITDA”) divided by total revenue to gain a clearer view of the Wastewater System's core profitability. The Wastewater System’s EBITDA profit margins are about the same as the Comparable Group’s and the EBIT profit margins are similar but lower than the Comparable Group’s indicating more risk (Exhibit 6, page 5, Table 6.5).

## VALUATION

The purpose of this valuation is to comply with 66 Pa. C.S. Section 1329 (Valuation of Acquired Water and Wastewater System’) and conduct a fair market value appraisal of the Wastewater System’s assets as of February 28, 2019 in compliance with the Uniform Standards of Professional Appraisal Practices, employing the cost, market and income approaches. Consequently, three basic valuation approaches were considered in this analysis: the cost approach, the income approach and the market approach.

The Cost Approach. In general terms, the cost approach measure value by determining the amount of money required to replace the future service capability of an asset. The cost approach is based on the premise that an informed purchaser will not pay more for a property than the cost of constructing an equally desirable substitute property, minus applicable depreciation, and assuming no undue delay.

The cost approach can include the use of the: original cost method; trended original cost method; reproduction cost method; and replacement cost method. From these cost bases, the calculated accrued depreciation (accumulated depreciation) is subtracted.

The original cost method begins with determining the original cost new (“OCN”) measure of the cost of the assets when first constructed. The OCN is based on (1) a review and summary of the utility’s accounting records, contractors’ invoices and bid tabulations to determine the most



appropriate data sources of each type of asset; (2) and the “pricing out” of assets using unit costs for each vintage year that property was placed in service.

Under the trended cost method, the trended original cost (“TOC”) measures the reproduction cost by multiplying the OCN by specific cost indices. The TOC is based on (1) a review and summary of the OCN at each location to determine those elements that would be replaced-in-kind, those that would be replaced with current methods and technologies and those that would not be replaced; (2) the selection of cost indexes and the calculation of trended original cost for those elements that would be replaced-in-kind; and (3) the estimation of the cost to purchase or construct those elements that would be replaced with current methods and technologies. The TOC is a procedure for estimating reproduction cost new of property and is sometimes used as a substitute for reproduction cost method and may be considered a form of the reproduction cost method, though not as precise.

The reproduction cost method begins with determining the reproduction cost new by determining the current cost of constructing identical new property (“RCN”). The replacement cost method begins with estimating the replacement cost new based on approximating the current cost of replacing service of existing property with similar new property having the nearest equivalent utility to the property being valued (as defined by the *International Glossary of Business Valuation Terms*).

The RCN and the replacement cost new method include the research and verification of the inventory of a company’s tangible personal property. Upon verification of the inventory, current material costs, current construction costs, engineering costs, administration costs, interest

during construction, and entrepreneurial profit<sup>4</sup> are applied to the inventory listing in order to determine the RCN and to determine the replacement cost new.

The RCN method assumes the assets would be recreated under the conditions existing at the date certain or valuation date, using the exact materials, standards, design, layout, and quality of workmanship used to create the original assets. The replacement cost new assumes the assets would be recreated under the conditions existing at the date certain or valuation date, using similar materials, current standards, under current conditions with similarly functional property.

From these cost bases (i.e., OCN, TOC, RCN and replacement cost new), the calculated accrued depreciation (accumulated depreciation) is subtracted (“LD”). The calculated accrued depreciation is based on the assets’ attained ages, and the service life of the assets. The cost bases of depreciable assets are reduced annually by the accumulated depreciation to reflect the loss in the service value of the assets since being constructed.

Depreciation represents the loss in property value from: physical deterioration; functional obsolescence; and external obsolescence. The accrued depreciation represents the sum of the annual depreciation amounts that would have been charged for depreciation at a point in time. Accrued depreciation is a calculated amount that would be in the book reserve account at a point in time using the current depreciation parameters (i.e., average service life). The average service lives of depreciable assets are based on the materials used for construction and how long the depreciable assets are likely to meet service demands.

The range of survivor characteristics usually experienced by utility and industrial properties is encompassed by a system of generalized “survivor curves” known as the Iowa type

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<sup>4</sup> The administration costs and entrepreneurial profit are those of the contractors and engineers. The cost of overhead of the entity having the assets constructed can also be included. Generally overhead costs are allocated as part of an asset’s cost, and usually represent 5% to 15% of infrastructure asset total costs.

curves. The accrued depreciation ratio from a survivor curve is a concept that is used to estimate the consumed service capacity of plant at a point in time. The survivor curve is used to find the applicable accrued depreciation factors of the assets to result in the total accumulated depreciation.

The Original Cost Method. For this report the Wastewater System provided us a copy of the engineering assessment of the Wastewater System’s facilities report, “East Norriton Township Sewage Facilities Assessment February 2019 (Rev. May 2019)” and related files prepared by Carroll Engineering Corporation, (“Engineering Assessment”). We utilized the Engineering Assessment and calculated the Original Cost and Related Accrued Depreciation of the Wastewater System as of February 28, 2019 (“OCNLD Study”) shown on Exhibit 7.<sup>5</sup>

Page 1 of Exhibit 7 summarizes the original cost and related accrued depreciation by account for the Wastewater System as of February 28, 2019. The original cost was brought forward from page 2 of Exhibit 7 and the accrued depreciation from page 3 of Exhibit 7.

The original cost of the Wastewater System was determined from the Engineering Assessment and is summarized on page 2 of Exhibit 7. A summarizing analysis of the original cost of the Wastewater System by account and vintage year is shown on Exhibit 8.

The accrued depreciation calculation, shown on page 3 of Exhibit 7, was based on recognized methods using estimated survivor characteristics and the straight-line depreciation method. The estimated survivor curves are those used by other Pennsylvania wastewater companies and the age of the assets. The average service life procedure was used to apply the methods of depreciation to group properties for which a survivor curve was used to recognize the existence of life dispersion. The detailed calculations of accrued depreciation applicable to

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<sup>5</sup> The original cost method and RCN method also includes all “Equipment and Machinery” listed on Schedule 4.10 of the Asset Purchase Agreement.

original cost by account and vintage are included in in Exhibit 9.

The results of the OCNLD Study established that the OCN of the Wastewater System's utility plant in service as of February 28, 2019 was not less than \$16.9 million (\$16,916,212 rounded). The OCNLD Study also determined a theoretical calculated accrued depreciation reserve of the utility plant in service of \$7.7 million (\$7,664,762 rounded) as of February 28, 2019. After factoring in the OCNLD Study's accrued depreciation reserve, the OCNLD of Wastewater System's utility plant in service as of February 28, 2019 was determined to be \$9.3 million ( $\$16,916,212 - \$7,664,762 = \$9,251,450$ ).

The Reproduction Cost Method. We utilized the OCN to calculate the trended original cost (TOC) measures, or the reproduction cost of the depreciable assets (RCN), by multiplying the OCN by specific cost indices.<sup>6</sup> The result of this analysis is shown in the Reproduction Cost and Related Accrued Depreciation of the Wastewater System as of February 28, 2019 ("RCNLD Study") shown on Exhibit 10.

Page 1 of Exhibit 10 summarizes the reproduction cost new and related accrued depreciation by account for the Wastewater System as of February 28, 2019. The reproduction cost new was brought forward from page 2 of Exhibit 10 and the accrued depreciation from page 3 of Exhibit 10.

The reproduction cost new of the Wastewater System (see page 2 of Exhibit 10) was calculated by trending the original cost measures by multiplying the OCN by Handy-Whitman indices. A summarizing analysis of the reproduction cost new of the Wastewater System by account and vintage year and related cost indices is shown on Exhibit 11.<sup>7</sup>

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<sup>6</sup> We used the TOC method because the mandated use of the Engineering Assessment's original cost essentially dictates the use of TOC over the reproduction cost or the replacement cost methods.

<sup>7</sup> All land and land rights were valued at original cost.

The accrued depreciation calculation, shown on page 3 of Exhibit 10, was based on recognized methods using estimated survivor characteristics and the straight-line depreciation method. The estimated survivor curves are those used in the OCNLD Study. The average service life procedure was used to apply the methods of depreciation to group properties for which a survivor curve was used to recognize the existence of life dispersion. The detailed calculations of accrued depreciation applicable to reproduction cost new by account and vintage are included in Exhibit 12.

The results of the RCNLD Study established that the RCN of the Wastewater System's utility plant in service as of February 28, 2019 was not less than \$79.6 million (\$79,644,106 rounded). The RCNLD Study also determined a theoretical calculated accrued depreciation reserve of the utility plant in service of \$46.2 million (\$46,176,170 rounded) as of February 28, 2019. After factoring in the RCNLD Study's accrued depreciation reserve, the RCNLD of Wastewater System's utility plant in service as of February 28, 2019 was determined to be \$33.5 million ( $\$79,644,106 - \$46,176,170 = \$33,467,936$ ).

The results of the OCNLD and RCNLD Cost Approaches show a range of value for the Wastewater System of \$9.3 million to \$33.5 million and collectively, indicated value of \$33.5 million (\$33,467,936 rounded) for the Wastewater System based on the results of the RCNLD.

Benchmark Metrics. Besides providing an indication of value based upon a cost method, the OCN and OCNLD can also provide a meaningful metric to evaluate the reasonableness of other indications of value produced by other valuation methods. For example, the Comparable Group's market value of common equity plus minority interest, preferred stock, and total debt net of cash and cash equivalents ("Enterprise Value") is currently 1.55-times (Exhibit 16, page 2) their OCNLD or net property, plant and equipment. Similarly, the Comparable Group's Enterprise

Value is currently 1.17-times (Exhibit 16, page 2) their OCN or gross property, plant and equipment.

The above-mentioned property, plant and equipment “multiples” understate the multiple applicable to the Wastewater System because some of the Comparable Group’s property, plant and equipment includes assets that were originally financed with “cost free” capital such as customer contributions.<sup>8</sup> Subtracting customer contributions (“CIAC”) from the Comparable Group’s property, plant and equipment (Exhibit 16, page 3) results in CIAC adjusted multiples of 2.20-times OCNLD and 1.66-times OCN for the Comparable Group.

Multiplying the Wastewater System’s OCN of \$16.9 million by the Comparable Group’s 1.20-times OCN multiple or the 1.66-times contributions adjusted OCN multiple indicates a range of market value of \$20.3 million to \$28.0 million for the Wastewater System, similar to the RCNLD of \$33.5 million. Further, multiplying the Wastewater System’s OCNLD of \$9.3 million by the Comparable Group’s 1.59-times OCNLD multiple or the 2.20-times contributions adjusted OCNLD multiple indicates a range of market value of \$14.8 million to \$20.4 million for the Wastewater System, similar to the RCNLD of \$33.5 million.<sup>9</sup> The aforementioned range of market value for the Wastewater System are not a substitute for an appraisal. However, the referenced range of market value for the Wastewater System can be a meaningful metric to evaluate the reasonableness of other indication of value produced by other valuation methods.

Comparing the results of the OCNLD method and RCNLD method to the benchmark metrics indicates the value indicated by the OCNLD method of \$9.3 million to be inconsistent

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<sup>8</sup> Under rate regulation “cost free” capital, such as customer contributions, is subtracted from plant assets in determining the dollar amount of property on which a utility may earn a “fair rate of return” and therefore, “cost free” capital has no economic value to investors.

<sup>9</sup> Similarly, multiplying the Wastewater System’s number of customers of 4,966 by the Comparable Group’s \$8,042-times customer multiple indicates a market value of \$39.9 million, similar to the RCNLD of \$33.5 million.

with the benchmark metrics. Therefore, the results of the \$33.5 million RCNLD method form the basis for our Cost Approach conclusion of \$33.5 million (\$33,467,936 rounded) and is used as the Cost Approach as part of our fair market value determination for the Wastewater System.

The Income Approach. Capitalizing or discounting a future income stream to a present value provides an indication of the value of a business. The capitalization or discount rate reflects future growth, business risk, economic factors, financial risk and industry risk of the assets. The theory behind the income approach is that the value of a business is the future economic benefit that ownership will provide.

The two most common methods of the income approach to valuation are the capitalization of earning or cash flow method and the discounted cash flow method (“DCF”). The capitalization of earning method converts a single base economic income number to a value by dividing it by a capitalization rate. The capitalization of earnings is best suited when the future earnings, or cash flow, can be predicted. The implicit assumption in the capitalization of earning method is that the cash flow is a perpetuity and the capitalization rate is a constant.

The DCF method uses estimates of future free cash flow and discounts them to arrive at a present value or price of the cash flows. Generally, the DCF analysis begins with an estimate of the Debt Free Net Cash Flow over the next five to twenty years along with a terminal value. In each year, the Debt Free Net Cash Flow is comprised of projected EBIT, minus income taxes, plus projected depreciation and amortization, plus or minus projected changes in net cash working capital, less projected capital expenditures. The second element of the DCF analysis is the determination of an appropriate discount rate.

The capitalization rate used in the capitalization of earnings method and the discount rate used in the DCF method are related. The discount rate is the opportunity cost rate related to the

risk of the cash flows. For the Wastewater System, the appropriate discount rate is the current municipal revenue bond yield on February 28, 2019 of 3.81%. The appropriate IOU discount rate is the current net of tax overall cost of capital (weighted average cost of capital) on February 28, 2019 and ranges from 6.91% to 8.29%.<sup>10</sup> The capitalization rate is simply the discount rate minus the expected growth rate. If no growth is assumed, the capitalization rate is equal to the discount rate.

The capitalization of earnings method is generally a reasonable approach for valuing the Wastewater System as it is currently owned (i.e., non-IOU) and operated. However, change in ownership of the Wastewater System to a large regional municipal authority (“MUNI”) or IOU produces a myriad of problems for both the capitalization of earnings method and the DCF Method because any future cash flow estimates would be hypothetical or estimated due to the uncertain nature that would accompany new ownership including future rates, future expenses, future capital expenditures, taxes, and regulation.

For a MUNI, the appropriate discount rate is the current municipal revenue bond, 3.81%, because debt is the only major source of capital available to finance an acquisition (Exhibit 19, pages 2-5. Although a MUNI likely carries equity on their books (balance sheet), all existing equity is already invested in other assets and therefore, cannot be used to finance an acquisition.<sup>11</sup> For valuation purposes, an embedded cost of debt, or the historical cost of all debt issuances outstanding is not used because this capital is already invested in assets. Whereas the marginal

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<sup>10</sup> Both the American Society of Appraisers, ASA Business Valuation Standards, 2009, and the National Association of Certified Valuation Analysts, Professional Standards, 2007, use the same definition: “Weighted Average Cost of Capital (WACC). The cost of capital (discount rate) determined by the weighted average, at market values, of the cost of all financing sources in the business enterprise's capital structure.”

<sup>11</sup> For example, when a municipal or government entity, such as the Commonwealth of Pennsylvania, finance construction of a road or bridge, they only consider the marginal debt cost despite having “equity” reflected on their books (balance sheet).



cost of debt, 3.81%, at the valuation date is used in accordance with accepted valuation practice and used for market valuation purposes.

As discussed previously, for an IOU, the appropriate discount rate is the net of tax overall cost of capital (weighted average cost of capital), 6.91% to 8.29% (Exhibit 19, pages 2-7). In this instance, the net of tax overall cost of capital (weighted average cost of capital) is based on the Comparable Group's market value capital structure of 21.1% debt and 78.9% equity, a market cost of debt of 4.25% and a range of market cost of equity of 7.94% to 9.69%.<sup>12</sup> The Comparable Group's net of tax overall cost of capital (weighted average cost of capital) is used as a proxy to conform to the "hypothetical buyer" or "hypothetical seller" of fair market valuation. Use of the buyer's net of tax overall cost of capital (weighted average cost of capital) would produce an investment valuation, not a fair market valuation.<sup>13</sup>

We began the Income Approach for the Wastewater System by first determining the Debt Free Net Cash Flow to be capitalized or discounted. The Debt Free Net Cash Flow is comprised of EBIT, minus income taxes, plus depreciation and amortization, plus or minus projected changes in net cash working capital, less projected capital expenditures. The development of Wastewater System's Debt Free Net Cash Flow begins on Exhibit 1 and ends on Exhibits 13 through 15.

Differences in accounting practices exist between GASB, DCED and FASB because there are differences in their purpose. That is, the GASB's and DCED's motivations are to make sure government entities are accountable for the money they receive from the public or taxpayers, while

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<sup>12</sup> For example, see <http://www.investinganswers.com/financial-dictionary/financial-statement-analysis/weighted-average-cost-capital-wacc-2905>. Also see <http://www.wallstreetmojo.com/weighted-average-cost-capital-wacc/>, or <http://accountingexplained.com/misc/corporate-finance/wacc>.

<sup>13</sup> We did not use the 6.84% Comparable Group's DSIC (distribution system improvement charge) related net of tax overall cost of capital in our valuation because a "hypothetical buyer" cannot finance an acquisition at such a rate and therefore, its use would provide a meaningless result. Where the 6.84% DSIC related cost was determined based the Comparable Group's book value capital structure of 45.2% debt and 54.8% equity, a cost of debt of 4.25% and a DSIC cost of equity of 9.95%.

the FASB's focus is to help investors and creditors make decisions. These differences in accounting objectives between GASB, DCED and FASB can present a problem when it comes to comparing the financial statements of entities that are either publicly or privately owned, such as the Wastewater System and the Comparable Group.

Exhibit 1 presents the Wastewater System's financial information contained in their budget statements, so it is more consistent with the Comparable Group and more practical for valuation purposes. The information on Exhibit 1 was used to develop Exhibits 13 through 15. As noted previously, the Wastewater System's financial statements and their rates did not include taxes nor a fair rate of return. Accordingly, on Exhibits 14 and 15 we adjusted the Wastewater System's post-2019 financial information for pro forma expenses and returns to be reflective of a MUNI or IOU ownership.

The Capitalization of Earnings Method. The capitalization of earnings method begins with an estimate of the income or cash flow producing capabilities of the business (Exhibit 13) for a recent time period and assumes current ownership and operations. We began the capitalization of earning method for the Wastewater System by first determining the Debt Free Net Cash Flow to be capitalized. The Debt Free Net Cash Flow is comprised of current EBIT, minus income taxes, plus current depreciation and amortization, plus or minus projected changes in net cash working capital, less projected capital expenditures. Specifically, our capitalization of earnings method capitalizes Wastewater System's current (2019) budgeted Debt Free Net Cash Flow. The second element of the capitalization of earnings method is the determination of an appropriate capitalization rate. Our analysis uses the current municipal revenue bond yield on February 28, 2019 of 3.81% (Exhibit 13, line 24) as a capitalization rate. We also did a second capitalization of earnings calculation based on a 3.71% capitalization rate (Exhibit 13, line 27), or 10-basis points

below the current level to reflect the unique population growth projected for the Wastewater System's because we assumed the Wastewater System's Debt Free Net Cash Flow growth will be at least 0.1% (10-basis points).

We computed the Wastewater System's indicated value based on the capitalization of earnings method by dividing the projected Debt Free Net Cash Flow by the capitalization factor. The capitalization factor is equal to the discount rate minus assumed growth in projected Debt Free Net Cash Flow. Essentially, we considered two ranges of growth in the capitalization of earnings method, no growth and 0.1% growth. However, based upon our quantitative and qualitative analysis, and the projected population growth, we believe the 0.1% growth scenario is the most probable for the Wastewater System based on current ownership and operations.

We adjusted the Wastewater System's Debt Free Net Cash Flow (Exhibit 13, line 22) to account (subtract) for the average projected capital expenditures of \$30,835 if system is not sold.<sup>14</sup> Exhibit 13 shows the results of the capitalization of earnings method. For the Wastewater System, the capitalization of earnings method using a 3.81% capitalization rate (no growth) indicates a value of \$15.6 million and \$14.8 million on pro forma 2019 results. The capitalization of earnings method using a 3.71% capitalization rate (growth) indicates a value of \$16.0 million and \$15.2 million on pro forma 2019 results. Collectively, for Wastewater System, we believe the 0.1% growth scenario is the most probable result based on current ownership and operations and therefore, the capitalization of earnings method suggests a value of \$15.2 million based on pro forma 2019 results.

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<sup>14</sup> The capital expenditures of \$30,835 utilized is the 2015-2019 average capital expenditure due to lack of projected information.

The DCF Method. For the Wastewater System, the DCF method considers two types of discounted cash flow analyses, the EBIT and EBITDA terminal value model (“Market Multiple DCF”) and the capitalization of terminal value model (“Capitalization DCF”). We show the results of these models on Exhibits 14 and 15.

The DCF method begins with an estimate of the income or cash flow producing capabilities of the business. Specifically, our DCF methods use estimates of the results of the Wastewater System’s operations over the next 13 years. We use two different assumptions for the Wastewater System’s future operations in the DCF methods: MUNI ownership shown on Exhibit 14 and IOU ownership shown on Exhibit 15.

Under the MUNI ownership the discount rate is the current 3.81% municipal revenue bond yield and under the IOU ownership the discount rate is the current net of tax overall cost of capital, reflecting the upper and lower range of the net of tax overall cost of capital for the Comparable Group of 6.91% to 8.29%. For the Capitalization DCF, the capitalization rate reflects a scenario of no additional growth (i.e., discount rate = capitalization rate) and a scenario of minimal growth of 0.4% (i.e., discount rate – 0.4% growth = capitalization rate) under MUNI ownership and 0.4% (i.e., discount rate – 0.4% growth = capitalization rate) under IOU ownership based on inflation, changes in Debt Free Net Cash Flows and the projected population growth.

We computed the Market Multiple DCF terminal values by multiplying the Wastewater System’s projected EBIT and EBITDA by the Comparable Group’s adjusted multiples of 18.1-times and 12.4-times, respectively. We computed the Capitalization DCF terminal value by dividing the projected Debt Free Net Cash Flow by the capitalization factor. The capitalization factor is equal to the discount rate minus assumed growth in projected Debt Free Net Cash Flow.

Exhibit 14 shows the results of the DCF method under the MUNI ownership scenario. The results of the Capitalization DCF shown on Exhibit 14 show a range of value for the Wastewater System of \$12.0 million to \$12.9 million. The results of the Market Multiple DCF shown on Exhibit 14 show a value of \$10.6 million. Collectively, the DCF method based on the MUNI ownership scenario indicates a value of \$11.8 million for the Wastewater System based on the 0.4% growth assumption.

Exhibit 15 shows the results of the DCF method under the IOU ownership scenario. The results of the Capitalization DCF shown on Exhibit 15 show a range of value for Wastewater System of \$6.6 million to \$8.3 million. The results of the Market Multiple DCF shown on Exhibit 15 show a range of value of \$9.7 million to \$11.1 million. Collectively, the DCF method based on the IOU ownership scenario and a 0.4% growth assumption indicates a value of \$9.0 million for the Wastewater System.<sup>15</sup>

The DCF method based on the MUNI ownership scenario indicates a value of \$11.8 million and the DCF method based on the IOU ownership scenario indicates a value of \$9.0 million. Collectively, the DCF method indicates a value of \$10.4 million.

The Market Approach. There are two methods of doing the Market Approach to valuation: the market multiples method; and the selected transaction method. We developed both the market multiples method and the selected transaction method in our valuation analysis.

The Market Multiples Method. The market multiples method valuation begins by reviewing market price data of corporations engaged in the same or a similar line of business as

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<sup>15</sup> If we used the 6.84% Comparable Group's DSIC (distribution system improvement charge) related net of tax overall cost of capital in our valuation shown on Exhibit 15, the results of the Capitalization DCF would show a range of value for Wastewater System of \$8.1 million to \$8.4 million. Further, the results of the Market Multiple DCF would show a value of \$11.1 million and collectively, the DCF method based on the IOU ownership scenario and a 0.4% growth assumption would indicate a value of \$9.8 million for the Wastewater System.

the Wastewater System. We relied upon market data for the Comparable Group for these purposes since they are equally affected by similar economic, industry, and business risks as the Wastewater System. Since no marketplace exists for the common stock of the Wastewater System, an alternative to estimate the value of the Wastewater System is to analyze the price investors are willing to pay for the publicly traded common stock of companies that are similar to the Wastewater System. The specific market price data reviewed includes the market value of common equity plus minority interest, preferred stock, and total debt net of cash and cash equivalents (i.e., Enterprise Value). Where the market value of common equity is the product of multiplying the closing stock price by the number of common shares outstanding. The Enterprise Value provides an indication of the value of the entire business. The Enterprise Value multiples (“Market Multiples”) are shown on Exhibit 16. For the Comparable Group, the Market Multiples were calculated as of February 28, 2019 based on the latest twelve months of financial data available at the appraisal date.

We used the Comparable Group’s Enterprise Value at February 28, 2019 and calculated Market Multiples of: revenue (“Revenue”); EBITDA; EBIT; gross property plant and equipment (“GPPE”); net property plant and equipment (“NPPE”); investor provided capital (“ICAP”); utility customers (“Customers”); and population of the area served (“Population”).

The next step in the market multiples method valuation was applying the Comparable Group’s Market Multiples to corresponding financial and operating statistics of the Wastewater System. The Comparable Group’s Market Multiples reflect their capitalization rate of each financial and operating statistic. For example, a Market Multiple of EBIT of 16.14 times equates to a capitalization of EBIT of 6.20% ( $1 \div 16.14 = 6.20\%$ ). Each capitalization rate is unique to the entity and the statistic being evaluated and reflects the growth and investment risk of the entity.

We believe that similar economic, industry and business risks have affected the Comparable Group as those faced by the Wastewater System. However, consideration must be given to the fact that no two companies are exactly alike. On average, the Comparable Group are much larger than the Wastewater System. The relative size difference between the Comparable Group and Wastewater System suggests that the risk to the investors of the Wastewater System is greater than the Comparable Group. Further, based upon our quantitative and qualitative analysis, we concluded that the Wastewater System has more risk than the Comparable Group.

Accordingly, the Comparable Group's Market Multiples are not directly applicable to the Wastewater System. We assumed the higher risk due to the Wastewater System's small size is added to higher risk assumed from our quantitative and qualitative analysis. This combined risk was assumed to result in the Wastewater System being 25% less risky than the Comparable Group and produces a 75% (100% - 25%) base risk adjustment to the Comparable Group's Market Multiples. We applied the 75% base risk adjustment to all financial multiples. For example, the Comparable Group's ICAP multiple was multiplied by 75% to produce a lower multiple applicable to the Wastewater System to account for risk differences.

The Comparable Group's Market Multiples of Revenue, EBITDA, and EBIT were adjusted for the base risk adjustment to produce multiples applicable to the Wastewater System (Exhibit 16, page 3). The Comparable Group's Market Multiples of GPPE and NPPE were adjusted for the base risk adjustment and for their percentage of property plant and equipment (Exhibit 16, page 3) financed with "cost free" capital such as contributions because "cost free" capital should not be part of this valuation process. The Comparable Group's Market Multiples of Customers and Population were adjusted for the type of assets of the Wastewater System and growth.

The net risk adjustments to the Comparable Group's Market Multiples are shown on page 1 of Exhibit 16. The adjustments to the Comparable Group's Market Multiples are: 75% of ICAP (more risk/lower growth), 103% of GPPE (more risk/lower growth and contributions), 104% of NPPE (more risk/lower growth and contributions), 75% of Revenue (more risk/lower growth); 75% of EBIT and 75% EBITDA (more risk/lower growth); and 95% of Customers and Population (growth and contributions).

Page 1 of Exhibit 16 shows the market multiples method indicated values based on: Revenue, EBIT and EBITDA (collectivity called "Income Statement Items"); ICAP, GPPE and NPPE (collectivity called "Capital Items"); and Customers and Population (collectivity called "Demographics Items"). For most municipal utilities the indicate values based on Income Statement Items are far below the indicated values that are based on Capital Items and those based on Demographics Items. We attribute this to the dollars of Revenue, EBIT and EBITDA do not reflect any provision for taxes while the multiples for the Comparable Group do.<sup>16</sup> Consequently, we do not believe the results of the multiples of Revenue, EBIT and EBITDA are meaningful and should not be used for municipal utilities.

In the market multiples method, the meaningful Market Multiples of the Comparable Group are used to develop an indicated value of the Wastewater System. This is accomplished by multiplying the Wastewater System's financial and operating data by the Comparable Group's median Market Multiples (Exhibit 16, page 1). The results of the market multiples method (Exhibit 16, page 1) show a range of value for the Wastewater System of \$13.6 million to \$34.6

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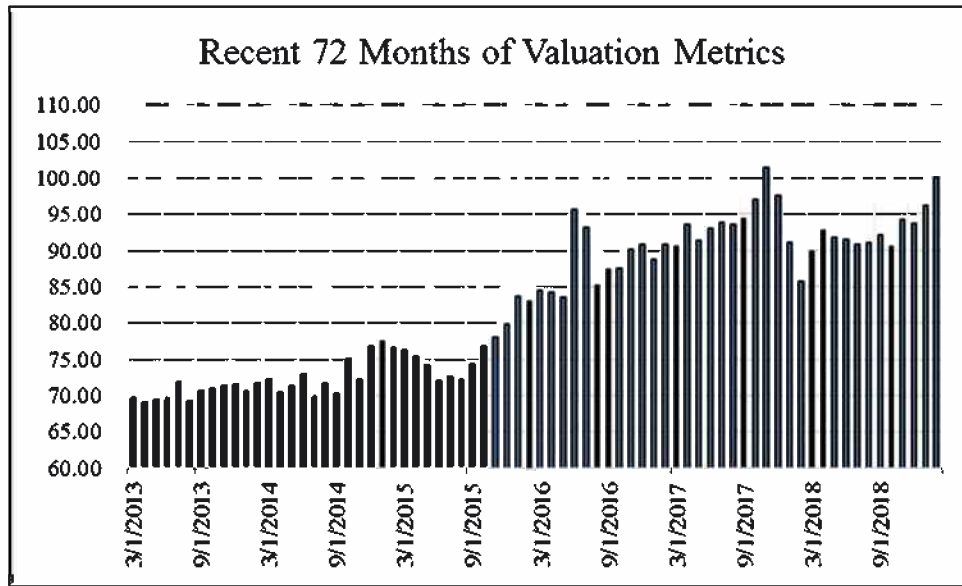
<sup>16</sup> The Revenue, EBIT and EBITDA for the Wastewater Systems also do not include a fair rate of return.



million and collectively, indicate value of \$24.1 million based on the meaningful Market Multiples.

The Selected Transactions Method. The selected transactions method entails analyzing certain public information relating to selected transactions involving the purchase or sales of businesses involved in the same or similar business line. The number of selected transactions available for review is limited because most acquisitions in the water and wastewater industry involve small acquisitions for which no public information exists. Additionally, not all transactions are comparable since some purchase prices may only involve the acquisition of the common stock, purchase prices may be net of cash and others may only involve assets. In any of these instances, the derived multiples (e.g., purchase price as a multiple of: Revenues; EBITDA; EBIT; etc.) would understate (overstate) the multiples involving a purchase price for an entire business enterprise (common stock) or business assets.

The selected transactions method provides a valuation of a business, or assets, at the time the acquisition of that business was completed, rather than the appraisal date market value (February 28, 2019). The change in the Comparable Group's market multiples of NPPE and ICAP, shown in Figure 1, shows the change in market valuation over the last 72 months. In Figure 1 the Comparable Group's market multiples of NPPE and ICAP were indexed to February 28, 2019 valuation multiples so that the February 28, 2019 valuation multiples have an index value of 100.



**Figure 1**

The Comparable Group’s appraisal date (February 28, 2019) valuation multiples are 4% higher than 2019’s lowest levels and equal to the 2019’s highest levels and 14% higher than 2018’s lowest levels and 6% above the 2018’s highest levels. The Comparable Group’s February 28, 2019 valuation multiples are 14% higher than 2017’s lowest levels and 1% below the 2017’s highest levels, are 4% to 17% higher than 2016’s, are 20% to 28% higher than 2015’s, and are 23% to 30% higher than 2014’s multiples.

Because of the rapid rise in valuation multiples since early 2016 we limited our search for selected transactions to: (1) those that occurred in 2016 or later; (2) purchases of water or sewer systems; (3) assets being purchased; and (4) those that did not discount “cost free” capital/customer contributions in the valuation. The selected transactions that met the stated selection criteria are shown on pages 2 and 3 of Exhibit 17.

Using certain public information, we calculated sales price multiples of selected transactions involving the purchase or sale of businesses that met the stated selection criteria. The

calculated sales price multiples included transactions multiples of: Revenue; EBITDA; EBIT; Customers; and Population. As shown on pages 2 and 3 of Exhibit 17, the selected transactions method indicated values based on the Income Statement Items are far different than the Wastewater System's selected transactions method indicated values based on Capital Items and those based on Demographics Items. We attribute this to the fact the selling utilities' dollars of Income Statement Items do not reflect any provision for taxes.<sup>17</sup> Consequently, we do not believe the results of the multiples of Income Statement Items are meaningful.

In the selected transactions method, the significant selected transactions multiples of the selling utilities are used to develop an indicated value of the Wastewater System. This is accomplished by multiplying the Wastewater System's financial and operating data by the selling utilities' transactions multiples (Exhibit 17, pages 2 and 3). The results of the selected transactions method (Exhibit 17, page 1) show a range of value for the Wastewater System of \$18.2 million to \$44.4 million when all transactions are considered and a range of value of \$13.5 million to \$22.5 million when mostly collection/distribution assets are solely considered. Collectively, the indicate value for the Wastewater System is of \$24.6 million after giving additional weight to the more comparable selected transactions multiples.

In 2018 two IOUs, Connecticut Water Service, Inc and SJW Group, announced a planned merger with Connecticut Water being acquired by SJW through a stock purchase. Although this acquisition is not directly applicable to the Wastewater System, it does provide a range of indicated value for the Wastewater System (Exhibit 17, page 4) which we relied on as a check. In this selected transaction, the significant selected transactions multiples of the selling utilities

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<sup>17</sup> Further, Revenue, EBIT and EBITDA for the Wastewater Systems also do not include a fair rate of return.

(Connecticut Water) are used to develop an indicated value of the Wastewater System. This is accomplished by multiplying the Wastewater System's financial and operating data by the selling utilities' transactions multiples. The results of the Connecticut Water selected transactions show a range of value for the Wastewater System of \$25.9 million when the reported significant selected transactions multiples are considered and a value of \$28.1 million when the reported significant selected transactions multiples have been adjusted for "cost free" capital. Since the Connecticut Water transaction is a stock transaction, we believe it may understate the value of an asset purchase. However, we also note that Connecticut Water is a fully integrated company while the Wastewater System is not.

The results of the market multiples method shown on Exhibit 16 show a range of value for the Wastewater System of \$13.6 million to \$34.6 million and collectively, indicate value of \$24.1 million. The results of the selected transactions method shown on Exhibit 17 show a range of value of \$18.0 million to \$31.3 million and collectively, indicate value of \$24.6 million. Based on the aforesaid, the Market Approach to valuation indicates a value of \$24.4 million for the Wastewater System based on the results of the market multiples method and the selected transactions method.

Conclusion. We summarize our findings for the Wastewater System on Exhibit 18. Our findings for the Wastewater System is based on the Cost, Market and Income Approaches to valuation. We used seven methods under the Cost, Market and Income Approaches to valuation: Original Cost Method, Reproduction Cost Method, Capitalization of Earnings Method, Market Multiple Discounted Cash Flow Method, Capitalization Discounted Cash Flow Method, Market Multiples Method, and the Selected Transactions Method.

The results from the capitalization of earnings method, market multiple discounted cash flow method and the capitalization discounted cash flow method form the basis for our Income

Approach. Our Market Approach is supported by the market multiples method and selected transactions method. The results from the original cost method form the basis for our reproduction cost method, and both methods form the basis for our Cost Approach.

We considered the results of each approach as an indicator of value individually, or as independent indicators of value. Therefore, all three approaches to valuation were given consideration in arriving at our estimate of the fair market value conclusion. We believe the results produced by the Income Approach to be an outlier and have given those results less weight. Based on these facts, our conclusion regarding the fair market value is \$24.3 million. Our conclusion regarding the fair market value can be described by the weights and the specific results of the three approaches to valuation that are shown on Exhibit 18. The results of our analyses, shown on Exhibit 18, indicate a range of value for the Wastewater System of \$10.4 million to \$33.5 million and collectively indicate a fair market value of \$24,284,000 for the Wastewater System.

## COMPLIANCE & APPRAISAL CERTIFICATION

## **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:**

The client is Aqua Pennsylvania Wastewater, Inc. The intended users of the valuation are Aqua Pennsylvania Wastewater, Inc. and the Pennsylvania Public Utility Commission.

- **State the intended use of the appraisal**

The intended use of the valuation is to comply with 66 Pa. C.S. Section 1329, Valuation of Acquired Water and Wastewater Systems and conduct a fair market value appraisal of the East Norriton Township's wastewater system assets in compliance with the Uniform Standards of Professional Appraisal Practices, employing the cost, market and income approaches.

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

The East Norriton Township Wastewater System's assets include related assets necessary to run the System; all personal property and fixed assets, including all equipment and machinery, and auxiliary equipment and plant equipment. East Norriton Township Wastewater System's assets include sewage collection and transmission assets, and related land and land rights.

The East Norriton Township owns and operates the Wastewater System which consists of approximately 59 miles of gravity sewer collection mains and interceptors, nine pump stations, about four miles of force mains, associated infrastructure and appurtenances, and related land and land rights. The Wastewater System is a collection system which conveys the raw sewage to the raw sewage to the East Norriton-Plymouth-Whitpain Joint Sewer Authority for sewer treatment services under intermunicipal agreements. The Township is a member of the East Norriton-Plymouth-Whitpain Joint Sewer Authority as are Plymouth and Whitpain Townships. Currently, the Wastewater System provides service to 4,966 customers.

The East Norriton Township's Wastewater System property is in reasonable condition for their age based on physical observations and reviews of operating and financial statements. The majority of the Wastewater System was constructed under two phases in the 1960s and 1970s. The remainder of the Wastewater System was built over the intervening years mostly as new developments were built in the

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

### **Fulfillment of Requirements for a Personal Property Appraisal and Report**

Township. The property is an operating wastewater utility, the economics of which were analyzed from budgeted financial statements which were incorporated into the income approach to value in this appraisal.

The East Norriton Township's Wastewater System land and land rights include land used for wastewater sewage collection and transmission, 63 miles of sewers, nine pump stations and multiple easements and rights-of-way necessary to operate the Wastewater System.

- **State the type and definition of value and cite the source of the definition, including whether the opinion of value is in terms of cash or of financing terms equivalent to cash, or based on non-market financing or financing with unusual conditions or incentives**

Fair market value is defined as:

“The price, expressed in terms of cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical willing and able seller, acting at arm's length in an open and unrestricted market, when neither is under compulsion to buy or sell and when both have reasonable knowledge of the relevant facts.” The International Glossary of Business Valuation Standards

- **State the effective date of the appraisal and the date of the report**

The effective date of the appraisal is as of February 28, 2019 and the appraisal report date is June 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**

Conduct a fair market value appraisal of the East Norriton Township's Wastewater System assets in compliance with the Uniform Standards of Professional Appraisal Practices, employing the cost, market and income approaches.

The premise of value is going concern and the assets are valued as a group under the premise that they collectively comprise an ongoing operating business enterprise.



## **Compliance with Uniform Standards of Professional**

### **Appraisal Practice (USPAP) 2018-2019**

#### **Fulfillment of Requirements for a Personal Property Appraisal and Report**

We accepted all information and data provided by East Norriton Township as it pertains to this assignment “as is” after a limited review. That is, we neither audited nor verify any data, original cost data, financial records or operating data provided for this assignment.

The appraisal considered all three approaches to value: the cost, income and market. Briefly the scopes of work for each are as follows:

The cost approach utilized the original cost method and reproduction cost method. The reproduction cost method was calculated by trending (trended cost method) the asset inventory developed by Carroll Engineering Corporation from its original cost new inventory. The original cost method determined the original cost new measure of the cost of the assets when first constructed. The original cost new inventory was trended using the Handy Whitman Index of Public Utility Construction Costs for the water industry to produce the reproduction cost new. The calculated accrued depreciation was determined for the original cost new and for the reproduction cost new. The calculated accrued depreciation was based on the assets’ attained ages, and the service life of the assets. The cost basis of depreciable assets was reduced annually by the accumulated depreciation to reflect the loss in the service value of the assets since being constructed. All land and land rights were valued at original cost.

Income Approach - The income approach utilized the capitalization of earning (cash flow) method and the discounted cash flow method. The capitalization of earning method converted a single base economic income number to a value by dividing it by a capitalization rate. The discounted cash flow method used estimates of future debt free net cash flow and discounted them to arrive at a present value or price of the cash flows. The capitalization rate and the discount rate were developed based on market debt and equity rates at the appraisal date. The discounted cash flow method reflected two types of discounted cash flow analyses, the EBIT and EBITDA terminal value model and a capitalization of terminal value model.

Market Approach - The market approach was developed based on the market multiples method and the selected transaction method. The market multiples method was based on the market price data of publicly traded corporations engaged in the same or a similar line of business as the Wastewater System. The market price data of these comparable publicly traded corporations was used to calculate the market multiples for the comparable publicly traded corporations at the appraisal date. The selected transactions method used certain public information relating to the purchase or sales of businesses involved in the same or a similar business line as the Wastewater System to calculated market multiples at the time of transaction (sale/purchase). The calculated market multiples determined by the

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

**Fulfillment of Requirements for a Personal Property Appraisal and Report**

market multiples method and the selected transaction method were then multiplied by the corresponding the Wastewater System financial and operating statistic to produce an indicated value for the Sewer and Water Systems.

Reconciliation of the Valuation Approaches - The fair market value conclusion was based on reconciliation of each of the three approaches to value and the intended purpose of the appraisal.

- **Clearly and conspicuously:**

- **State all extraordinary assumptions and hypothetical conditions;**

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

- **State that their use might have affected the assignment results**

- Not applicable.

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

- Not applicable.

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

- See scope of work above.

- **State the use of the real estate existing as of the date of value and the use of the real estate reflected in the appraisal**

- The East Norriton Township Wastewater System land and land rights include land used for the wastewater sewage collection and transmission, 63 miles of sewers, nine pump stations, and multiple easements and rights-of-way necessary to operate the Wastewater System.

- The East Norriton Township Wastewater System's land and land rights were assumed to be used for the operation of the wastewater system for the appraisal.

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

**Fulfillment of Requirements for a Personal Property Appraisal and Report**

- **State and describe the support and rationale for the appraiser's opinion of the highest and best use of the real estate**

All land and land rights were assumed to be used for the operation of the Wastewater System for the appraisal, were valued at original cost, and not at 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**

See attached for signed certification.

**APPRAISAL CERTIFICATION**  
**East Norriton Township, Pennsylvania**  
**East Norriton Township Wastewater System Assets**  
**Fair Market Value Appraisal Report**  
**As of February 28, 2019**

Gannett Fleming Valuation and Rate Consultants, LLC 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.
  
- Gannett Fleming Valuation and Rate Consultants, LLC has not performed an appraisal of the East Norriton Township Wastewater System prior to this current appraisal.
  
- Gannett Fleming Valuation and Rate Consultants, LLC, 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)

**APPRAISAL CERTIFICATION**  
**East Norriton Township, Pennsylvania**  
**East Norriton Township Wastewater System Assets**  
**Fair Market Value Appraisal Report**  
**As of February 28, 2019**

- The signers of this report have made a personal inspection of the property that is the subject of this report.
  
- Individuals providing significant appraisal assistance to the person signing this certification include: John J. Spanos, President, Joanna Lappin, Depreciation Analyst and Gregory R. Herbert, Rate Analyst at Gannett Fleming Valuation and Rate Consultants, LLC.

Gannett Fleming Valuation and Rate Consultants, LLC

By,



HAROLD WALKER, III

Manager, Financial Studies

## APPENDIX A - QUALIFICATIONS

## **APPENDIX A**

Professional Qualifications  
of  
Harold Walker, III  
Manager, Financial Studies  
Gannett Fleming Valuation and Rate Consultants, LLC.

### **EDUCATION**

Mr. Walker graduated from Pennsylvania State University in 1984 with a Bachelor of Science Degree in Finance. His studies concentrated on securities analysis and portfolio management with an emphasis on economics and quantitative business analysis. He has also completed the regulation and the rate-making process courses presented by the College of Business Administration and Economics Center for Public Utilities at New Mexico State University. Additionally, he has attended programs presented by The Institute of Chartered Financial Analysts (CFA).

Mr. Walker was awarded the professional designation "Certified Rate of Return Analyst" (CRRA) by the Society of Utility and Regulatory Financial Analysts. This designation is based upon education, experience and the successful completion of a comprehensive examination. He is also a member of the Society of Utility and Regulatory Financial Analysts (SURFA) and has attended numerous financial forums sponsored by the Society. The SURFA forums are recognized by the Association for Investment Management and Research (AIMR) and the National Association of State Boards of Accountancy for continuing education credits.

Mr. Walker is also a licensed Municipal Advisor Representative (Series 50) by Municipal Securities Rulemaking Board (MSRB) and Financial Industry Regulatory Authority (FINRA).

### **BUSINESS EXPERIENCE**

In 1996, Mr. Walker joined Gannett Fleming Valuation and Rate Consultants, LLC. In his capacity as Manager, Financial Studies and for the past twenty years, he has continuously studied rates of return requirements for regulated firms. In this regard, he supervised the preparation of rate of return studies in connection with his testimony and in the past, for other individuals. He also assisted and/or developed dividend policy studies, nuclear prudence studies, calculated fixed charge rates for avoided costs involving cogeneration projects, financial decision studies for capital budgeting purposes and developed financial models for determining future capital requirements and the effect of those requirements on investors and ratepayers, valued utility property and common stock for acquisition and divestiture, and assisted in the private placement of fixed capital securities for public utilities.

Head, Gannett Fleming GASB 34 Task Force responsible for developing Governmental Accounting Standards Board (GASB) 34 services, and educating Gannett Fleming personnel and

Gannett Fleming clients on GASB 34 and how it may affect them. The GASB 34 related services include inventory of assets, valuation of assets, salvage estimation, annual depreciation rate determination, estimation of depreciation reserve, asset service life determination, asset condition assessment, condition assessment documentation, maintenance estimate for asset preservation, establishment of condition level index, geographic information system (GIS) and data management services, management discussion and analysis (MD&A) reporting, required supplemental information (RSI) reporting, auditor interface, and GASB 34 compliance review.

In 2004, Mr. Walker was elected to serve on the Board of Directors of SURFA. Previously, he served as an ex-officio directors as an advisor to SURFA's existing President. In 2000, Mr. Walker was elected President of SURFA for the 2001-2002 term. Prior to that, he was elected to serve on the Board of Directors of SURFA during the period 1997-1998 and 1999-2000. Currently, he also serves on the Pennsylvania Municipal Authorities Association, Electric Deregulation Committee.

Prior to joining Gannett Fleming Valuation and Rate Consultants, LLC., Mr. Walker was employed by AUS Consultants - Utility Services. He held various positions during his eleven years with AUS, concluding his employment there as a Vice President. His duties included providing and supervising financial and economic studies on behalf of investor owned and municipally owned water, waste water, electric, natural gas distribution and transmission, oil pipeline and telephone utilities as well as resource recovery companies.

Mr. Walker was also the Publisher of C.A. Turner Utility Reports from 1988 to 1996. C.A. Turner Utility Reports is a financial publication which provides financial data and related ratios and forecasts covering the utility industry. From 1993 to 1994, he became a contributing author for the Fortnightly, a utility trade journal. His column was the Financial News column and focused mainly on the natural gas industry.

## **EXPERT TESTIMONY**

Mr. Walker has submitted testimony or been deposed on various topics before regulatory commissions and courts in 23 states including: Arizona, California, Colorado, Connecticut, Delaware, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Michigan, Missouri, New Hampshire, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, and West Virginia. His testimonies covered various subjects including: fair market value, the taking of natural resources, appropriate capital structure and fixed capital cost rates, depreciation, fair rate of return, purchased water adjustments, synchronization of interest charges for income tax purposes, valuation, cash working capital, lead-lag studies, financial analyses of investment alternatives, and fair value.

## **PROFESSIONAL AFFILIATIONS**

Society of Utility and Regulatory Financial Analysts  
Board of Directors, 1996-2000, 2005-2008  
President, 2000-2002  
Treasurer, 1996-1998



National Association of Water Companies  
Pennsylvania Municipal Authorities Association  
Electric Deregulation Committee

## TECHNICAL PUBLICATIONS & PRESENTATIONS

Walker, Harold. Panelist "Now is the Time to Maximize Your Utility's Value." Presented at the Pennsylvania Association of Township Supervisors 97th Annual State Convention, April 2019.

Walker, Harold. Panelist "Fair Market Acquisitions Debate." Presented at National Association of Regulatory Utilities Commissioners Winter Policy Summit, February 2019.

Walker, Harold. Panelist "Fair Market Value Legislation." Presented at the National Association of Water Companies Water Summit, October 2018.

Walker, Harold. Panelist "Leveraging Water & Sewer to Address Roads, Schools, and Pension Obligations." Presented at the Maryland Association of Counties 2018 Summer Conference, August 2018.

Walker, Harold. Panelist "Is the Glass Half Full or Half Empty? Valuing Municipal Water Acquisitions." Presented at the Mid-Atlantic Conference of Regulatory Utilities Commissioners 23rd Annual Education Conference, June 2018.

Walker, Harold. "Valuation and Inventory of Governmental Assets Under GASB 34." Presented at the Society of Depreciation Professionals 21st Annual Conference, September 2007.

Walker, Harold. "The Paradox of State Regulatory Opinions and Investor Behavior." Presented at the National Association of Water Companies New England Chapter conference, November 2006.

Walker, Harold. "Valuation and Inventory Under GASB 34." Presented at the Government Finance Officers Association South Central Pennsylvania Regional Chapter conference, August 2003.

Walker, Harold. "Valuation and Inventory under GASB 34." Presented at the Government Finance Officers Association Southeastern Pennsylvania Regional Chapter conference, April 2002.

Walker, Harold. "GASB 34 & Your Infrastructure." *The Authority*, August 2001, Volume XXXII, No. 4, pages 10-13.

Walker, Harold. "Managing Risk." Conference Chairperson, presented at the Society of Utility & Regulatory Financial Analysts 33rd Financial Forum, April 2001.

Walker, Harold. "Paying for Your MSW System - Waste Generation Fees." Presented at the Federation of New York Solid Waste Association Solid Waste/Recycling Conference and Trade Show, May 2001.

Walker, Harold. "Statement No. 34 of the Government Accounting Standards Board." Presented at the Pennsylvania Association of Township Supervisors 79th Annual State Convention, April 2001.

Walker, Harold. "Cost of Capital Issues." Presented at the National Association of Water Companies New England Chapter conference, October 2000.

Walker, Harold, Timothy Hartman, and Mark Everett. "Waste Generation Study: Life After Flow Control." Presented at Waste Con 2000, October 1999.

Walker, Harold, and Timothy Hartman. "The Enhancement of Revenues Through a Waste Generation Study." Presented at SWANA's Planning and Management Symposium, July 1999.

## EXHIBITS

East Norriton Township Wastewater System Assets  
Selected Financial Information

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<b>1. <u>OPERATING REVENUES</u></b>				
2. Fees	\$3,040,791	\$2,920,612	\$3,254,705	\$3,206,187
<b>3. Total Operating Revenues</b>	<u>3,040,791</u>	<u>2,920,612</u>	<u>3,254,705</u>	<u>3,206,187</u>
<b>4. <u>OPERATING EXPENSES</u></b>				
5. Administration	136,377	229,094	132,012	152,909
6. Contracted Services	1,582,397	1,233,290	1,565,112	1,841,287
7. Repairs and Maintenance	93,936	89,004	67,907	59,383
8. Salaries and wages	328,809	336,439	305,634	262,402
9. Supplies	28,850	17,515	9,982	5,652
10. Utilities	202,485	171,947	151,498	153,105
<b>11. O&amp;M Expenses Before Depreciation</b>	<u>2,372,854</u>	<u>2,077,289</u>	<u>2,232,145</u>	<u>2,474,738</u>
12. Depreciation	119,596	116,707	115,632	110,824
<b>13. Total Operating Expenses</b>	<u>2,492,450</u>	<u>2,193,996</u>	<u>2,347,777</u>	<u>2,585,562</u>
<b>14. Operating Income</b>	<u>548,341</u>	<u>726,616</u>	<u>906,928</u>	<u>620,625</u>
15. CAPX	110,930	41,847	17,500	44,830
16. PP&E-Total Net	1,682,903	1,599,923	1,501,791	1,435,797
17. Assets				3,549,050
18. LT Debt*	1,653,665	1,272,050	873,698	649,415
19. Equity	3,726,766	3,511,871	3,519,873	3,405,723
20. Income (Loss) Before Transfers	486,812	675,411	870,988	594,146
21. Principal paid	274,595	381,615	398,353	224,283
22. Interest Paid	61,529	51,205	35,940	26,479

\* - Allocated to Sewer, not included in their balance sheet

Source of Information: Annual Reports

East Norriton Township Wastewater System Assets  
Population and Housing Units  
Customer Count  
Penetration of Service Area

	Township <u>2018</u>	
Population	14,296	2.9
Housing Units	<u>6,149</u>	
Average Size	<u>2.32</u>	

East Norriton Township Wastewater System Assets

<u>Customers</u>	<u>Current</u>	<u>EDU</u>
Total Active	4,966	4,970

TABLE 3.1 US Population Census Counts, 2000 & 2010

State	Population		Percentage Change
	2000	2010	
Alabama	4,447,351	4,779,736	7.5%
Alaska	626,931	710,231	13.3%
Arizona	5,130,632	6,392,017	24.6%
Arkansas	2,673,400	2,915,918	9.1%
California	33,871,653	37,253,956	10.0%
Colorado	4,302,015	5,029,196	16.9%
Connecticut	3,405,602	3,574,097	4.9%
Delaware	783,600	897,934	14.6%
District of Columbia	572,059	601,723	5.2%
Florida	15,982,824	18,801,310	17.6%
Georgia	8,186,816	9,687,653	18.3%
Hawaii	1,211,537	1,360,301	12.3%
Idaho	1,293,956	1,567,582	21.1%
Illinois	12,419,647	12,830,632	3.3%
Indiana	6,080,517	6,483,802	6.6%
Iowa	2,926,382	3,046,355	4.1%
Kansas	2,688,824	2,853,118	6.1%
Kentucky	4,042,285	4,339,367	7.3%
Louisiana	4,468,958	4,533,372	1.4%
Maine	1,274,923	1,328,361	4.2%
Maryland	5,296,507	5,773,552	9.0%
Massachusetts	6,349,105	6,547,629	3.1%
Michigan	9,938,480	9,883,640	-0.6%
Minnesota	4,919,492	5,303,925	7.8%
Mississippi	2,844,656	2,967,297	4.3%
Missouri	5,596,683	5,988,927	7.0%
Montana	902,195	989,415	9.7%
Nebraska	1,711,265	1,826,341	6.7%
Nevada	1,998,257	2,700,551	35.1%
New Hampshire	1,235,786	1,316,470	6.5%
New Jersey	8,414,347	8,791,894	4.5%
New Mexico	1,819,046	2,059,179	13.2%
New York	18,976,821	19,378,102	2.1%
North Carolina	8,046,485	9,535,483	18.5%
North Dakota	642,200	672,591	4.7%
Ohio	11,353,145	11,536,504	1.6%
Oklahoma	3,450,652	3,751,351	8.7%
Oregon	3,421,436	3,831,074	12.0%
Pennsylvania	12,281,054	12,702,379	3.4%
Rhode Island	1,048,319	1,052,567	0.4%
South Carolina	4,011,816	4,625,364	15.3%
South Dakota	754,844	814,180	7.9%
Tennessee	5,689,267	6,346,105	11.5%
Texas	20,851,790	25,145,561	20.6%
Utah	2,233,198	2,763,885	23.8%
Vermont	608,827	625,741	2.8%
Virginia	7,079,030	8,001,024	13.0%
Washington	5,894,141	6,724,540	14.1%
West Virginia	1,808,350	1,852,994	2.5%
Wisconsin	5,363,715	5,686,986	6.0%
Wyoming	493,782	563,626	14.1%
Total - States & D.C.	281,424,603	308,745,538	9.7%

Source: U.S. Census Bureau, Population Division

TABLE 3.2 Pennsylvania Population Census by County and Municipality, 2000 & 2010

Geographic Area	Population		Percentage Change	Municipal Growth Rank
	2000	2010		
Pennsylvania	12,281,054	12,702,379	3.4%	-
Montgomery County	750,097	799,874	6.6%	-
East Norriton township	13,211	13,590	2.9%	994 out of 2,572

Source: U.S. Census Bureau, Census 2000 & 2010 Redistricting Data (Public Law 94-171) Summary File.

TABLE 3.3 Forecasted Population by County and Municipality, 2015-2045

	Population						Percentage Change							
	Estimate 2015	Forecast 2020	Forecast 2025	Forecast 2030	Forecast 2035	Forecast 2040	Forecast 2045	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035	2035 to 2040	2040 to 2045	2015 to 2045
Bucks County	627,367	640,495	654,792	669,299	681,273	691,111	699,498	2.1%	2.2%	2.2%	1.8%	1.4%	1.2%	11.5%
Chester County	515,939	543,702	571,641	599,932	624,832	645,562	662,283	5.4%	5.1%	4.9%	4.2%	3.3%	2.6%	28.4%
Delaware County	563,894	568,337	572,758	577,248	581,136	584,329	587,037	0.8%	0.8%	0.8%	0.7%	0.5%	0.5%	4.1%
Montgomery County	819,264	840,934	863,327	884,387	903,114	918,918	932,820	2.6%	2.7%	2.4%	2.1%	1.7%	1.5%	13.9%
Philadelphia County	1,567,443	1,594,787	1,616,816	1,643,971	1,667,290	1,683,402	1,696,133	1.7%	1.4%	1.7%	1.4%	1.0%	0.8%	8.2%
<b>Subtotal - Five Pennsylvania Counties</b>	<b>4,093,907</b>	<b>4,188,255</b>	<b>4,279,334</b>	<b>4,374,837</b>	<b>4,457,645</b>	<b>4,523,322</b>	<b>4,577,771</b>	<b>2.3%</b>	<b>2.2%</b>	<b>2.2%</b>	<b>1.9%</b>	<b>1.5%</b>	<b>1.2%</b>	<b>11.8%</b>
Burlington County	450,226	459,344	468,428	475,978	482,560	488,026	492,709	2.0%	2.0%	1.6%	1.4%	1.1%	1.0%	9.4%
Camden County	510,923	514,006	517,073	520,189	522,886	525,101	526,997	0.6%	0.6%	0.6%	0.5%	0.4%	0.4%	3.1%
Gloucester County	291,479	307,766	323,969	340,425	354,677	366,383	376,308	5.6%	5.3%	5.1%	4.2%	3.3%	2.7%	29.1%
Mercer County	371,398	377,328	383,227	389,219	394,407	398,669	402,283	1.6%	1.6%	1.6%	1.3%	1.1%	0.9%	8.3%
<b>Subtotal - Four New Jersey Counties</b>	<b>1,624,026</b>	<b>1,658,444</b>	<b>1,692,697</b>	<b>1,725,811</b>	<b>1,754,530</b>	<b>1,778,179</b>	<b>1,798,297</b>	<b>2.1%</b>	<b>2.1%</b>	<b>2.0%</b>	<b>1.7%</b>	<b>1.3%</b>	<b>1.1%</b>	<b>10.7%</b>
<b>Total - Nine DVRPC Counties</b>	<b>5,717,933</b>	<b>5,846,699</b>	<b>5,972,031</b>	<b>6,100,648</b>	<b>6,212,175</b>	<b>6,301,501</b>	<b>6,376,068</b>	<b>2.3%</b>	<b>2.1%</b>	<b>2.2%</b>	<b>1.8%</b>	<b>1.4%</b>	<b>1.2%</b>	<b>11.5%</b>
East Norriton Township	14,082	14,256	14,430	14,606	14,759	14,884	14,990	1.2%	1.2%	1.2%	1.0%	0.8%	0.7%	6.4%

Source: Delaware Valley Regional Planning Commission, June 2016.

TABLE 3.4 Forecasted Employment by County and Municipality, 2015-2045

	Employment						Percentage Change							
	Estimate 2015	Forecast 2020	Forecast 2025	Forecast 2030	Forecast 2035	Forecast 2040	Forecast 2045	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035	2035 to 2040	2040 to 2045	2015 to 2045
Bucks County	322,731	329,645	337,203	344,859	351,310	356,671	361,124	2.1%	2.3%	2.3%	1.9%	1.5%	1.2%	11.9%
Chester County	309,605	326,320	343,050	359,774	374,967	387,391	397,405	5.4%	5.1%	4.9%	4.2%	3.3%	2.6%	28.4%
Delaware County	268,054	270,167	272,269	274,401	276,248	277,763	279,050	0.8%	0.8%	0.8%	0.7%	0.5%	0.5%	4.1%
Montgomery County	582,443	598,434	614,469	629,563	642,996	654,966	664,385	2.7%	2.7%	2.5%	2.1%	1.9%	1.4%	14.1%
Philadelphia County	772,847	786,308	797,156	810,574	822,002	829,937	836,825	1.7%	1.4%	1.7%	1.4%	1.0%	0.8%	8.3%
<b>Subtotal - Five Pennsylvania Counties</b>	<b>2,255,680</b>	<b>2,310,874</b>	<b>2,364,147</b>	<b>2,419,171</b>	<b>2,467,523</b>	<b>2,506,728</b>	<b>2,538,789</b>	<b>2.4%</b>	<b>2.3%</b>	<b>2.3%</b>	<b>2.0%</b>	<b>1.6%</b>	<b>1.3%</b>	<b>12.6%</b>
Burlington County	241,298	246,351	251,368	255,562	258,363	261,195	263,622	2.1%	2.0%	1.7%	1.1%	1.1%	0.9%	9.3%
Camden County	263,582	265,169	266,753	268,359	269,750	270,892	271,869	0.6%	0.6%	0.6%	0.5%	0.4%	0.4%	3.1%
Gloucester County	121,382	128,161	134,902	141,752	147,682	152,554	156,686	5.6%	5.3%	5.1%	4.2%	3.3%	2.7%	29.1%
Mercer County	286,295	290,864	295,408	300,025	304,021	307,302	310,084	1.6%	1.6%	1.6%	1.3%	1.1%	0.9%	8.3%
<b>Subtotal - Four New Jersey Counties</b>	<b>912,557</b>	<b>930,545</b>	<b>948,431</b>	<b>965,698</b>	<b>979,816</b>	<b>991,943</b>	<b>1,002,261</b>	<b>2.0%</b>	<b>1.9%</b>	<b>1.8%</b>	<b>1.5%</b>	<b>1.2%</b>	<b>1.0%</b>	<b>9.8%</b>
<b>Total - Nine DVRPC Counties</b>	<b>3,168,237</b>	<b>3,241,419</b>	<b>3,312,578</b>	<b>3,384,869</b>	<b>3,447,339</b>	<b>3,498,671</b>	<b>3,541,050</b>	<b>2.3%</b>	<b>2.2%</b>	<b>2.2%</b>	<b>1.8%</b>	<b>1.5%</b>	<b>1.2%</b>	<b>11.8%</b>
East Norriton Township	10,682	10,999	11,317	11,617	11,813	11,880	12,182	3.0%	2.9%	2.7%	1.7%	0.6%	2.5%	14.0%

Source: Delaware Valley Regional Planning Commission, September 2016. Base employment data from the National Establishments Time Series (NETS) database, 2010 and 2013.

Comparison of Credit Market Financial Risk Metrics  
For East Norriton Township Wastewater System Assets  
And the Comparable Group  
2015 - 2017 (1)

	East Norriton Township Wastewater System Assets			Comparable Group		
	2017	2016	2015	2017	2016	2015
Debt Service Coverage	2.9	2.4	1.9	3.3	3.6	3.3
Pre-Tax Interest Coverage - Including AFC(2)(x)	23.4	25.2	14.2	4.4	4.3	3.8
Post-Tax Interest Coverage - Including AFC(2)(x)	23.4	25.2	14.2	3.4	3.2	3.1
GCF / Interest Coverage(3)(x)	27.6	28.5	16.5	5.4	5.2	5.3
GCF / Tot. Debt(4)(%)	108.6	112.9	62.3	23.2	22.9	22.8
GCF / Construction(5)(%)	1572.5	5637.8	1892.9	82.6	94.2	111.8

Notes: (1) Average of the achieved results for each individual company based upon the financials as originally reported.

(2) Represents the number of times available earnings, including AFC, cover all interest charges.

(3) GCF or gross cash flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less AFC), plus interest charges, divided by interest charges.

(4) GCF (see note 3) as a percentage of total debt.

(5) The percent of GCF (see note 3) which cover gross construction expenditures.

Source: 2015-17 Annual Reports  
S&P Research Insight  
EXHIBIT 1

East Norriton Township Wastewater System Assets  
 Illustrating the Impact of Size on Risk and Return  
 Through Common Stock Returns

**TABLE 5.1 Change in Return and Risk for Size-Quartiles Portfolio of the NYSE/AMEX/NASDAQ Common Stocks (1)**

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>	<u>J</u>
	Market	Average	Standard	Change in	Largest	Quartile	Comparison	Beta	Beta Adjusted	
Market	Quartile	Quartile	Deviation	Quartile	Market Value	Beta	Group	Ratio	Quartile	Change in
Quartile	Name	1926-16	of	Premium	in the Quartile		Beta		Size	Quartile
		(%)	Return	(%)	(Mill \$)				Premium	Premium
			(%)	(%)					(%)	(%)
(Largest Stocks)										
1	Large-Cap	0.00	19.6	--	609,163	1.00	0.70	70%	0.00	
2	Mid-Cap	1.02	24.6	1.02	10,712	1.12	0.70	63%	0.64	0.64
3	Low-Cap	1.75	28.9	0.73	2,392	1.22	0.70	57%	1.00	0.37
4	Mico-Cap	3.67	39.1	1.92	569	1.35	0.70	52%	1.90	0.90
(Smallest Stocks)										

Notes: (1) 2017 Ibbotson Stocks, Bonds, Bills, and Inflation (SBBI) Classic Yearbook

**TABLE 5.2 Recent Market Values and Ibbotson Associates Market Quartiles for the Comparable Group**

	2/28/2019	Market	
	Market	Quartile	Market
	Value	Name	Quartile
	(Mill \$)		
<u>Comparable Group</u>			
American States Water Co	2,616	Mid-Cap	2
American Water Works Co Inc	18,368	Large-Cap	1
Aqua America Inc	6,403	Mid-Cap	2
Artesian Resources -Cl A	362	Mico-Cap	4
California Water Service Gp	2,500	Mid-Cap	2
Middlesex Water Co	965	Low-Cap	3
SJW Corp	1,739	Low-Cap	3
York Water Co	471	Mico-Cap	4
Median	2,120	Low-Cap	3



East Norriton Township Wastewater System Assets  
 Property Plant & Equipment Analysis  
 Capital Expenditures Analysis  
 Growth Rate Analyses  
 Profit Margin Analyses

**TABLE 6.1 Property Plant & Equipment Analysis**

(Current Know Statistics)			
Gross Property, Plant & Equipment	Net Property, Plant & Equipment	Percentage of Property, Plant & Equipment Not Depreciated	
(Millions of \$)			
East Norriton Township Wastewater System Assets	\$10.708	\$5.997	<u>56%</u>
<b>Comparable Group</b>			
American States Water Co	\$1,819.259	\$1,296.310	71%
American Water Works Co Inc	21,882.000	16,087.000	74%
Aqua America Inc	7,447.238	5,930.324	80%
Artesian Resources -CL A	616.272	491.001	80%
California Water Service Gp	3,169.726	2,185.742	69%
Middlesex Water Co	753.624	599.104	79%
SJW Corp	1,979.920	1,372.830	69%
York Water Co	375.580	297.028	<u>79%</u>
Median			<u>76%</u>

**TABLE 6.2 Property Plant & Equipment Analysis for Contributions**

(As of 9/30/2018)				
Net Property, Plant & Equipment	Investor's Capital	Percentage of Property, Plant & Equipment Net of Contributions		2017 Percentage of Known "Cost Free" Capital
(Millions of \$)				
<b>Comparable Group</b>				
American States Water Co	\$1,296.310	\$945.491	73%	20%
American Water Works Co Inc	16,087.000	14,475.000	90%	21%
Aqua America Inc	5,930.324	4,407.828	74%	27%
Artesian Resources -CL A	491.001	279.298	57%	41%
California Water Service Gp	2,185.742	1,606.256	73%	27%
Middlesex Water Co	599.104	444.497	74%	26%
SJW Corp	1,372.830	1,420.736	103%	25%
York Water Co	297.028	215.602	73%	28%
Median			<u>74%</u>	<u>26%</u>

East Norriton Township Wastewater System Assets  
Property Plant & Equipment Analysis  
Capital Expenditures Analysis  
Growth Rate Analyses  
Profit Margin Analyses

TABLE 6.3 Capital Expenditures Analysis

	PP&E-Total Net				Capital Expenditures			
	2017	2016	2015	2014	2017	2016	2015	2014
	(Millions of \$)				(Millions of \$)			
East Norriton Township Wastewater System Assets	\$1.436	\$1.502	\$1.600	\$1.683	\$0.045	\$0.018	\$0.042	\$0.111
<u>Comparable Group</u>								
American States Water Co	\$1,204.992	\$1,150.926	\$1,060.794	\$1,003.520	\$113.126	\$129.867	\$87.323	\$72.553
American Water Works Co Inc	14,970.000	13,774.000	12,812.000	11,824.832	1,434.000	1,311.000	1,160.000	956.119
Aqua America Inc	5,399.860	5,001.615	4,688.925	4,401.990	478.089	382.996	364.689	328.605
Artesian Resources -CL A	464.384	429.383	409.562	397.823	41.094	28.251	20.694	23.730
California Water Service Gp	2,036.971	1,847.460	1,689.252	1,579.060	259.194	228.938	176.833	132.015
Middlesex Water Co	557.240	517.776	481.870	465.406	50.301	47.375	25.773	22.596
SJW Corp	1,284.345	1,196.822	1,098.247	1,025.215	149.055	142.220	106.774	101.936
York Water Co	289.524	271.652	262.189	253.959	24.602	13.158	13.844	14.139
	Capital Expenditures / PP&E-Total Net							
	2017	2016	2015	2014				
East Norriton Township Wastewater System Assets	3%	1%	3%	7%				
<u>Comparable Group</u>								
American States Water Co	9%	11%	8%	7%				
American Water Works Co Inc	10%	10%	9%	8%				
Aqua America Inc	9%	8%	8%	7%				
Artesian Resources -CL A	9%	7%	5%	6%				
California Water Service Gp	13%	12%	10%	8%				
Middlesex Water Co	9%	9%	5%	5%				
SJW Corp	12%	12%	10%	10%				
York Water Co	8%	5%	5%	6%				
Median	9%	9%	8%	7%				

East Norriton Township Wastewater System Assets  
Property Plant & Equipment Analysis  
Capital Expenditures Analysis  
Growth Rate Analyses  
Profit Margin Analyses

Revenues				EBITDA			
2017	2016	2015	2014	2017	2016	2015	2014

(Millions of \$)

(Millions of \$)

East Norriton Township Wastewater System Assets	\$3.206	\$3.255	\$2.921	\$3.041	\$0.731	\$1.023	\$0.843	\$0.668
<u>Comparable Group</u>								
American States Water Co	\$440.603	\$436.087	\$458.641	\$465.791	\$157.789	\$153.566	\$160.522	\$160.063
American Water Works Co Inc	3,357.000	3,302.000	3,159.000	3,011.328	1,306.476	1,154.957	1,102.741	917.849
Aqua America Inc	809.525	819.875	814.204	779.903	433.284	387.423	380.137	340.460
Artesian Resources -CL A	82.235	79.089	77.024	72.465	30.401	25.800	26.382	25.061
California Water Service Gp	666.890	609.370	588.368	597.499	147.867	140.577	127.710	122.709
Middlesex Water Co	130.775	132.906	126.025	117.139	38.056	33.947	35.841	28.720
SJW Corp	389.225	339.706	305.082	319.668	86.302	83.532	68.003	63.335
York Water Co	48.589	47.584	47.089	45.900	25.743	24.780	24.359	21.800

EBIT			
2017	2016	2015	2014

(Millions of \$)

East Norriton Township Wastewater System Assets	\$0.842	\$1.138	\$0.960	\$0.788
<u>Comparable Group</u>				
American States Water Co	\$118.758	\$114.716	\$118.489	\$118.990
American Water Works Co Inc	1,222.000	1,145.000	1,075.000	1,014.026
Aqua America Inc	328.967	325.585	321.100	314.359
Artesian Resources -CL A	26.895	27.150	25.366	22.421
California Water Service Gp	123.551	100.998	95.681	108.574
Middlesex Water Co	38.620	40.632	35.840	34.392
SJW Corp	98.079	93.116	79.960	92.878
York Water Co	22.473	22.888	22.661	22.077

East Norriton Township Wastewater System Assets  
 Property Plant & Equipment Analysis  
 Capital Expenditures Analysis  
 Growth Rate Analyses  
 Profit Margin Analyses

TABLE 6.4 Growth Rate Analyses

	Revenue Growth			EBITDA Growth		
	2017	2016	2015	2017	2016	2015
East Norriton Township Wastewater System Assets	-1.5%	11.4%	-3.9%	-28.5%	21.4%	26.2%
<u>Comparable Group</u>						
American States Water Co	1.0%	-4.9%	-1.5%	2.7%	-4.3%	0.3%
American Water Works Co Inc	1.7%	4.5%	4.9%	13.1%	4.7%	20.1%
Aqua America Inc	-1.3%	0.7%	4.4%	11.8%	1.9%	11.7%
Artesian Resources -CL A	4.0%	2.7%	6.3%	17.8%	-2.2%	5.3%
California Water Service Gp	9.4%	3.6%	-1.5%	5.2%	10.1%	4.1%
Middlesex Water Co	-1.6%	5.5%	7.6%	12.1%	-5.3%	24.8%
SJW Corp	14.6%	11.3%	-4.6%	3.3%	22.8%	7.4%
York Water Co	2.1%	1.1%	2.6%	3.9%	1.7%	11.7%
Median	1.9%	3.2%	3.5%	8.5%	1.8%	9.6%
	EBIT Growth					
	2017	2016	2015			
East Norriton Township Wastewater System Assets	-26.0%	18.5%	21.8%			
<u>Comparable Group</u>						
American States Water Co	3.5%	-3.2%	-0.4%			
American Water Works Co Inc	6.7%	6.5%	6.0%			
Aqua America Inc	1.0%	1.4%	2.1%			
Artesian Resources -CL A	-0.9%	7.0%	13.1%			
California Water Service Gp	22.3%	5.6%	-11.9%			
Middlesex Water Co	-5.0%	13.4%	4.2%			
SJW Corp	5.3%	16.5%	-13.9%			
York Water Co	-1.8%	1.0%	2.6%			
Median	2.3%	6.1%	2.4%			

East Norriton Township Wastewater System Assets  
Property Plant & Equipment Analysis  
Capital Expenditures Analysis  
Growth Rate Analyses  
Profit Margin Analyses

<b>TABLE 6.5 Profit Margin Analyses</b>			
	EBITDA / Revenue - Margin		
	2017	2016	2015
East Norriton Township Wastewater System Assets	22.8%	31.4%	28.9%
<b>Comparable Group</b>			
American States Water Co	35.8%	35.2%	35.0%
American Water Works Co Inc	38.9%	35.0%	34.9%
Aqua America Inc	53.5%	47.3%	46.7%
Artesian Resources -CL A	37.0%	32.6%	34.3%
California Water Service Gp	22.2%	23.1%	21.7%
Middlesex Water Co	29.1%	25.5%	28.4%
SJW Corp	22.2%	24.6%	22.3%
York Water Co	53.0%	52.1%	51.7%
Median	36.4%	33.8%	34.6%
	EBIT / Revenue - Margin		
	2017	2016	2015
East Norriton Township Wastewater System Assets	26.3%	35.0%	32.9%
<b>Comparable Group</b>			
American States Water Co	27.0%	26.3%	25.8%
American Water Works Co Inc	36.4%	34.7%	34.0%
Aqua America Inc	40.6%	39.7%	39.4%
Artesian Resources -CL A	32.7%	34.3%	32.9%
California Water Service Gp	18.5%	16.6%	16.3%
Middlesex Water Co	29.5%	30.6%	28.4%
SJW Corp	25.2%	27.4%	26.2%
York Water Co	46.3%	48.1%	48.1%
Median	31.1%	32.5%	30.7%

Source: S&P Research Insight  
EXHIBIT 1

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

SUMMARY OF ORIGINAL COST AND ACCRUED DEPRECIATION  
OF WASTEWATER SYSTEM AS OF FEBRUARY 28, 2019

ACCOUNT (1)	DESCRIPTION (2)	ORIGINAL COST (3)	ACCRUED DEPRECIATION (4)
353.30	LAND AND LAND RIGHTS - PUMPING	275.00	
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	2,350,000.00	693,602
355.30	POWER GENERATION EQUIPMENT - PUMPING	539,772.00	279,654
360.20	COLLECTION SEWERS - FORCE	757,848.15	294,374
361.21	COLLECTION SEWERS - GRAVITY - MAINS	6,511,175.70	2,876,206
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1,573,326.00	712,733
363.20	SERVICES TO CUSTOMERS	1,790,221.75	1,122,718
364.20	FLOW MEASURING DEVICES	219,185.00	119,529
371.30	PUMPING EQUIPMENT	2,529,740.00	1,001,533
391.70	TRANSPORTATION EQUIPMENT	350,516.00	327,755
394.70	LABORATORY EQUIPMENT	74,804.00	49,071
396.70	COMMUNICATION EQUIPMENT	201,724.00	175,068
397.70	MISCELLANEOUS EQUIPMENT	17,624.00	12,519
	<b>TOTAL COMPANY</b>	<b>16,916,211.60</b>	<b>7,664,762</b>

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

SUMMARY OF ANALYSIS OF ORIGINAL COST  
OF WASTEWATER SYSTEM AS OF FEBRUARY 28, 2019

ACCOUNT	DESCRIPTION	ORIGINAL COST
(1)	(2)	(3)
353.30	LAND AND LAND RIGHTS - PUMPING	275.00
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	2,350,000.00
355.30	POWER GENERATION EQUIPMENT - PUMPING	539,772.00
360.20	COLLECTION SEWERS - FORCE	757,848.15
361.21	COLLECTION SEWERS - GRAVITY - MAINS	6,511,175.70
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1,573,326.00
363.20	SERVICES TO CUSTOMERS	1,790,221.75
364.20	FLOW MEASURING DEVICES	219,185.00
371.30	PUMPING EQUIPMENT	2,529,740.00
391.70	TRANSPORTATION EQUIPMENT	350,516.00
394.70	LABORATORY EQUIPMENT	74,804.00
396.70	COMMUNICATION EQUIPMENT	201,724.00
397.70	MISCELLANEOUS EQUIPMENT	17,624.00
	<b>TOTAL COMPANY</b>	<b>16,916,211.60</b>

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

SUMMARY OF SERVICE LIFE ESTIMATES AND CALCULATED ACCRUED  
DEPRECIATION RELATED TO ORIGINAL COST AS OF FEBRUARY 28, 2019

<u>ACCOUNT</u>	<u>DESCRIPTION</u>	<u>SURVIVOR</u> <u>CURVE</u>	<u>ORIGINAL</u> <u>COST</u>	<u>ACCRUED</u> <u>DEPRECIATION</u>
(1)	(2)	(3)	(4)	(5)
353.30	LAND AND LAND RIGHTS - PUMPING	NONDEPRECIABLE	275.00	
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	55-R3	2,350,000.00	693,602
355.30	POWER GENERATION EQUIPMENT - PUMPING	30-S2	539,772.00	279,654
360.20	COLLECTION SEWERS - FORCE	70-R2.5	757,848.15	294,374
361.21	COLLECTION SEWERS - GRAVITY - MAINS	70-R2.5	6,511,175.70	2,876,206
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	65-R3	1,573,326.00	712,733
363.20	SERVICES TO CUSTOMERS	55-R2.5	1,790,221.75	1,122,718
364.20	FLOW MEASURING DEVICES	30-L3	219,185.00	119,529
371.30	PUMPING EQUIPMENT	40-R1.5	2,529,740.00	1,001,533
391.70	TRANSPORTATION EQUIPMENT	11-S1.5	350,516.00	327,755
394.70	LABORATORY EQUIPMENT	20-SQ	74,804.00	49,071
396.70	COMMUNICATION EQUIPMENT	15-SQ	201,724.00	175,068
397.70	MISCELLANEOUS EQUIPMENT	15-SQ	17,624.00	12,519
	<b>TOTAL COMPANY</b>		<b>16,916,211.60</b>	<b>7,664,762</b>



**EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS**

**SUMMARY OF ORIGINAL COST BY ACCOUNT AND VINTAGE YEAR  
OF WASTEWATER SYSTEM AS OF FEBRUARY 28, 2019**

ACCOUNT (1)	DESCRIPTION (2)	VINTAGE YEAR (3)	ORIGINAL COST (4)
353.30	LAND AND LAND RIGHTS - PUMPING	1963	3.00
353.30	LAND AND LAND RIGHTS - PUMPING	1971	266.00
353.30	LAND AND LAND RIGHTS - PUMPING	1975	1.00
353.30	LAND AND LAND RIGHTS - PUMPING	1981	2.00
353.30	LAND AND LAND RIGHTS - PUMPING	1982	1.00
353.30	LAND AND LAND RIGHTS - PUMPING	1995	1.00
353.30	LAND AND LAND RIGHTS - PUMPING	2012	1.00
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	1960	275,000.00
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	1975	226,000.00
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	1994	310,000.00
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	2012	1,539,000.00
355.30	POWER GENERATION EQUIPMENT - PUMPING	1960	26,000.00
355.30	POWER GENERATION EQUIPMENT - PUMPING	1975	21,000.00
355.30	POWER GENERATION EQUIPMENT - PUMPING	1985	7,449.00
355.30	POWER GENERATION EQUIPMENT - PUMPING	1994	29,000.00
355.30	POWER GENERATION EQUIPMENT - PUMPING	1996	245,000.00
355.30	POWER GENERATION EQUIPMENT - PUMPING	2007	34,373.00
355.30	POWER GENERATION EQUIPMENT - PUMPING	2009	32,950.00
355.30	POWER GENERATION EQUIPMENT - PUMPING	2012	144,000.00
360.20	COLLECTION SEWERS - FORCE	1963	205,890.40
360.20	COLLECTION SEWERS - FORCE	1975	190,087.23
360.20	COLLECTION SEWERS - FORCE	1994	117,614.96
360.20	COLLECTION SEWERS - FORCE	2012	411,766.07
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1963	1,852,637.64
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1970	841,486.55
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1975	400,822.18
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1978	86,323.01
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1979	145,420.99
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1980	334,429.32
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1981	34,324.96
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1983	64,597.65
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1985	165,262.22
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1986	324,839.61
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1993	62,033.95
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1994	247,616.68
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1996	112,142.93
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2000	237,907.42
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2003	259,599.15
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2006	147,277.40
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2007	943,523.07
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2009	137,640.62
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2010	18,869.09
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2012	94,421.26
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1963	360,662.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1970	167,858.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1975	85,573.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1978	24,391.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1979	27,854.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1980	72,687.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1981	6,489.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1983	13,894.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1985	43,003.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1986	104,476.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1993	20,346.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1994	55,440.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1996	38,407.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2000	60,736.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2003	84,961.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2006	41,621.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2007	299,428.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2009	25,102.00

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

SUMMARY OF ORIGINAL COST BY ACCOUNT AND VINTAGE YEAR  
OF WASTEWATER SYSTEM AS OF FEBRUARY 28, 2019

ACCOUNT (1)	DESCRIPTION (2)	VINTAGE YEAR (3)	ORIGINAL COST (4)
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2010	8,592.00
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2012	31,806.00
363.20	SERVICES TO CUSTOMERS	1971	1,297,220.75
363.20	SERVICES TO CUSTOMERS	1990	493,001.00
364.20	FLOW MEASURING DEVICES	1960	9,000.00
364.20	FLOW MEASURING DEVICES	1975	8,000.00
364.20	FLOW MEASURING DEVICES	1985	3,724.00
364.20	FLOW MEASURING DEVICES	1994	10,000.00
364.20	FLOW MEASURING DEVICES	1996	123,000.00
364.20	FLOW MEASURING DEVICES	2001	3,890.00
364.20	FLOW MEASURING DEVICES	2006	5,630.00
364.20	FLOW MEASURING DEVICES	2010	7,941.00
364.20	FLOW MEASURING DEVICES	2012	48,000.00
371.30	PUMPING EQUIPMENT	1960	35,000.00
371.30	PUMPING EQUIPMENT	1975	29,000.00
371.30	PUMPING EQUIPMENT	1985	59,590.00
371.30	PUMPING EQUIPMENT	1994	39,000.00
371.30	PUMPING EQUIPMENT	1996	1,961,000.00
371.30	PUMPING EQUIPMENT	1999	39,148.00
371.30	PUMPING EQUIPMENT	2000	9,549.00
371.30	PUMPING EQUIPMENT	2005	2,757.00
371.30	PUMPING EQUIPMENT	2011	16,240.00
371.30	PUMPING EQUIPMENT	2012	192,000.00
371.30	PUMPING EQUIPMENT	2013	21,682.00
371.30	PUMPING EQUIPMENT	2014	29,658.00
371.30	PUMPING EQUIPMENT	2015	41,847.00
371.30	PUMPING EQUIPMENT	2016	17,500.00
371.30	PUMPING EQUIPMENT	2018	35,769.00
391.70	TRANSPORTATION EQUIPMENT	1999	239,337.00
391.70	TRANSPORTATION EQUIPMENT	2000	76,079.00
391.70	TRANSPORTATION EQUIPMENT	2001	35,100.00
394.70	LABORATORY EQUIPMENT	2004	2,533.00
394.70	LABORATORY EQUIPMENT	2005	46,964.00
394.70	LABORATORY EQUIPMENT	2006	15,805.00
394.70	LABORATORY EQUIPMENT	2007	4,062.00
394.70	LABORATORY EQUIPMENT	2008	3,729.00
394.70	LABORATORY EQUIPMENT	2010	1,711.00
396.70	COMMUNICATION EQUIPMENT	1960	9,000.00
396.70	COMMUNICATION EQUIPMENT	1975	8,000.00
396.70	COMMUNICATION EQUIPMENT	1985	3,724.00
396.70	COMMUNICATION EQUIPMENT	1994	10,000.00
396.70	COMMUNICATION EQUIPMENT	1996	123,000.00
396.70	COMMUNICATION EQUIPMENT	2012	48,000.00
397.70	MISCELLANEOUS EQUIPMENT	1998	3,568.00
397.70	MISCELLANEOUS EQUIPMENT	2003	6,256.00
397.70	MISCELLANEOUS EQUIPMENT	2012	2,000.00
397.70	MISCELLANEOUS EQUIPMENT	2014	5,800.00
<b>TOTAL COMPANY</b>			<b>17,083,722.11</b>

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 353.30 LAND AND LAND RIGHTS - PUMPING

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
NONDEPRECIABLE							
1963	3.00						
1971	266.00						
1975	1.00						
1981	2.00						
1982	1.00						
1995	1.00						
2012	1.00						
	275.00						
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 0.00							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 354.30 STRUCTURES AND IMPROVEMENTS - PUMPHOUSE

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 55-R3							
NET SALVAGE PERCENT.. 0							
1960	275,000.00	55.00	1.82	5,005.00	9.49	0.8275	227,549
1975	226,000.00	55.00	1.82	4,113.20	17.50	0.6818	154,091
1994	310,000.00	55.00	1.82	5,642.00	31.97	0.4187	129,806
2012	1,539,000.00	55.00	1.82	28,009.80	48.49	0.1184	182,156
	2,350,000.00			42,770.00			693,602
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.82							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 355.30 POWER GENERATION EQUIPMENT - PUMPING

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 30-S2							
NET SALVAGE PERCENT.. 0							
1960	26,000.00	30.00	3.33	865.80	0.23	0.9923	25,801
1975	21,000.00	30.00	3.33	699.30	3.36	0.8880	18,648
1985	7,449.00	30.00	3.33	248.05	6.25	0.7917	5,897
1994	29,000.00	30.00	3.33	965.70	9.98	0.6673	19,353
1996	245,000.00	30.00	3.33	8,158.50	11.03	0.6323	154,921
2007	34,373.00	30.00	3.33	1,144.62	18.76	0.3747	12,879
2009	32,950.00	30.00	3.33	1,097.24	20.55	0.3150	10,379
2012	144,000.00	30.00	3.33	4,795.20	23.38	0.2207	31,776
	539,772.00			17,974.41			279,654

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.33

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 360.20 COLLECTION SEWERS - FORCE

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 70-R2.5							
NET SALVAGE PERCENT.. 0							
1963	205,890.40	70.00	1.43	2,944.23	24.53	0.6496	133,740
1975	190,087.23	70.00	1.43	2,718.25	32.67	0.5333	101,372
1994	117,614.96	70.00	1.43	1,681.89	47.71	0.3184	37,452
2012	244,255.56	70.00	1.43	3,492.85	63.75	0.0893	21,810
	757,848.15			10,837.22			294,374
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.43							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 361.21 COLLECTION SEWERS - GRAVITY - MAINS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 70-R2.5							
NET SALVAGE PERCENT.. 0							
1963	1,852,637.64	70.00	1.43	26,492.72	24.53	0.6496	1,203,418
1970	841,486.55	70.00	1.43	12,033.26	29.13	0.5839	491,310
1975	400,822.18	70.00	1.43	5,731.76	32.67	0.5333	213,754
1978	86,323.01	70.00	1.43	1,234.42	34.88	0.5017	43,309
1979	145,420.99	70.00	1.43	2,079.52	35.63	0.4910	71,402
1980	334,429.32	70.00	1.43	4,782.34	36.39	0.4801	160,573
1981	34,324.96	70.00	1.43	490.85	37.16	0.4691	16,103
1983	64,597.65	70.00	1.43	923.75	38.71	0.4470	28,875
1985	165,262.22	70.00	1.43	2,363.25	40.29	0.4244	70,142
1986	324,839.61	70.00	1.43	4,645.21	41.09	0.4130	134,159
1993	62,033.95	70.00	1.43	887.09	46.86	0.3306	20,507
1994	247,616.68	70.00	1.43	3,540.92	47.71	0.3184	78,849
1996	112,142.93	70.00	1.43	1,603.64	49.42	0.2940	32,970
2000	237,907.42	70.00	1.43	3,402.08	52.90	0.2443	58,118
2003	259,599.15	70.00	1.43	3,712.27	55.56	0.2063	53,553
2006	147,277.40	70.00	1.43	2,106.07	58.25	0.1679	24,722
2007	943,523.07	70.00	1.43	13,492.38	59.16	0.1549	146,114
2009	137,640.62	70.00	1.43	1,968.26	60.99	0.1287	17,716
2010	18,869.09	70.00	1.43	269.83	61.91	0.1156	2,181
2012	94,421.26	70.00	1.43	1,350.22	63.75	0.0893	8,431
	6,511,175.70			93,109.84			2,876,206

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.43

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 361.22 COLLECTION SEWERS - GRAVITY - MANHOLES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 65-R3							
NET SALVAGE PERCENT.. 0							
1963	360,662.00	65.00	1.54	5,554.19	18.13	0.7211	260,066
1970	167,858.00	65.00	1.54	2,585.01	22.65	0.6515	109,366
1975	85,573.00	65.00	1.54	1,317.82	26.20	0.5969	51,080
1978	24,391.00	65.00	1.54	375.62	28.45	0.5623	13,715
1979	27,854.00	65.00	1.54	428.95	29.22	0.5505	15,333
1980	72,687.00	65.00	1.54	1,119.38	30.00	0.5385	39,139
1981	6,489.00	65.00	1.54	99.93	30.78	0.5265	3,416
1983	13,894.00	65.00	1.54	213.97	32.38	0.5019	6,973
1985	43,003.00	65.00	1.54	662.25	34.00	0.4769	20,509
1986	104,476.00	65.00	1.54	1,608.93	34.83	0.4642	48,493
1993	20,346.00	65.00	1.54	313.33	40.81	0.3722	7,572
1994	55,440.00	65.00	1.54	853.78	41.69	0.3586	19,882
1996	38,407.00	65.00	1.54	591.47	43.47	0.3312	12,722
2000	60,736.00	65.00	1.54	935.33	47.11	0.2752	16,716
2003	84,961.00	65.00	1.54	1,308.40	49.89	0.2325	19,750
2006	41,621.00	65.00	1.54	640.96	52.72	0.1889	7,863
2007	299,428.00	65.00	1.54	4,611.19	53.67	0.1743	52,193
2009	25,102.00	65.00	1.54	386.57	55.58	0.1449	3,638
2010	8,592.00	65.00	1.54	132.32	56.55	0.1300	1,117
2012	31,806.00	65.00	1.54	489.81	58.48	0.1003	3,190
	1,573,326.00			24,229.21			712,733

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.54



EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 363.20 SERVICES TO CUSTOMERS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 55-R2.5							
NET SALVAGE PERCENT.. 0							
1971	1,297,220.75	55.00	1.82	23,609.42	16.93	0.6922	897,910
1990	493,001.00	55.00	1.82	8,972.62	29.92	0.4560	224,808
	1,790,221.75			32,582.04			1,122,718
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.82							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 364.20 FLOW MEASURING DEVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 30-L3							
NET SALVAGE PERCENT.. 0							
1960	9,000.00	30.00	3.33	299.70	2.53	0.9157	8,241
1975	8,000.00	30.00	3.33	266.40	5.97	0.8010	6,408
1985	3,724.00	30.00	3.33	124.01	8.38	0.7207	2,684
1994	10,000.00	30.00	3.33	333.00	10.18	0.6607	6,607
1996	123,000.00	30.00	3.33	4,095.90	10.90	0.6367	78,310
2001	3,890.00	30.00	3.33	129.54	13.73	0.5423	2,110
2006	5,630.00	30.00	3.33	187.48	17.77	0.4077	2,295
2010	7,941.00	30.00	3.33	264.44	21.44	0.2853	2,266
2012	48,000.00	30.00	3.33	1,598.40	23.37	0.2210	10,608
	219,185.00			7,298.87			119,529
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.33							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 371.30 PUMPING EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 40-R1.5							
NET SALVAGE PERCENT.. 0							
1960	35,000.00	40.00	2.50	875.00	6.06	0.8485	29,698
1975	29,000.00	40.00	2.50	725.00	11.22	0.7195	20,866
1985	59,590.00	40.00	2.50	1,489.75	16.09	0.5978	35,620
1994	39,000.00	40.00	2.50	975.00	21.54	0.4615	17,998
1996	1,961,000.00	40.00	2.50	49,025.00	22.86	0.4285	840,288
1999	39,148.00	40.00	2.50	978.70	24.93	0.3768	14,749
2000	9,549.00	40.00	2.50	238.72	25.63	0.3593	3,430
2005	2,757.00	40.00	2.50	68.92	29.27	0.2683	740
2011	16,240.00	40.00	2.50	406.00	33.84	0.1540	2,501
2012	192,000.00	40.00	2.50	4,800.00	34.63	0.1343	25,776
2013	21,682.00	40.00	2.50	542.05	35.42	0.1145	2,483
2014	29,658.00	40.00	2.50	741.45	36.21	0.0948	2,810
2015	41,847.00	40.00	2.50	1,046.18	37.01	0.0748	3,128
2016	17,500.00	40.00	2.50	437.50	37.82	0.0545	954
2018	35,769.00	40.00	2.50	894.22	39.45	0.0138	492
	2,529,740.00			63,243.49			1,001,533
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.50							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 391.70 TRANSPORTATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 11-S1.5							
NET SALVAGE PERCENT.. 0							
1999	239,337.00	11.00	9.09	21,755.73	0.61	0.9446	226,066
2000	76,079.00	11.00	9.09	6,915.58	0.86	0.9218	70,131
2001	35,100.00	11.00	9.09	3,190.59	1.11	0.8991	31,558
	350,516.00			31,861.90			327,755
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 9.09							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 394.70 LABORATORY EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. 20-SQUARE							
NET SALVAGE PERCENT.. 0							
2004	2,533.00	20.00	5.00	126.65	5.33	0.7335	1,858
2005	46,964.00	20.00	5.00	2,348.20	6.33	0.6835	32,100
2006	15,805.00	20.00	5.00	790.25	7.33	0.6335	10,012
2007	4,062.00	20.00	5.00	203.10	8.33	0.5835	2,370
2008	3,729.00	20.00	5.00	186.45	9.33	0.5335	1,989
2010	1,711.00	20.00	5.00	85.55	11.33	0.4335	742
	74,804.00			3,740.20			49,071

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 5.00

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 396.70 COMMUNICATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. 15-SQUARE							
NET SALVAGE PERCENT.. 0							
1960	9,000.00	15.00				1.0000	9,000
1975	8,000.00	15.00				1.0000	8,000
1985	3,724.00	15.00				1.0000	3,724
1994	10,000.00	15.00				1.0000	10,000
1996	123,000.00	15.00				1.0000	123,000
2012	48,000.00	15.00	6.67	3,201.60	8.33	0.4447	21,344
	201,724.00			3,201.60			175,068

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.59

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 397.70 MISCELLANEOUS EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO ORIGINAL COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. 15-SQUARE							
NET SALVAGE PERCENT.. 0							
1998	3,568.00	15.00				1.0000	3,568
2003	6,256.00	15.00				1.0000	6,256
2012	2,000.00	15.00	6.67	133.40	8.33	0.4447	889
2014	5,800.00	15.00	6.67	386.86	10.33	0.3113	1,806
	17,624.00			520.26			12,519
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.95							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

SUMMARY OF REPRODUCTION COST AND ACCRUED DEPRECIATION  
OF WASTEWATER SYSTEM AS OF FEBRUARY 28, 2019

ACCOUNT (1)	DESCRIPTION (2)	REPRODUCTION COST (3)	ACCRUED DEPRECIATION (4)
353.30	LAND AND LAND RIGHTS - PUMPING	275.00	
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	7,429,035.78	4,398,183
355.30	POWER GENERATION EQUIPMENT - PUMPING	1,714,673.43	1,161,308
360.20	COLLECTION SEWERS - FORCE	3,906,296.28	2,161,185
361.21	COLLECTION SEWERS - GRAVITY - MAINS	39,091,770.67	22,037,768
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	8,312,115.66	5,027,760
363.20	SERVICES TO CUSTOMERS	10,976,950.57	7,301,601
364.20	FLOW MEASURING DEVICES	466,942.42	289,644
371.30	PUMPING EQUIPMENT	7,096,493.98	3,228,835
391.70	TRANSPORTATION EQUIPMENT	390,749.64	365,383
394.70	LABORATORY EQUIPMENT	65,774.85	43,053
396.70	COMMUNICATION EQUIPMENT	172,779.46	146,828
397.70	MISCELLANEOUS EQUIPMENT	20,248.71	14,622
	<b>TOTAL COMPANY</b>	<b>79,644,106.45</b>	<b>46,176,170</b>



EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

SUMMARY OF ANALYSIS OF REPRODUCTION COST  
OF WASTEWATER SYSTEM AS OF FEBRUARY 28, 2019

ACCOUNT	DESCRIPTION	REPRODUCTION COST
(1)	(2)	(3)
353.30	LAND AND LAND RIGHTS - PUMPING	275.00
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	7,429,035.78
355.30	POWER GENERATION EQUIPMENT - PUMPING	1,714,673.43
360.20	COLLECTION SEWERS - FORCE	3,906,296.28
361.21	COLLECTION SEWERS - GRAVITY - MAINS	39,091,770.67
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	8,312,115.66
363.20	SERVICES TO CUSTOMERS	10,976,950.57
364.20	FLOW MEASURING DEVICES	466,942.42
371.30	PUMPING EQUIPMENT	7,096,493.98
391.70	TRANSPORTATION EQUIPMENT	390,749.64
394.70	LABORATORY EQUIPMENT	65,774.85
396.70	COMMUNICATION EQUIPMENT	172,779.46
397.70	MISCELLANEOUS EQUIPMENT	20,248.71
	<b>TOTAL COMPANY</b>	<b>79,644,106.45</b>

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

SUMMARY OF SERVICE LIFE ESTIMATES AND CALCULATED ACCRUED  
DEPRECIATION RELATED TO REPRODUCTION COST AS OF FEBRUARY 28, 2019

ACCOUNT (1)	DESCRIPTION (2)	SURVIVOR CURVE (3)	REPRODUCTION COST (4)	ACCRUED DEPRECIATION (5)
353.30	LAND AND LAND RIGHTS - PUMPING	NONDEPRECIABLE	275.00	
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	55-R3	7,429,035.78	4,398,183
355.30	POWER GENERATION EQUIPMENT - PUMPING	30-S2	1,714,673.43	1,161,308
360.20	COLLECTION SEWERS - FORCE	70-R2.5	3,906,296.28	2,161,185
361.21	COLLECTION SEWERS - GRAVITY - MAINS	70-R2.5	39,091,770.67	22,037,768
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	65-R3	8,312,115.66	5,027,760
363.20	SERVICES TO CUSTOMERS	55-R2.5	10,976,950.57	7,301,601
364.20	FLOW MEASURING DEVICES	30-L3	466,942.42	289,644
371.30	PUMPING EQUIPMENT	40-R1.5	7,096,493.98	3,228,835
391.70	TRANSPORTATION EQUIPMENT	11-S1.5	390,749.64	365,383
394.70	LABORATORY EQUIPMENT	20-SQ	65,774.85	43,053
396.70	COMMUNICATION EQUIPMENT	15-SQ	172,779.46	146,828
397.70	MISCELLANEOUS EQUIPMENT	15-SQ	20,248.71	14,622
	<b>TOTAL COMPANY</b>		<b>79,644,106.45</b>	<b>46,176,170</b>

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

SUMMARY OF REPRODUCTION COST AND TREND FACTORS BY ACCOUNT AND VINTAGE YEAR  
OF WASTEWATER SYSTEM AS OF FEBRUARY 28, 2019

ACCOUNT (1)	DESCRIPTION (2)	VINTAGE YEAR (3)	ORIGINAL COST (4)	INDEX FACTOR (5)	FACTOR REFERENCE (6)	REPRODUCTION COST (7)
353.30	LAND AND LAND RIGHTS - PUMPING	1963	3.00	1.00	(1)	3.00
353.30	LAND AND LAND RIGHTS - PUMPING	1971	266.00	1.00	(1)	266.00
353.30	LAND AND LAND RIGHTS - PUMPING	1975	1.00	1.00	(1)	1.00
353.30	LAND AND LAND RIGHTS - PUMPING	1981	2.00	1.00	(1)	2.00
353.30	LAND AND LAND RIGHTS - PUMPING	1982	1.00	1.00	(1)	1.00
353.30	LAND AND LAND RIGHTS - PUMPING	1995	1.00	1.00	(1)	1.00
353.30	LAND AND LAND RIGHTS - PUMPING	2012	1.00	1.00	(1)	1.00
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	1960	275,000.00	13.32	(2)	3,663,207.55
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	1975	226,000.00	5.56	(2)	1,256,346.46
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	1994	310,000.00	2.29	(2)	710,584.42
354.30	STRUCTURES AND IMPROVEMENTS - PUMPHOUSE	2012	1,539,000.00	1.17	(2)	1,798,897.35
355.30	POWER GENERATION EQUIPMENT - PUMPING	1960	26,000.00	16.43	(3)	427,243.24
355.30	POWER GENERATION EQUIPMENT - PUMPING	1975	21,000.00	7.85	(3)	164,748.39
355.30	POWER GENERATION EQUIPMENT - PUMPING	1985	7,449.00	4.31	(3)	32,120.51
355.30	POWER GENERATION EQUIPMENT - PUMPING	1994	29,000.00	2.84	(3)	82,392.52
355.30	POWER GENERATION EQUIPMENT - PUMPING	1996	245,000.00	2.70	(3)	662,044.44
355.30	POWER GENERATION EQUIPMENT - PUMPING	2007	34,373.00	1.92	(3)	65,926.76
355.30	POWER GENERATION EQUIPMENT - PUMPING	2009	32,950.00	1.76	(3)	57,984.37
355.30	POWER GENERATION EQUIPMENT - PUMPING	2012	144,000.00	1.54	(3)	222,213.20
360.20	COLLECTION SEWERS - FORCE	1963	205,890.40	11.13	(4)	2,290,530.70
360.20	COLLECTION SEWERS - FORCE	1975	190,087.23	5.49	(4)	1,042,875.83
360.20	COLLECTION SEWERS - FORCE	1994	117,614.96	2.45	(4)	288,102.70
360.20	COLLECTION SEWERS - FORCE	2012	411,766.07	1.17	(4)	480,094.06
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1963	1,852,637.64	11.13	(4)	20,610,593.75
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1970	841,486.55	9.54	(4)	8,024,175.32
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1975	400,822.18	5.49	(4)	2,199,031.28
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1978	86,323.01	4.63	(4)	399,680.53
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1979	145,420.99	4.33	(4)	629,633.58
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1980	334,429.32	3.97	(4)	1,326,128.15
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1981	34,324.96	3.66	(4)	125,544.72
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1983	64,597.65	3.35	(4)	216,496.73
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1985	165,262.22	3.15	(4)	521,161.57
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1986	324,839.61	3.14	(4)	1,020,378.54
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1993	62,033.95	2.50	(4)	154,795.00
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1994	247,616.68	2.45	(4)	606,547.28
361.21	COLLECTION SEWERS - GRAVITY - MAINS	1996	112,142.93	2.36	(4)	264,974.89
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2000	237,907.42	2.12	(4)	505,474.39
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2003	259,599.15	1.97	(4)	510,906.44
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2006	147,277.40	1.61	(4)	236,411.22
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2007	943,523.07	1.51	(4)	1,425,966.00
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2009	137,640.62	1.30	(4)	179,560.48
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2010	18,869.09	1.28	(4)	24,221.38
361.21	COLLECTION SEWERS - GRAVITY - MAINS	2012	94,421.26	1.17	(4)	110,089.42
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1963	360,662.00	11.13	(4)	4,012,364.75
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1970	167,858.00	9.54	(4)	1,600,645.93
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1975	85,573.00	5.49	(4)	469,479.27
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1978	24,391.00	4.63	(4)	112,931.74
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1979	27,854.00	4.33	(4)	120,600.29
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1980	72,687.00	3.97	(4)	288,229.14
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1981	6,489.00	3.66	(4)	23,733.74
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1983	13,894.00	3.35	(4)	46,565.25
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1985	43,003.00	3.15	(4)	135,611.82
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1986	104,476.00	3.14	(4)	328,177.55
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1993	20,346.00	2.50	(4)	50,769.93
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1994	55,440.00	2.45	(4)	135,802.57
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	1996	38,407.00	2.36	(4)	90,749.28
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2000	60,736.00	2.12	(4)	129,043.86
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2003	84,961.00	1.97	(4)	167,208.26
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2006	41,621.00	1.61	(4)	66,810.46
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2007	299,428.00	1.51	(4)	452,531.75
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2009	25,102.00	1.30	(4)	32,747.07

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

SUMMARY OF REPRODUCTION COST AND TREND FACTORS BY ACCOUNT AND VINTAGE YEAR  
OF WASTEWATER SYSTEM AS OF FEBRUARY 28, 2019

ACCOUNT (1)	DESCRIPTION (2)	VINTAGE YEAR (3)	ORIGINAL COST (4)	INDEX FACTOR (5)	FACTOR REFERENCE (6)	REPRODUCTION COST (7)
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2010	8,592.00	1.28	(4)	11,029.15
361.22	COLLECTION SEWERS - GRAVITY - MANHOLES	2012	31,806.00	1.17	(4)	37,083.85
363.20	SERVICES TO CUSTOMERS	1971	1,297,220.75	7.49	(5)	9,721,867.87
363.20	SERVICES TO CUSTOMERS	1990	493,001.00	2.55	(5)	1,255,082.70
364.20	FLOW MEASURING DEVICES	1960	9,000.00	5.56	(6)	50,076.92
364.20	FLOW MEASURING DEVICES	1975	8,000.00	4.67	(6)	37,333.33
364.20	FLOW MEASURING DEVICES	1985	3,724.00	3.21	(6)	11,971.97
364.20	FLOW MEASURING DEVICES	1994	10,000.00	2.48	(6)	24,800.00
364.20	FLOW MEASURING DEVICES	1996	123,000.00	2.10	(6)	257,884.06
364.20	FLOW MEASURING DEVICES	2001	3,890.00	2.80	(6)	10,892.00
364.20	FLOW MEASURING DEVICES	2006	5,630.00	1.75	(6)	9,852.50
364.20	FLOW MEASURING DEVICES	2010	7,941.00	1.15	(6)	9,165.94
364.20	FLOW MEASURING DEVICES	2012	48,000.00	1.15	(6)	54,965.70
371.30	PUMPING EQUIPMENT	1960	35,000.00	16.43	(3)	575,135.14
371.30	PUMPING EQUIPMENT	1975	29,000.00	7.85	(3)	227,509.68
371.30	PUMPING EQUIPMENT	1985	59,590.00	4.31	(3)	256,955.46
371.30	PUMPING EQUIPMENT	1994	39,000.00	2.84	(3)	110,803.74
371.30	PUMPING EQUIPMENT	1996	1,961,000.00	2.70	(3)	5,299,057.78
371.30	PUMPING EQUIPMENT	1999	39,148.00	2.41	(3)	94,265.28
371.30	PUMPING EQUIPMENT	2000	9,549.00	2.29	(3)	21,908.65
371.30	PUMPING EQUIPMENT	2005	2,757.00	1.99	(3)	5,477.96
371.30	PUMPING EQUIPMENT	2011	16,240.00	1.62	(3)	26,260.43
371.30	PUMPING EQUIPMENT	2012	192,000.00	1.54	(3)	296,284.26
371.30	PUMPING EQUIPMENT	2013	21,682.00	1.45	(3)	31,537.45
371.30	PUMPING EQUIPMENT	2014	29,658.00	1.36	(3)	40,250.14
371.30	PUMPING EQUIPMENT	2015	41,847.00	1.29	(3)	53,847.57
371.30	PUMPING EQUIPMENT	2016	17,500.00	1.20	(3)	20,924.29
371.30	PUMPING EQUIPMENT	2018	35,769.00	1.01	(3)	36,276.15
391.70	TRANSPORTATION EQUIPMENT	1999	239,337.00	1.12	(7)	267,259.89
391.70	TRANSPORTATION EQUIPMENT	2000	76,079.00	1.11	(7)	84,266.22
391.70	TRANSPORTATION EQUIPMENT	2001	35,100.00	1.12	(7)	39,223.53
394.70	LABORATORY EQUIPMENT	2004	2,533.00	0.85	(8)	2,143.29
394.70	LABORATORY EQUIPMENT	2005	46,964.00	0.87	(8)	40,770.63
394.70	LABORATORY EQUIPMENT	2006	15,805.00	0.89	(8)	14,002.65
394.70	LABORATORY EQUIPMENT	2007	4,062.00	0.91	(8)	3,711.02
394.70	LABORATORY EQUIPMENT	2008	3,729.00	0.93	(8)	3,463.98
394.70	LABORATORY EQUIPMENT	2010	1,711.00	0.98	(8)	1,683.28
396.70	COMMUNICATION EQUIPMENT	1960	9,000.00	0.88	(9)	7,921.53
396.70	COMMUNICATION EQUIPMENT	1975	8,000.00	0.88	(9)	7,041.36
396.70	COMMUNICATION EQUIPMENT	1985	3,724.00	0.88	(9)	3,277.75
396.70	COMMUNICATION EQUIPMENT	1994	10,000.00	0.82	(9)	8,215.31
396.70	COMMUNICATION EQUIPMENT	1996	123,000.00	0.81	(9)	99,590.96
396.70	COMMUNICATION EQUIPMENT	2012	48,000.00	0.97	(9)	46,732.55
397.70	MISCELLANEOUS EQUIPMENT	1998	3,568.00	1.18	(10)	4,226.57
397.70	MISCELLANEOUS EQUIPMENT	2003	6,256.00	1.18	(10)	7,410.71
397.70	MISCELLANEOUS EQUIPMENT	2012	2,000.00	1.14	(10)	2,272.56
397.70	MISCELLANEOUS EQUIPMENT	2014	5,800.00	1.09	(10)	6,338.87
<b>TOTAL COMPANY</b>			<b>17,083,722.11</b>			<b>79,839,413.46</b>

- NOTES : (1) Not trended  
(2) Handy-Whitman Index of Public Utility Costs, 1/1/18, Cost Trends of Water Utility Construction, North Atlantic Region, Line 8  
(3) Handy-Whitman Index of Public Utility Costs, 1/1/18, Cost Trends of Water Utility Construction, North Atlantic Region, Line 9  
(4) Handy-Whitman Index of Public Utility Costs, 1/1/18, Cost Trends of Water Utility Construction, North Atlantic Region, Line 34  
(5) Handy-Whitman Index of Public Utility Costs, 1/1/18, Cost Trends of Water Utility Construction, North Atlantic Region, Line 39  
(6) Handy-Whitman Index of Public Utility Costs, 1/1/18, Cost Trends of Water Utility Construction, North Atlantic Region, Line 40  
(7) U.S. Bureau of Labor Statistics, Producer Price Index: Series Title: PPI industry data for Automobile, light truck and utility vehicle mfg, not seasonally adj.  
(8) U.S. Bureau of Labor Statistics, Producer Price Index: Series Title: PPI industry group data for Audio & video equipment mfg, not seasonally adjusted  
(9) U.S. Bureau of Labor Statistics, Producer Price Index: Series Title: PPI industry group data for Communications equipment mfg, not seasonally adjusted  
(10) U.S. Bureau of Labor Statistics, Producer Price Index: Series Title: PPI industry data for Nonresidential building maintenance & repair, not seasonally adj.

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 353.30 LAND AND LAND RIGHTS - PUMPING

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
NONDEPRECIABLE							
1963	3.00						
1971	266.00						
1975	1.00						
1981	2.00						
1982	1.00						
1995	1.00						
2012	1.00						
	275.00						

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 0.00

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 354.30 STRUCTURES AND IMPROVEMENTS - PUMPHOUSE

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL RATE (4)	ACCRUAL-- AMOUNT (5)	EXP. (6)	--ACCRUED FACTOR (7)	DEPREC.-- AMOUNT (8)
SURVIVOR CURVE.. IOWA 55-R3							
NET SALVAGE PERCENT.. 0							
1960	3,663,207.55	55.00	1.82	66,670.38	9.49	0.8275	3,031,121
1975	1,256,346.46	55.00	1.82	22,865.51	17.50	0.6818	856,602
1994	710,584.42	55.00	1.82	12,932.64	31.97	0.4187	297,543
2012	1,798,897.35	55.00	1.82	32,739.93	48.49	0.1184	212,917
	7,429,035.78			135,208.46			4,398,183
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.82							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 355.30 POWER GENERATION EQUIPMENT - PUMPING

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	EXP. AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 30-S2							
NET SALVAGE PERCENT.. 0							
1960	427,243.24	30.00	3.33	14,227.20	0.23	0.9923	423,966
1975	164,748.39	30.00	3.33	5,486.12	3.36	0.8880	146,297
1985	32,120.51	30.00	3.33	1,069.61	6.25	0.7917	25,429
1994	82,392.52	30.00	3.33	2,743.67	9.98	0.6673	54,983
1996	662,044.44	30.00	3.33	22,046.08	11.03	0.6323	418,631
2007	65,926.76	30.00	3.33	2,195.36	18.76	0.3747	24,701
2009	57,984.37	30.00	3.33	1,930.88	20.55	0.3150	18,265
2012	222,213.20	30.00	3.33	7,399.70	23.38	0.2207	49,036
	1,714,673.43			57,098.62			1,161,308
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.33							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 360.20 COLLECTION SEWERS - FORCE

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL RATE (4)	ACCRUAL-- AMOUNT (5)	EXP. (6)	--ACCRUED FACTOR (7)	DEPREC.-- AMOUNT (8)
SURVIVOR CURVE.. IOWA 70-R2.5							
NET SALVAGE PERCENT.. 0							
1963	2,290,530.70	70.00	1.43	32,754.59	24.53	0.6496	1,487,860
1975	1,042,875.83	70.00	1.43	14,913.12	32.67	0.5333	556,155
1994	288,102.70	70.00	1.43	4,119.87	47.71	0.3184	91,741
2012	284,787.05	70.00	1.43	4,072.45	63.75	0.0893	25,429
	3,906,296.28			55,860.03			2,161,185
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.43							



EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 361.21 COLLECTION SEWERS - GRAVITY - MAINS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 70-R2.5							
NET SALVAGE PERCENT.. 0							
1963	20,610,593.75	70.00	1.43	294,731.49	24.53	0.6496	13,388,023
1970	8,024,175.32	70.00	1.43	114,745.71	29.13	0.5839	4,684,995
1975	2,199,031.28	70.00	1.43	31,446.15	32.67	0.5333	1,172,721
1978	399,680.53	70.00	1.43	5,715.43	34.88	0.5017	200,524
1979	629,633.58	70.00	1.43	9,003.76	35.63	0.4910	309,150
1980	1,326,128.15	70.00	1.43	18,963.63	36.39	0.4801	636,727
1981	125,544.72	70.00	1.43	1,795.29	37.16	0.4691	58,898
1983	216,496.73	70.00	1.43	3,095.90	38.71	0.4470	96,774
1985	521,161.57	70.00	1.43	7,452.61	40.29	0.4244	221,197
1986	1,020,378.54	70.00	1.43	14,591.41	41.09	0.4130	421,416
1993	154,795.00	70.00	1.43	2,213.57	46.86	0.3306	51,171
1994	606,547.28	70.00	1.43	8,673.63	47.71	0.3184	193,143
1996	264,974.89	70.00	1.43	3,789.14	49.42	0.2940	77,903
2000	505,474.39	70.00	1.43	7,228.28	52.90	0.2443	123,482
2003	510,906.44	70.00	1.43	7,305.96	55.56	0.2063	105,395
2006	236,411.22	70.00	1.43	3,380.68	58.25	0.1679	39,684
2007	1,425,966.00	70.00	1.43	20,391.31	59.16	0.1549	220,825
2009	179,560.48	70.00	1.43	2,567.71	60.99	0.1287	23,111
2010	24,221.38	70.00	1.43	346.37	61.91	0.1156	2,799
2012	110,089.42	70.00	1.43	1,574.28	63.75	0.0893	9,830
	39,091,770.67			559,012.31			22,037,768

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.43

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 361.22 COLLECTION SEWERS - GRAVITY - MANHOLES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 65-R3							
NET SALVAGE PERCENT.. 0							
1963	4,012,364.75	65.00	1.54	61,790.42	18.13	0.7211	2,893,236
1970	1,600,645.93	65.00	1.54	24,649.95	22.65	0.6515	1,042,885
1975	469,479.27	65.00	1.54	7,229.98	26.20	0.5969	280,242
1978	112,931.74	65.00	1.54	1,739.15	28.45	0.5623	63,503
1979	120,600.29	65.00	1.54	1,857.24	29.22	0.5505	66,386
1980	288,229.14	65.00	1.54	4,438.73	30.00	0.5385	155,200
1981	23,733.74	65.00	1.54	365.50	30.78	0.5265	12,495
1983	46,565.25	65.00	1.54	717.10	32.38	0.5019	23,369
1985	135,611.82	65.00	1.54	2,088.42	34.00	0.4769	64,676
1986	328,177.55	65.00	1.54	5,053.93	34.83	0.4642	152,324
1993	50,769.93	65.00	1.54	781.86	40.81	0.3722	18,894
1994	135,802.57	65.00	1.54	2,091.36	41.69	0.3586	48,702
1996	90,749.28	65.00	1.54	1,397.54	43.47	0.3312	30,059
2000	129,043.86	65.00	1.54	1,987.28	47.11	0.2752	35,517
2003	167,208.26	65.00	1.54	2,575.01	49.89	0.2325	38,869
2006	66,810.46	65.00	1.54	1,028.88	52.72	0.1889	12,622
2007	452,531.75	65.00	1.54	6,968.99	53.67	0.1743	78,881
2009	32,747.07	65.00	1.54	504.30	55.58	0.1449	4,746
2010	11,029.15	65.00	1.54	169.85	56.55	0.1300	1,434
2012	37,083.85	65.00	1.54	571.09	58.48	0.1003	3,720
	8,312,115.66			128,006.58			5,027,760

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.54

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 363.20 SERVICES TO CUSTOMERS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL RATE (4)	ACCRUAL-- AMOUNT (5)	EXP. (6)	--ACCRUED FACTOR (7)	DEPREC.-- AMOUNT (8)
SURVIVOR CURVE.. IOWA 55-R2.5							
NET SALVAGE PERCENT.. 0							
1971	9,721,867.87	55.00	1.82	176,938.00	16.93	0.6922	6,729,283
1990	1,255,082.70	55.00	1.82	22,842.51	29.92	0.4560	572,318
	10,976,950.57			199,780.51			7,301,601
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.82							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 364.20 FLOW MEASURING DEVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 30-L3							
NET SALVAGE PERCENT.. 0							
1960	50,076.92	30.00	3.33	1,667.56	2.53	0.9157	45,854
1975	37,333.33	30.00	3.33	1,243.20	5.97	0.8010	29,904
1985	11,971.97	30.00	3.33	398.67	8.38	0.7207	8,628
1994	24,800.00	30.00	3.33	825.84	10.18	0.6607	16,385
1996	257,884.06	30.00	3.33	8,587.54	10.90	0.6367	164,187
2001	10,892.00	30.00	3.33	362.70	13.73	0.5423	5,907
2006	9,852.50	30.00	3.33	328.09	17.77	0.4077	4,017
2010	9,165.94	30.00	3.33	305.23	21.44	0.2853	2,615
2012	54,965.70	30.00	3.33	1,830.36	23.37	0.2210	12,147
	466,942.42			15,549.19			289,644

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 3.33

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 371.30 PUMPING EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 40-R1.5							
NET SALVAGE PERCENT.. 0							
1960	575,135.14	40.00	2.50	14,378.38	6.06	0.8485	488,002
1975	227,509.68	40.00	2.50	5,687.74	11.22	0.7195	163,693
1985	256,955.46	40.00	2.50	6,423.89	16.09	0.5978	153,595
1994	110,803.74	40.00	2.50	2,770.09	21.54	0.4615	51,136
1996	5,299,057.78	40.00	2.50	132,476.44	22.86	0.4285	2,270,646
1999	94,265.28	40.00	2.50	2,356.63	24.93	0.3768	35,514
2000	21,908.65	40.00	2.50	547.72	25.63	0.3593	7,871
2005	5,477.96	40.00	2.50	136.95	29.27	0.2683	1,469
2011	26,260.43	40.00	2.50	656.51	33.84	0.1540	4,044
2012	296,284.26	40.00	2.50	7,407.11	34.63	0.1343	39,776
2013	31,537.45	40.00	2.50	788.44	35.42	0.1145	3,611
2014	40,250.14	40.00	2.50	1,006.25	36.21	0.0948	3,814
2015	53,847.57	40.00	2.50	1,346.19	37.01	0.0748	4,025
2016	20,924.29	40.00	2.50	523.11	37.82	0.0545	1,140
2018	36,276.15	40.00	2.50	906.90	39.45	0.0138	499
	7,096,493.98			177,412.35			3,228,835
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.50							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 391.70 TRANSPORTATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. IOWA 11-S1.5							
NET SALVAGE PERCENT.. 0							
1999	267,259.89	11.00	9.09	24,293.92	0.61	0.9446	252,440
2000	84,266.22	11.00	9.09	7,659.80	0.86	0.9218	77,678
2001	39,223.53	11.00	9.09	3,565.42	1.11	0.8991	35,265
	390,749.64			35,519.14			365,383
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 9.09							

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 394.70 LABORATORY EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. 20-SQUARE							
NET SALVAGE PERCENT.. 0							
2004	2,143.29	20.00	5.00	107.16	5.33	0.7335	1,572
2005	40,770.63	20.00	5.00	2,038.53	6.33	0.6835	27,867
2006	14,002.65	20.00	5.00	700.13	7.33	0.6335	8,871
2007	3,711.02	20.00	5.00	185.55	8.33	0.5835	2,165
2008	3,463.98	20.00	5.00	173.20	9.33	0.5335	1,848
2010	1,683.28	20.00	5.00	84.16	11.33	0.4335	730
	65,774.85			3,288.73			43,053

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 5.00

EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 396.70 COMMUNICATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. 15-SQUARE							
NET SALVAGE PERCENT.. 0							
1960	7,921.53	15.00				1.0000	7,922
1975	7,041.36	15.00				1.0000	7,041
1985	3,277.75	15.00				1.0000	3,278
1994	8,215.31	15.00				1.0000	8,215
1996	99,590.96	15.00				1.0000	99,591
2012	46,732.55	15.00	6.67	3,117.06	8.33	0.4447	20,781
	172,779.46			3,117.06			146,828

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.80



EAST NORRITON TOWNSHIP  
EAST NORRITON TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 397.70 MISCELLANEOUS EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION  
RELATED TO REPRODUCTION COST AT FEBRUARY 28, 2019

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
SURVIVOR CURVE.. 15-SQUARE							
NET SALVAGE PERCENT.. 0							
1998	4,226.57	15.00				1.0000	4,227
2003	7,410.71	15.00				1.0000	7,411
2012	2,272.56	15.00	6.67	151.58	8.33	0.4447	1,011
2014	6,338.87	15.00	6.67	422.80	10.33	0.3113	1,973
	20,248.71			574.38			14,622
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.84							

Income Approach  
 East Norriton Township Wastewater System Assets  
 Pro Forma Operations  
Earnings Capitalization Model

	Actual			Budget	Budget
	2015	2016	2017	2018	Year 0 2019
<b>1. OPERATING REVENUES (1)</b>					
2. Charges for services	2,920,612	3,254,705	3,206,187	3,320,000	3,320,000
3. Other operating revenue	0	0	0	0	0
4. Tap Fees	0	0	0	0	0
<b>5. Total Operating Revenues</b>	2,920,612	3,254,705	3,206,187	3,320,000	3,320,000
6. <span style="float: right;">Rate Increase</span>					
<b>7. OPERATING EXPENSES (1)</b>					
8. Operating & Maintenance Expenses	2,077,289	2,232,145	2,474,738	2,707,173	2,722,739
<b>9. Operating Expenses Before Depreciation</b>	2,077,289	2,232,145	2,474,738	2,707,173	2,722,739
10. Depreciation (2)	116,707	115,632	110,824	0	0
<b>11. Total Operating Expenses</b>	2,193,996	2,347,777	2,585,562	2,707,173	2,722,739
<b>12. Operating Income</b>	726,616	906,928	620,625	612,827	597,261
13. Revenues (3)	2,920,612	3,254,705	3,206,187	3,320,000	3,320,000
14. EBITDA (4)	843,323	1,022,560	731,449	612,827	597,261
15. EBIT (5)	726,616	906,928	620,625	612,827	597,261
16. EBIT	726,616	906,928	620,625	612,827	597,261
17. (-) Income Taxes	0	0	0	0	0
18. Debt Free Net Income	726,616	906,928	620,625	612,827	597,261
19. (+) Depreciation & Amortization	116,707	115,632	110,824	0	0
20. (-) Capital Expenditures (6)	41,847	17,500	44,830	50,000	0
21. (-) Changes in Working Capital (7)	7,009	2,278	2,244	2,324	2,324
<b>22. Debt Free Net Cash Flow</b>	\$794,467	\$1,002,782	\$684,375	\$560,503	\$594,937

Income Approach  
 East Norriton Township Wastewater System Assets  
 Pro Forma Operations  
Earnings Capitalization Model

	<u>2019</u>	Pro Forma <u>2019 (11)</u>
	3.81% Capitalization Rate Model (No Growth)	3.81% Capitalization Rate Model (No Growth)
23. Debt Free Net Cash Flow (10)	\$594,937	\$564,102
24. Capitalization Factor: (8)	3.81%	3.81%
25. Indicated Value (line 23 ÷ line 24)	\$15,615,144	\$14,805,816
	3.71% Capitalization Rate Model (0.10% Growth)	3.71% Capitalization Rate Model (0.10% Growth)
26. Debt Free Net Cash Flow (10)	\$594,937	\$564,102
27. Capitalization Factor: (9)	3.71%	3.71%
28. Indicated Value (line 26 ÷ line 27)	\$16,036,038	\$15,204,895

**See last page of this EXHIBIT for notes and assumptions.**

Income Approach  
East Norriton Township Wastewater System Assets  
Pro Forma Operations  
Earnings Capitalization Model

Notes: (1) Assumptions:

Charges for services - Pre-2020 are actual or budget. Post-2019 based on customer growth (EDU) and average revenue per customer.

OPERATING EXPENSES - increase at 2.5% annually after 2019 unless noted elsewhere. Assumed economies of scale are shown on lines below.

- (2) Depreciation - Pre-2020 based on actual depreciation rate plus same rate on half of CAPX. Post-2019 based on depreciation rate plus same rate on half of CAPX.
- (3) Line 5.
- (4) Line 12 + line 10.
- (5) Line 12.
- (6) Capital Expenditures - Pre-2020 based on financials/budget. Post-2019 years are estimates at 2.00% of prior year-end GROSS Property, plant and equipment.
- (7) Changes in Working Capital - based on water industry 0.07% of revenues.
- (8) Discount rate is the current MUNI discount rate. Capitalization rate, "K", at 2/28/2019 equal to discount rate, where capitalization rate =  $K - g$ .
- (10) Final year shown, line 22.
- (11) Debt Free Net Cash Flow adjusted for 2014-2019 average CAPX of \$30,835 if system is not sold.

**Terms:**

CAPX - Capital Expenditures

CIP - Capital improvement plan

Dep - Depreciation expense

GROSS PPE - GROSS Property, plant and equipment

IOU - Investor owned utility

MUNI - Large regional municipally owned utility

NET PPE - NET Property, plant and equipment

## Income Approach

East Norriton Township Wastewater System Assets  
 Pro Forma and Estimated Operations With MUNI Ownership  
 DCF With Capitalization of Terminal Value Model and  
 DCF With EBIT & EBITDA Terminal Value Model

	Actual			Budget	Budget	Estimated
	2015	2016	2017	2018	2019	2020
<b>1. OPERATING REVENUES (1)</b>						
2. Charges for services	2,920,612	3,254,705	3,206,187	3,320,000	3,320,000	3,342,837
3. Other operating revenue	0	0	0	0	0	0
4. Tap Fees	0	0	0	0	0	0
5. Other (Rate Increase)	0	0	0	0	0	0
<b>6. Total Operating Revenues</b>	<b>2,920,612</b>	<b>3,254,705</b>	<b>3,206,187</b>	<b>3,320,000</b>	<b>3,320,000</b>	<b>3,342,837</b>
7. <b>Rate Increase</b>						
<b>8. OPERATING EXPENSES (1)</b>						
9. Operating & Maintenance Expenses	2,077,289	2,232,145	2,474,738	2,707,173	2,722,739	2,790,807
10. Remove Economies of Scale						
11. LESS: EOS - Wages & Benefits	0	0	0	0	0	(46,191)
12. LESS: EOS - Professional Services	0	0	0	0	0	(56,375)
13. LESS: EOS - Electric & Power	0	0	0	0	0	(15,375)
<b>14. Operating Expenses Before Depreciation</b>	<b>2,077,289</b>	<b>2,232,145</b>	<b>2,474,738</b>	<b>2,707,173</b>	<b>2,722,739</b>	<b>2,672,867</b>
15. Depreciation (2)	116,707	115,632	110,824	0	0	333,879
<b>16. Total Operating Expenses</b>	<b>2,193,996</b>	<b>2,347,777</b>	<b>2,585,562</b>	<b>2,707,173</b>	<b>2,722,739</b>	<b>3,006,746</b>
<b>17. Operating Income</b>	<b>726,616</b>	<b>906,928</b>	<b>620,625</b>	<b>612,827</b>	<b>597,261</b>	<b>336,091</b>
18. Revenues (3)	2,920,612	3,254,705	3,206,187	3,320,000	3,320,000	3,342,837
19. EBITDA (4)	843,323	1,022,560	731,449	612,827	597,261	669,970
20. EBIT (5)	726,616	906,928	620,625	612,827	597,261	336,091
21. EBIT	726,616	906,928	620,625	612,827	597,261	336,091
22. (-) Income Taxes	0	0	0	0	0	0
23. Debt Free Net Income	726,616	906,928	620,625	612,827	597,261	336,091
24. (+) Depreciation & Amortization	116,707	115,632	110,824	0	0	333,879
25. (-) Capital Expenditures (6)	41,847	17,500	44,830	50,000	0	338,324
26. (-) Changes in Working Capital (7)	7,009	2,278	2,244	2,324	2,324	2,340
<b>27. Debt Free Net Cash Flow</b>	<b>\$794,467</b>	<b>\$1,002,782</b>	<b>\$684,375</b>	<b>\$560,503</b>	<b>\$594,937</b>	<b>\$329,306</b>
28. PV Time Period (mid-year)						0.5
29. Present Value Factor: 3.81% (8)						0.9815
30. Present Value Debt Free Net Cash Flow						<u>\$323,214</u>
31. Present Value Factor: 3.41% (9)						0.9834
32. Present Value Debt Free Net Cash Flow						<u>\$323,840</u>

See last page of this EXHIBIT for notes and assumptions.

## Income Approach

East Norriton Township Wastewater System Assets  
 Pro Forma and Estimated Operations With MUNI Ownership  
 DCF With Capitalization of Terminal Value Model and  
 DCF With EBIT & EBITDA Terminal Value Model

	Estimated	Estimated	Estimated	Estimated	Estimated	Estimated
	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>
<b>1. OPERATING REVENUES (1)</b>						
2. Charges for services	3,365,838	3,406,729	3,647,219	3,649,043	3,784,189	3,787,973
3. Other operating revenue	0	0	0	0	0	0
4. Tap Fees	0	0	0	0	0	0
5. Other (Rate Increase)	0	221,437	0	131,366	0	155,307
<b>6. Total Operating Revenues</b>	<b>3,365,838</b>	<b>3,628,166</b>	<b>3,647,219</b>	<b>3,780,409</b>	<b>3,784,189</b>	<b>3,943,280</b>
7. Rate Increase		6%		4%		4%
<b>8. OPERATING EXPENSES (1)</b>						
9. Operating & Maintenance Expenses	2,860,578	2,932,092	3,005,394	3,080,529	3,157,542	3,236,481
10. Remove Economies of Scale						
11. LESS: EOS - Wages & Benefits	(47,345)	(48,529)	(49,742)	(50,986)	(52,260)	(53,567)
12. LESS: EOS - Professional Services	(57,784)	(59,229)	(60,710)	(62,227)	(63,783)	(65,378)
13. LESS: EOS - Electric & Power	(15,759)	(16,153)	(16,557)	(16,971)	(17,395)	(17,830)
<b>14. Operating Expenses Before Depreciation</b>	<b>2,739,688</b>	<b>2,808,181</b>	<b>2,878,385</b>	<b>2,950,345</b>	<b>3,024,103</b>	<b>3,099,706</b>
15. Depreciation (2)	339,555	345,327	351,198	357,168	363,240	369,414
<b>16. Total Operating Expenses</b>	<b>3,079,243</b>	<b>3,153,507</b>	<b>3,229,583</b>	<b>3,307,513</b>	<b>3,387,343</b>	<b>3,469,120</b>
<b>17. Operating Income</b>	<b>286,595</b>	<b>474,659</b>	<b>417,636</b>	<b>472,896</b>	<b>396,846</b>	<b>474,160</b>
18. Revenues (3)	3,365,838	3,628,166	3,647,219	3,780,409	3,784,189	3,943,280
19. EBITDA (4)	626,150	819,985	768,834	830,064	760,086	843,574
20. EBIT (5)	286,595	474,659	417,636	472,896	396,846	474,160
21. EBIT	286,595	474,659	417,636	472,896	396,846	474,160
22. (-) Income Taxes	0	0	0	0	0	0
23. Debt Free Net Income	286,595	474,659	417,636	472,896	396,846	474,160
24. (+) Depreciation & Amortization	339,555	345,327	351,198	357,168	363,240	369,414
25. (-) Capital Expenditures (6)	344,076	349,925	355,874	361,924	368,076	374,334
26. (-) Changes in Working Capital (7)	2,356	2,540	2,553	2,646	2,649	2,760
<b>27. Debt Free Net Cash Flow</b>	<b>\$279,717</b>	<b>\$467,521</b>	<b>\$410,407</b>	<b>\$465,494</b>	<b>\$389,361</b>	<b>\$466,480</b>
28. PV Time Period (mid-year)	1.5	2.5	3.5	4.5	5.5	6.5
29. Present Value Factor: 3.81% (8)	0.9455	0.9108	0.8773	0.8451	0.8141	0.7842
<b>30. Present Value Debt Free Net Cash Flow</b>	<b>\$264,473</b>	<b>\$425,818</b>	<b>\$360,050</b>	<b>\$393,389</b>	<b>\$316,978</b>	<b>\$365,813</b>
31. Present Value Factor: 3.41% (9)	0.9509	0.9196	0.8893	0.8599	0.8316	0.8042
<b>32. Present Value Debt Free Net Cash Flow</b>	<b>\$265,983</b>	<b>\$429,932</b>	<b>\$364,975</b>	<b>\$400,278</b>	<b>\$323,792</b>	<b>\$375,143</b>

**See last page of this EXHIBIT for notes and assumptions.**

## Income Approach

East Norriton Township Wastewater System Assets  
 Pro Forma and Estimated Operations With MUNI Ownership  
 DCF With Capitalization of Terminal Value Model and  
 DCF With EBIT & EBITDA Terminal Value Model

	Estimated	Estimated	Estimated	Estimated	Estimated	Estimated
	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>
<b>1. OPERATING REVENUES (1)</b>						
2. Charges for services	3,947,223	3,951,170	4,117,281	4,121,399	4,298,792	4,303,091
3. Other operating revenue	0	0	0	0	0	0
4. Tap Fees	0	0	0	0	0	0
5. Other (Rate Increase)	0	161,998	0	173,099	0	180,730
<b>6. Total Operating Revenues</b>	<b>3,947,223</b>	<b>4,113,168</b>	<b>4,117,281</b>	<b>4,294,498</b>	<b>4,298,792</b>	<b>4,483,821</b>
7. <b>Rate Increase</b>		<b>4%</b>		<b>4%</b>		<b>4%</b>
<b>8. OPERATING EXPENSES (1)</b>						
9. Operating & Maintenance Expenses	3,317,393	3,400,328	3,485,336	3,572,470	3,661,781	3,753,326
10. Remove Economies of Scale						
11. LESS: EOS - Wages & Benefits	(54,906)	(56,279)	(57,686)	(59,128)	(60,606)	(62,121)
12. LESS: EOS - Professional Services	(67,012)	(68,687)	(70,405)	(72,165)	(73,969)	(75,818)
13. LESS: EOS - Electric & Power	(18,276)	(18,733)	(19,201)	(19,681)	(20,173)	(20,678)
<b>14. Operating Expenses Before Depreciation</b>	<b>3,177,199</b>	<b>3,256,629</b>	<b>3,338,044</b>	<b>3,421,496</b>	<b>3,507,033</b>	<b>3,594,709</b>
15. Depreciation (2)	375,695	382,081	388,577	395,183	401,901	408,733
<b>16. Total Operating Expenses</b>	<b>3,552,894</b>	<b>3,638,710</b>	<b>3,726,622</b>	<b>3,816,678</b>	<b>3,908,934</b>	<b>4,003,442</b>
<b>17. Operating Income</b>	<b>394,329</b>	<b>474,458</b>	<b>390,659</b>	<b>477,820</b>	<b>389,858</b>	<b>480,379</b>
18. Revenues (3)	3,947,223	4,113,168	4,117,281	4,294,498	4,298,792	4,483,821
19. EBITDA (4)	770,024	856,539	779,237	873,002	791,759	889,112
20. EBIT (5)	394,329	474,458	390,659	477,820	389,858	480,379
21. EBIT	394,329	474,458	390,659	477,820	389,858	480,379
22. (-) Income Taxes	0	0	0	0	0	0
23. Debt Free Net Income	394,329	474,458	390,659	477,820	389,858	480,379
24. (+) Depreciation & Amortization	375,695	382,081	388,577	395,183	401,901	408,733
25. (-) Capital Expenditures (6)	380,697	387,169	393,751	400,445	407,252	414,176
26. (-) Changes in Working Capital (7)	2,763	2,879	2,882	3,006	3,009	3,139
<b>27. Debt Free Net Cash Flow</b>	<b>\$386,564</b>	<b>\$466,491</b>	<b>\$382,604</b>	<b>\$469,551</b>	<b>\$381,498</b>	<b>\$471,798</b>
28. PV Time Period (mid-year)	7.5	8.5	9.5	10.5	11.5	12.5
29. Present Value Factor: 3.81% (8)	0.7555	0.7277	0.7010	0.6753	0.6505	0.6266
<b>30. Present Value Debt Free Net Cash Flow</b>	<b>\$292,049</b>	<b>\$339,466</b>	<b>\$268,205</b>	<b>\$317,088</b>	<b>\$248,164</b>	<b>\$295,628</b>
31. Present Value Factor: 3.41% (9)	0.7776	0.7520	0.7272	0.7032	0.6800	0.6576
<b>32. Present Value Debt Free Net Cash Flow</b>	<b>\$300,592</b>	<b>\$350,801</b>	<b>\$278,229</b>	<b>\$330,189</b>	<b>\$259,419</b>	<b>\$310,254</b>

**See last page of this EXHIBIT for notes and assumptions.**

Income Approach

East Norriton Township Wastewater System Assets  
 Pro Forma and Estimated Operations With MUNI Ownership  
 DCF With Capitalization of Terminal Value Model and  
DCF With EBIT & EBITDA Terminal Value Model

DCF With Capitalization of Terminal Value Model @ 3.81%	
	Terminal Value
Projected Debt Free Net Cash Flow (10)	\$471,798
Divided by Capitalization Factor (8)	3.81%
13th Year Terminal Value	12,383,139
13th Year Present Value Factor (11)	0.6266
Present Value of Terminal Value	7,759,275
Present Value Debt Free Net	
Cash Flow for 13 Years	4,210,336
Indicated Value	<u>\$11,969,611</u>

DCF With EBIT & EBITDA Terminal Value Model - Discount Rate of 3.81%			
		Multiples (13)	Terminal Value
Projected EBIT	\$480,379	18.1	\$8,694,857
Projected EBITDA	889,112	12.4	11,024,992
Weighted (1/3 EBIT 2/3 EBITDA) Terminal Value			10,256,048
13th Year Present Value Factor (11)			0.6266
Present Value of Terminal Value			6,426,440
Present Value Debt Free Net			
Cash Flow for 13 Years			4,210,336
Indicated Value			<u>\$10,636,775</u>

DCF With Capitalization of Terminal Value Model @ 3.41%	
	Terminal Value
Projected Debt Free Net Cash Flow (10)	\$471,798
Divided by Capitalization Factor (9)	3.41%
13th Year Terminal Value	13,835,707
13th Year Present Value Factor (12)	0.6266
Present Value of Terminal Value	8,669,454
Present Value Debt Free Net	
Cash Flow for 13 Years	4,210,336
Indicated Value	<u>\$12,879,790</u>

DCF With EBIT & EBITDA Terminal Value Model - Discount Rate of 3.41%			
		Multiples (13)	Terminal Value
Projected EBIT	\$480,379	18.1	\$8,694,857
Projected EBITDA	889,112	12.4	11,024,992
Weighted (1/3 EBIT 2/3 EBITDA) Terminal Value			10,256,048
13th Year Present Value Factor (12)			0.6266
Present Value of Terminal Value			6,426,440
Present Value Debt Free Net			
Cash Flow for 13 Years			4,210,336
Indicated Value			<u>\$10,636,775</u>

See last page of this EXHIBIT for notes and assumptions.



Income Approach

East Norriton Township Wastewater System Assets  
 Pro Forma and Estimated Operations With MUNI Ownership  
 DCF With Capitalization of Terminal Value Model and  
DCF With EBIT & EBITDA Terminal Value Model

Notes: (1) Assumptions:

Charges for services - Pre-2020 are actual or budget. Post-2019 based on customer growth (EDU) and average revenue per customer. Rate increases (Other rate increase line item) are added year after they occur.

Other (Rate Increase) - Assumed purchase by MUNI at end of 2019 with shown rate increases.

OPERATING EXPENSES - increase at 2.5% annually after 2019 unless noted elsewhere. Assumed economies of scale are shown on lines below.

Wages & Benefits - Post-2019 assumed 15% savings due to economies of scale. Increase at 2.5% afterwards.

Professional Services - Post-2019 assumed 50% savings due to economies of scale. Increase at 2.5% afterwards.

Electric & Power - Post-2019 assumed 10% savings due to economies of scale. Increase at 2.5% afterwards.

- (2) Depreciation - Pre-2020 based on actual depreciation rate plus same rate on half of CAPX. Post-2019 based on depreciation rate plus same rate on half of CAPX.
- (3) Line 6.
- (4) Line 18 + line 16.
- (5) Line 18.
- (6) Capital Expenditures - Pre-2020 based on financials/budget. Post-2019 years are estimates at 2.00% of prior year-end GROSS Property, plant and equipment.
- (7) Changes in Working Capital - based on water industry 0.07% of revenues.
- (8) Discount rate is the current MUNI discount rate. Capitalization rate, "K", at 2/28/2019 equal to discount rate, where capitalization rate =  $K - g$ .
- (9) Discount rate is the current MUNI discount rate. Capitalization rate, "K", at 2/28/2019 adjusted for stated growth, "g", where capitalization rate =  $K - g$ .
- (10) Final year shown, line 28.
- (11) Final year shown, line 30.
- (12) Final year shown, line 30.
- (13) Developed on Market Multiples EXHIBIT 16.

**Terms:**

CAPX - Capital Expenditures

CIP - Capital improvement plan

Dep - Depreciation expense

GROSS PPE - GROSS Property, plant and equipment

IOU - Investor owned utility

MUNI - Large regional municipally owned utility

NET PPE - NET Property, plant and equipment

Income Approach  
 East Norriton Township Wastewater System Assets  
 Pro Forma and Estimated Operations With IOU Ownership  
 DCF With Capitalization of Terminal Value Model and  
 DCF With EBIT & EBITDA Terminal Value Model

	Actual			Budget	Budget	Estimated
	2015	2016	2017	2018	2019	2020
<b>1. OPERATING REVENUES (1)</b>						
2. Charges for services	2,920,612	3,254,705	3,206,187	3,320,000	3,320,000	3,342,837
3. Other operating revenue	0	0	0	0	0	0
4. Tap Fees	0	0	0	0	0	0
5. Other (Rate Increase)	0	0	0	0	0	0
<b>6. Total Operating Revenues</b>	<b>2,920,612</b>	<b>3,254,705</b>	<b>3,206,187</b>	<b>3,320,000</b>	<b>3,320,000</b>	<b>3,342,837</b>
7. <b>Rate Increase</b>						
<b>8. OPERATING EXPENSES (1)</b>						
9. Operating & Maintenance Expenses	2,077,289	2,232,145	2,474,738	2,707,173	2,722,739	2,790,807
10. Remove Economies of Scale						
11. LESS: EOS - Wages & Benefits	0	0	0	0	0	(46,191)
12. LESS: EOS - Professional Services	0	0	0	0	0	(56,375)
13. LESS: EOS - Electric & Power	0	0	0	0	0	(15,375)
14. ADD: PURTA & Reg Assessment	0	0	0	0	0	31,980
<b>15. Operating Expenses Before Depreciation</b>	<b>2,077,289</b>	<b>2,232,145</b>	<b>2,474,738</b>	<b>2,707,173</b>	<b>2,722,739</b>	<b>2,704,847</b>
16. Depreciation (2)	116,707	115,632	110,824	0	0	333,879
<b>17. Total Operating Expenses</b>	<b>2,193,996</b>	<b>2,347,777</b>	<b>2,585,562</b>	<b>2,707,173</b>	<b>2,722,739</b>	<b>3,038,726</b>
<b>18. Operating Income</b>	<b>726,616</b>	<b>906,928</b>	<b>620,625</b>	<b>612,827</b>	<b>597,261</b>	<b>304,111</b>
19. Revenues (3)	2,920,612	3,254,705	3,206,187	3,320,000	3,320,000	3,342,837
20. EBITDA (4)	843,323	1,022,560	731,449	612,827	597,261	637,990
21. EBIT (5)	726,616	906,928	620,625	612,827	597,261	304,111
22. EBIT	726,616	906,928	620,625	612,827	597,261	304,111
23. (-) Income Taxes	0	0	0	0	172,549	87,858
24. Debt Free Net Income	726,616	906,928	620,625	612,827	424,712	216,253
25. (+) Depreciation & Amortization	116,707	115,632	110,824	0	0	333,879
26. (-) Capital Expenditures (6)	41,847	17,500	44,830	50,000	0	338,324
27. (-) Changes in Working Capital (7)	7,009	2,278	2,244	2,324	2,324	2,340
<b>28. Debt Free Net Cash Flow</b>	<b>\$794,467</b>	<b>\$1,002,782</b>	<b>\$684,375</b>	<b>\$560,503</b>	<b>\$422,388</b>	<b>\$209,468</b>
29. PV Time Period (mid-year)						0.5
30. Present Value Factor: 6.91% (8)						0.9671
31. Present Value Debt Free Net Cash Flow						<u>\$202,577</u>
32. Present Value Factor: 8.29% (9)						0.9610
33. Present Value Debt Free Net Cash Flow						<u>\$201,299</u>
34. Present Value Factor: 6.51% (8)						0.9690
35. Present Value Debt Free Net Cash Flow						<u>\$202,975</u>
36. Present Value Factor: 7.89% (9)						0.9627
37. Present Value Debt Free Net Cash Flow						<u>\$201,655</u>

See last page of this EXHIBIT for notes and assumptions.

## Income Approach

East Norriton Township Wastewater System Assets  
 Pro Forma and Estimated Operations With IOU Ownership  
 DCF With Capitalization of Terminal Value Model and  
 DCF With EBIT & EBITDA Terminal Value Model

	Estimated Year 2 2021	Estimated Year 3 2022	Estimated Year 4 2023	Estimated Year 5 2024	Estimated Year 6 2025	Estimated Year 7 2026
<b>1. OPERATING REVENUES (1)</b>						
2. Charges for services	3,365,838	3,406,729	4,054,749	4,056,776	4,198,901	4,203,100
3. Other operating revenue	0	0	0	0	0	0
4. Tap Fees	0	0	0	0	0	0
5. Other (Rate Increase)	0	626,838	0	137,930	0	155,515
<b>6. Total Operating Revenues</b>	<b>3,365,838</b>	<b>4,033,567</b>	<b>4,054,749</b>	<b>4,194,706</b>	<b>4,198,901</b>	<b>4,358,615</b>
7. <b>Rate Increase</b>		<b>18%</b>		<b>3%</b>		<b>4%</b>
<b>8. OPERATING EXPENSES (1)</b>						
9. Operating & Maintenance Expenses	2,860,578	2,932,092	3,005,394	3,080,529	3,157,542	3,236,481
10. Remove Economies of Scale						
11. LESS: EOS - Wages & Benefits	(47,345)	(48,529)	(49,742)	(50,986)	(52,260)	(53,567)
12. LESS: EOS - Professional Services	(57,784)	(59,229)	(60,710)	(62,227)	(63,783)	(65,378)
13. LESS: EOS - Electric & Power	(15,759)	(16,153)	(16,557)	(16,971)	(17,395)	(17,830)
14. ADD: PURTA & Reg Assessment	32,116	32,254	36,059	36,187	36,990	37,021
<b>15. Operating Expenses Before Depreciation</b>	<b>2,771,804</b>	<b>2,840,435</b>	<b>2,914,444</b>	<b>2,986,532</b>	<b>3,061,093</b>	<b>3,136,727</b>
16. Depreciation (2)	339,555	345,327	351,198	357,168	363,240	369,414
<b>17. Total Operating Expenses</b>	<b>3,111,359</b>	<b>3,185,761</b>	<b>3,265,642</b>	<b>3,343,700</b>	<b>3,424,333</b>	<b>3,506,141</b>
<b>18. Operating Income</b>	<b>254,479</b>	<b>847,806</b>	<b>789,107</b>	<b>851,006</b>	<b>774,568</b>	<b>852,474</b>
19. Revenues (3)	3,365,838	4,033,567	4,054,749	4,194,706	4,198,901	4,358,615
20. EBITDA (4)	594,034	1,193,132	1,140,305	1,208,174	1,137,808	1,221,888
21. EBIT (5)	254,479	847,806	789,107	851,006	774,568	852,474
22. EBIT	254,479	847,806	789,107	851,006	774,568	852,474
23. (-) Income Taxes	73,519	244,931	227,973	245,856	223,773	246,280
24. Debt Free Net Income	180,960	602,875	561,134	605,150	550,795	606,194
25. (+) Depreciation & Amortization	339,555	345,327	351,198	357,168	363,240	369,414
26. (-) Capital Expenditures (6)	344,076	349,925	355,874	361,924	368,076	374,334
27. (-) Changes in Working Capital (7)	2,356	2,823	2,838	2,936	2,939	3,051
<b>28. Debt Free Net Cash Flow</b>	<b>\$174,082</b>	<b>\$595,453</b>	<b>\$553,619</b>	<b>\$597,458</b>	<b>\$543,019</b>	<b>\$598,223</b>
29. PV Time Period (mid-year)	1.5	2.5	3.5	4.5	5.5	6.5
30. Present Value Factor: 6.91% (8)	0.9046	0.8462	0.7915	0.7403	0.6925	0.6477
<b>31. Present Value Debt Free Net Cash Flow</b>	<b>\$157,475</b>	<b>\$503,872</b>	<b>\$438,190</b>	<b>\$442,298</b>	<b>\$376,041</b>	<b>\$387,469</b>
32. Present Value Factor: 8.29% (9)	0.8874	0.8195	0.7567	0.6988	0.6453	0.5959
<b>33. Present Value Debt Free Net Cash Flow</b>	<b>\$154,481</b>	<b>\$487,974</b>	<b>\$418,924</b>	<b>\$417,504</b>	<b>\$350,410</b>	<b>\$356,481</b>
34. Present Value Factor: 6.51% (8)	0.9097	0.8541	0.8019	0.7529	0.7069	0.6637
<b>35. Present Value Debt Free Net Cash Flow</b>	<b>\$158,363</b>	<b>\$508,576</b>	<b>\$443,947</b>	<b>\$449,826</b>	<b>\$383,860</b>	<b>\$397,041</b>
36. Present Value Factor: 7.89% (9)	0.8923	0.8271	0.7666	0.7105	0.6586	0.6104
<b>37. Present Value Debt Free Net Cash Flow</b>	<b>\$155,334</b>	<b>\$492,499</b>	<b>\$424,405</b>	<b>\$424,494</b>	<b>\$357,633</b>	<b>\$365,155</b>

See last page of this EXHIBIT for notes and assumptions.

Income Approach  
 East Norriton Township Wastewater System Assets  
 Pro Forma and Estimated Operations With IOU Ownership  
 DCF With Capitalization of Terminal Value Model and  
 DCF With EBIT & EBITDA Terminal Value Model

	Estimated	Estimated	Estimated	Estimated	Estimated	Estimated
	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
	2027	2028	2029	2030	2031	2032
<b>1. OPERATING REVENUES (1)</b>						
2. Charges for services	4,362,974	4,367,337	4,533,457	4,537,990	4,715,144	4,719,860
3. Other operating revenue	0	0	0	0	0	0
4. Tap Fees	0	0	0	0	0	0
5. Other (Rate Increase)	0	161,591	0	172,444	0	184,075
<b>6. Total Operating Revenues</b>	<b>4,362,974</b>	<b>4,528,928</b>	<b>4,533,457</b>	<b>4,710,434</b>	<b>4,715,144</b>	<b>4,903,935</b>
7. <b>Rate Increase</b>		<b>4%</b>		<b>4%</b>		<b>4%</b>
<b>8. OPERATING EXPENSES (1)</b>						
9. Operating & Maintenance Expenses	3,317,393	3,400,328	3,485,336	3,572,470	3,661,781	3,753,326
10. Remove Economies of Scale						
11. LESS: EOS - Wages & Benefits	(54,906)	(56,279)	(57,686)	(59,128)	(60,606)	(62,121)
12. LESS: EOS - Professional Services	(67,012)	(68,687)	(70,405)	(72,165)	(73,969)	(75,818)
13. LESS: EOS - Electric & Power	(18,276)	(18,733)	(19,201)	(19,681)	(20,173)	(20,678)
14. ADD: PURTA & Reg Assessment	37,937	37,968	38,920	38,953	39,967	40,002
<b>15. Operating Expenses Before Depreciation</b>	<b>3,215,136</b>	<b>3,294,597</b>	<b>3,376,964</b>	<b>3,460,449</b>	<b>3,547,000</b>	<b>3,634,711</b>
16. Depreciation (2)	375,695	382,081	388,577	395,183	401,901	408,733
<b>17. Total Operating Expenses</b>	<b>3,590,831</b>	<b>3,676,678</b>	<b>3,765,542</b>	<b>3,855,631</b>	<b>3,948,901</b>	<b>4,043,444</b>
<b>18. Operating Income</b>	<b>772,143</b>	<b>852,250</b>	<b>767,915</b>	<b>854,803</b>	<b>766,243</b>	<b>860,491</b>
19. Revenues (3)	4,362,974	4,528,928	4,533,457	4,710,434	4,715,144	4,903,935
20. EBITDA (4)	1,147,838	1,234,331	1,156,493	1,249,985	1,168,144	1,269,224
21. EBIT (5)	772,143	852,250	767,915	854,803	766,243	860,491
22. EBIT	772,143	852,250	767,915	854,803	766,243	860,491
23. (-) Income Taxes	223,072	246,215	221,851	246,953	221,368	248,596
24. Debt Free Net Income	549,071	606,035	546,064	607,850	544,875	611,895
25. (+) Depreciation & Amortization	375,695	382,081	388,577	395,183	401,901	408,733
26. (-) Capital Expenditures (6)	380,697	387,169	393,751	400,445	407,252	414,176
27. (-) Changes in Working Capital (7)	3,054	3,170	3,173	3,297	3,301	3,433
<b>28. Debt Free Net Cash Flow</b>	<b>\$541,015</b>	<b>\$597,777</b>	<b>\$537,717</b>	<b>\$599,290</b>	<b>\$536,224</b>	<b>\$603,020</b>
29. PV Time Period (mid-year)	7.5	8.5	9.5	10.5	11.5	12.5
30. Present Value Factor: 6.91% (8)	0.6058	0.5667	0.5301	0.4958	0.4638	0.4338
<b>31. Present Value Debt Free Net Cash Flow</b>	<b>\$327,747</b>	<b>\$338,760</b>	<b>\$285,044</b>	<b>\$297,128</b>	<b>\$248,700</b>	<b>\$261,590</b>
32. Present Value Factor: 8.29% (9)	0.5503	0.5082	0.4693	0.4333	0.4002	0.3695
<b>33. Present Value Debt Free Net Cash Flow</b>	<b>\$297,721</b>	<b>\$303,790</b>	<b>\$252,351</b>	<b>\$259,672</b>	<b>\$214,597</b>	<b>\$222,816</b>
34. Present Value Factor: 6.51% (8)	0.6231	0.5850	0.5493	0.5157	0.4842	0.4546
<b>35. Present Value Debt Free Net Cash Flow</b>	<b>\$337,107</b>	<b>\$349,700</b>	<b>\$295,368</b>	<b>\$309,054</b>	<b>\$259,639</b>	<b>\$274,133</b>
36. Present Value Factor: 7.89% (9)	0.5658	0.5244	0.4860	0.4505	0.4176	0.3870
<b>37. Present Value Debt Free Net Cash Flow</b>	<b>\$306,106</b>	<b>\$313,474</b>	<b>\$261,331</b>	<b>\$269,980</b>	<b>\$223,927</b>	<b>\$233,369</b>

**See last page of this EXHIBIT for notes and assumptions.**

Income Approach

East Norriton Township Wastewater System Assets  
 Pro Forma and Estimated Operations With IOU Ownership  
 DCF With Capitalization of Terminal Value Model and  
 DCF With EBIT & EBITDA Terminal Value Model

DCF With Capitalization of Terminal Value Model @ 6.91%	
	Terminal Value
Projected Debt Free Net Cash Flow (10)	\$603,020
Divided by Capitalization Factor (8)	<u>6.91%</u>
13th Year Terminal Value	8,726,766
13th Year Present Value Factor (11)	<u>0.4338</u>
Present Value of Terminal Value	3,785,671
Present Value Debt Free Net	
Cash Flow for 13 Years	<u>4,266,891</u>
Indicated Value	<u><u>\$8,052,562</u></u>

DCF With EBIT & EBITDA Terminal Value Model - Discount Rate of 6.91%			
		Multiples (13)	Terminal Value
Projected EBIT	\$860,491	18.1	\$15,574,884
Projected EBITDA	1,269,224	12.4	<u>15,738,381</u>
Weighted (1/3 EBIT 2/3 EBITDA) Terminal Value			15,684,427
13th Year Present Value Factor (11)			<u>0.4338</u>
Present Value of Terminal Value			6,803,904
Present Value Debt Free Net			
Cash Flow for 13 Years			<u>4,266,891</u>
Indicated Value			<u><u>\$11,070,795</u></u>

DCF With Capitalization of Terminal Value Model @ 8.29%	
	Terminal Value
Projected Debt Free Net Cash Flow (10)	\$603,020
Divided by Capitalization Factor (9)	<u>8.29%</u>
13th Year Terminal Value	7,274,059
13th Year Present Value Factor (12)	<u>0.3695</u>
Present Value of Terminal Value	2,687,765
Present Value Debt Free Net	
Cash Flow for 13 Years	<u>3,938,018</u>
Indicated Value	<u><u>\$6,625,783</u></u>

DCF With EBIT & EBITDA Terminal Value Model - Discount Rate of 8.29%			
		Multiples (13)	Terminal Value
Projected EBIT	\$860,491	18.1	\$15,574,884
Projected EBITDA	1,269,224	12.4	<u>15,738,381</u>
Weighted (1/3 EBIT 2/3 EBITDA) Terminal Value			15,684,427
13th Year Present Value Factor (12)			<u>0.3695</u>
Present Value of Terminal Value			5,795,396
Present Value Debt Free Net			
Cash Flow for 13 Years			<u>3,938,018</u>
Indicated Value			<u><u>\$9,733,414</u></u>

DCF With Capitalization of Terminal Value Model @ 6.51%	
	Terminal Value
Projected Debt Free Net Cash Flow (10)	\$603,020
Divided by Capitalization Factor (8)	<u>6.51%</u>
13th Year Terminal Value	9,262,973
13th Year Present Value Factor (11)	<u>0.4338</u>
Present Value of Terminal Value	4,018,278
Present Value Debt Free Net	
Cash Flow for 13 Years	<u>4,266,891</u>
Indicated Value	<u><u>\$8,285,169</u></u>

DCF With Capitalization of Terminal Value Model @ 7.89%	
	Terminal Value
Projected Debt Free Net Cash Flow (10)	\$603,020
Divided by Capitalization Factor (9)	<u>7.89%</u>
13th Year Terminal Value	7,642,833
13th Year Present Value Factor (12)	<u>0.3695</u>
Present Value of Terminal Value	2,824,027
Present Value Debt Free Net	
Cash Flow for 13 Years	<u>3,938,018</u>
Indicated Value	<u><u>\$6,762,045</u></u>

See last page of this EXHIBIT for notes and assumptions.

Income Approach

East Norriton Township Wastewater System Assets  
 Pro Forma and Estimated Operations With IOU Ownership  
 DCF With Capitalization of Terminal Value Model and  
DCF With EBIT & EBITDA Terminal Value Model

Notes: (1) Assumptions:

Charges for services - Pre-2020 are actual or budget. Post-2019 based on customer growth (EDU) and average revenue per customer. Rate increases (Other rate increase line item) are added year after they occur.

Other (Rate Increase) - Assumed purchase by IOU at end of 2019 with shown rate increases.

OPERATING EXPENSES - increase at 2.5% annually after 2019 unless noted elsewhere. Assumed economies of scale are shown on lines below.

Wages & Benefits - Post-2019 assumed 15% savings due to economies of scale. Increase at 2.5% afterwards.

Professional Services - Post-2019 assumed 50% savings due to economies of scale. Increase at 2.5% afterwards.

Electric & Power - Post-2019 assumed 10% savings due to economies of scale. Increase at 2.5% afterwards.

PURTA & Reg Assessment - 2020 assumed due to IOU purchase at the end of 2019.

- (2) Depreciation - Pre-2020 based on actual depreciation rate plus same rate on half of CAPX. Post-2019 based on depreciation rate plus same rate on half of CAPX.
- (3) Line 6.
- (4) Line 19 + line 17.
- (5) Line 19.
- (6) Capital Expenditures - Pre-2020 based on budget. Post-2019 years are estimates at 2.00% of prior year-end GROSS Property, plant and equipment.
- (7) Changes in Working Capital - based on water industry 0.07% of revenues.
- (8) Discount rate is the current lower end of the IOU discount rate. Capitalization rate, "K", at 2/28/2019 adjusted for stated growth, "g", where capitalization rate =  $K - g$ .
- (9) Discount rate is the current upper end of the IOU discount rate. Capitalization rate, "K", at 2/28/2019 adjusted for stated growth, "g", where capitalization rate =  $K - g$ .
- (10) Final year shown, line 29.
- (11) Final year shown, line 31.
- (12) Final year shown, line 33.
- (13) Developed on Market Multiples EXHIBIT 16.

**Terms:**

CAPX - Capital Expenditures

CIP - Capital improvement plan

Dep - Depreciation expense

GROSS PPE - GROSS Property, plant and equipment

IOU - Investor owned utility

MUNI - Large regional municipally owned utility

NET PPE - NET Property, plant and equipment

Market Multiples Method  
 East Norriton Township Wastewater System Assets  
 2018 Operations  
Market Multiple Method

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u> (Col B × Col C)	<u>E</u> (Col A × Col D)
		Comparison Group's Valuation Multiples <u>2/28/2019</u>	East Norriton Wastewater's Growth & Risk <u>Adjustment</u>	East Norriton Wastewater's Risk Adjusted Valuation Multiples <u>2/28/2019</u>	East Norriton Wastewater's Market Multiples <u>Valuation</u>
Subject Company Statistic (1)					
<b>Risk Adjusted Multiple</b>					
<u>1. East Norriton Township Wastewater System Assets</u>					
2. Investor Provided Capital	\$4,055,138	2.03	75.00%	1.52	\$6,163,810
3. Gross PP&E	\$16,916,212	1.20	103.00%	1.24	20,976,103
4. Net PP&E	\$9,251,450	1.59	104.00%	1.65	15,264,893
5. Revenues	\$3,320,000	7.34	75.00%	5.51	18,293,200
6. EBITDA	\$612,827	16.48	75.00%	12.36	7,574,542
7. EBIT	\$612,827	24.10	75.00%	18.08	11,079,912
8. Customers	4,966	\$8,042	95.00%	\$7,640	37,940,240
9. Population	14,296	\$2,303	95.00%	\$2,188	31,279,648
10.					
11. Average					<u>\$18,571,543</u>

**Conclusion of Market Multiple Method Valuation**

		<u>Low</u>	<u>High</u>	<u>Conclusion</u>
12.	Capital Items	\$6,163,810	\$20,976,103	\$13,569,956
13.	(Items 3-4)			
14.	Income Statement Items	7,574,542	18,293,200	-
15.	(Items 5 -7)			
16.	Demographics Items	31,279,648	37,940,240	<u>34,609,944</u>
17.	(Item 8)			
			Conclusion	<u>\$24,089,950</u>

Market Multiples Method  
 East Norriton Township Wastewater System Assets  
Development of Market Multiples Method for the Market Multiples Method

	Latest Quarter End			Latest 12 Months			2017		2/28/2019
	Gross PP&E (\$ Mill)	Net PP&E (\$ Mill)	Invest. Total Capital (\$ Mill)	12 Mos. Rev. (\$ Mill)	12 Mos. EBITDA (\$ Mill)	12 Mos. EBIT (\$ Mill)	Customers	Population	Enterprise Value (\$ Mill)
American States Water Co	\$1,819.259	\$1,296.310	\$945.491	\$436.816	\$139.787	\$100.146	283,223	1,000,000	\$3,005.089
American Water Works Company Inc	\$21,882.000	\$16,087.000	\$14,475.000	\$3,440.000	\$1,684.000	\$1,139.000	3,353,000	15,000,000	\$26,821.018
Aqua America Inc	\$7,447.238	\$5,930.324	\$4,407.828	\$838.091	\$543.173	\$397.141	982,949	3,000,000	\$8,807.495
Artesian Resources Corp	\$616.272	\$491.001	\$279.298	\$81.256	\$35.403	\$25.249	86,500	290,000	\$490.701
California Water Service Group	\$3,169.726	\$2,185.742	\$1,606.256	\$685.853	\$198.794	\$116.984	514,300	2,000,000	\$3,327.471
Middlesex Water Co	\$753.624	\$599.104	\$444.497	\$136.265	\$53.239	\$38.460	114,920	412,000	\$1,161.114
SJW Corp.	\$1,979.920	\$1,372.830	\$1,420.736	\$397.699	\$146.651	\$92.050	244,133	1,100,200	\$1,849.582
York Water Company (The)	\$375.580	\$297.028	\$215.602	\$48.721	\$29.767	\$22.827	69,604	198,000	\$562.699
Average	\$4,755.452	\$3,532.417	\$2,974.338	\$758.088	\$353.852	\$241.482	706,079	2,875,025	\$5,753.146
Max	\$21,882.000	\$16,087.000	\$14,475.000	\$3,440.000	\$1,684.000	\$1,139.000	3,353,000	15,000,000	\$26,821.018
Min	\$375.580	\$297.028	\$215.602	\$48.721	\$29.767	\$22.827	69,604	198,000	\$490.701
Median	\$1,899.589	\$1,334.570	\$1,183.113	\$417.257	\$143.219	\$96.098	263,678	1,050,100	\$2,427.335

	Enterprise Value as a Multiple of								Population Per Customer
	Invest. Capital (x)	Gross PP&E (x)	Net PP&E (x)	Rev. (x)	EBITDA (x)	EBIT (x)	Customers (\$)	Population (\$)	
American States Water Co	3.18	1.65	2.32	6.88	21.50	30.01	\$10,610	\$3,005	3.53
American Water Works Company Inc	1.85	1.23	1.67	7.80	15.93	23.55	\$7,999	\$1,788	4.47
Aqua America Inc	2.00	1.18	1.49	10.51	16.21	22.18	\$8,960	\$2,936	3.05
Artesian Resources Corp	1.76	0.80	1.00	6.04	13.86	19.43	\$5,673	\$1,692	3.35
California Water Service Group	2.07	1.05	1.52	4.85	16.74	28.44	\$6,470	\$1,664	3.89
Middlesex Water Co	2.61	1.54	1.94	8.52	21.81	30.19	\$10,104	\$2,818	3.59
SJW Corp.	1.30	0.93	1.35	4.65	12.61	20.09	\$7,576	\$1,681	4.51
York Water Company (The)	2.61	1.50	1.89	11.55	18.90	24.65	\$8,084	\$2,842	2.84
Average	2.17	1.23	1.65	7.60	17.20	24.82	\$8,185	\$2,303	3.65
Max	3.18	1.65	2.32	11.55	21.81	30.19	\$10,610	\$3,005	4.51
Min	1.30	0.80	1.00	4.65	12.61	19.43	\$5,673	\$1,664	2.84
Median	2.03	1.20	1.59	7.34	16.48	24.10	\$8,042	\$2,303	3.56



Market Multiples Method  
 East Norriton Township Wastewater System Assets  
Quantification of the Effective Risk/Growth Adjustments

	Net PP&E	Gross PP&E	Invest. Capital
Comparable Group Multiple	1.59	1.20	2.03
Implied Capitalization Rate (1÷Multiple)	62.89%	83.33%	49.26%
Ratio of Net PP&E Mult. to Invest. Capital Mult.	127.7%		
Less 1	- 1.00		
Difference in Capital Source due to Contributions	27.67%		
Assumed Investor Financed (1-Difference in Capital Source)	72.33%	72.33%	
Implied Capitalization Rate (1÷Multiple)	X 62.89%	83.33%	
Not Contributed Cap. Rate	45.49%	60.27%	
Not Contributed Multiple (1÷Cap. Rate)	2.20	1.66	
Base Risk Factor	X 75%	75%	
Subject Company Adjusted Multiple	1.65	1.24	
Subject Company Adjusted Multiple	1.65	1.24	
Comparable Group Multiple	÷ 1.59	1.20	
Effective Risk/Growth Adjustment	104%	103%	

	Net PP&E	Gross PP&E
Plant Assets	100%	100%
Ratio of Known "Cost Free" Capital	26%	26%
Plant Assets Less Known "Cost Free" Capital	74%	74%
Comparable Group Multiple	1.59	1.20
Plant Assets Less Known "Cost Free" Capital	÷ 74%	74%
Multiple Without "Cost Free" Capital	2.15	1.62
Base Risk Factor	X 75%	75%
Subject Company Adjusted Multiple	1.61	1.22
Subject Company Adjusted Multiple	1.61	1.22
Comparable Group Multiple	÷ 1.59	1.20
Effective Risk/Growth Adjustment	101%	102%

	Rev.	EBITDA	EBIT
Comparable Group Multiple	7.34	16.48	24.10
Implied Capitalization Rate (1÷Multiple)	13.62%	6.07%	4.15%
(- ) Growth Adjustment	- 0.00%	0.00%	0.00%
Adjusted Capitalization Rate (k-G)	13.62%	6.07%	4.15%
Adjusted Multiple (1÷Adj. Cap. Rate))	7.34	16.48	24.10
Base Risk Factor	X 75%	75%	75%
Subject Company Adjusted Multiple	5.51	12.36	18.08
Subject Company Adjusted Multiple	5.51	12.36	18.08
Comparable Group Multiple	÷ 7.34	16.48	24.10
Effective Risk/Growth Adjustment	75%	75%	75%

Selected Transactions Method  
For East Norriton Township Wastewater System Assets  
Summary

	<u>Low</u>	<u>High</u>	<u>Value</u>
<u>All Selected Transactions Companies</u>			
1. Capital Items	5,200,897.48	31,220,325.36	\$18,210,611
2. (Pages 2 and 3)			
3. Income Statement Items	14,685,430.99	61,523,873.58	-
4. (Pages 2 and 3)			
5. Demographics Items	7,189,700.26	81,568,485.52	<u>44,379,093</u>
6. (Pages 2 and 3)			
7.		Indicated Value	<u><u>\$31,294,852</u></u>
<u>Fully Integrated Selected Transactions Companies</u>			
8. Capital Items	5,200,897.48	28,861,005.85	\$17,030,952
9. (Page 2)			
10. Income Statement Items	15,467,877.64	56,425,593.07	-
11. (Page 2)			
12. Demographics Items	34,897,145.22	81,568,485.52	<u>58,232,815</u>
13. (Page 2)			
14.		Indicated Value	<u><u>\$37,631,884</u></u>
<u>Mostly Collection/Distribution Selected Transactions Companies</u>			
15. Capital Items	13,684,636.22	31,220,325.36	\$22,452,481
16. (Page 3)			
17. Income Statement Items	14,685,430.99	61,523,873.58	-
18. (Page 3)			
19. Demographics Items	7,189,700.26	19,895,833.33	<u>13,542,767</u>
20. (Page 3)			
21.		Indicated Value	<u><u>\$17,997,624</u></u>

Selected Transactions Method  
For East Norriton Township Wastewater System Assets  
Based on 2016 - 2018 Acquisitions of Assets of Water or Sewer System, Without Discount for Customer Contributions

Municipal Authority of the City of Mckeessport			East Norriton Township Wastewater System Assets		
Purchase Price was: \$156,000,000			East Norriton Township Wastewater System Assets's Company		
	<u>Subject Company Statistics</u>	<u>Transaction Multiple</u>		<u>Assets's Company</u>	<u>Selected Transactions Multiples Valuation</u>
1. Investor Provided Capital	\$83,903,219	1.86	Investor Provided Capital	\$4,055,138	7,539,657
2. Gross PP&E	\$91,435,797	1.71	Gross PP&E	\$16,916,212	28,861,006
3. Net PP&E	\$73,813,794	2.11	Net PP&E	\$9,251,450	19,552,256
4. Revenues	\$13,047,844	11.96	Revenues	\$3,320,000	39,693,914
5. EBITDA	\$6,180,616	25.24	EBITDA	\$612,827	15,467,878
6. EBIT	\$3,811,679	40.93	EBIT	\$612,827	25,081,076
7. Customers	20,320	\$7,677	Customers	4,966	38,124,803
8. Population	61,752	\$2,526	Population	14,296	36,115,041
9.					
10. Average					<u>\$26,304,454</u>

New Garden Township and Authority's Sewage Collection and Treatment System			East Norriton Township Wastewater System Assets		
Purchase Price was: \$29,500,000			East Norriton Township Wastewater System Assets's Company		
	<u>Subject Company Statistics</u>	<u>Transaction Multiple</u>		<u>Assets's Company</u>	<u>Selected Transactions Multiples Valuation</u>
11. Investor Provided Capital	\$23,001,140	1.28	Investor Provided Capital	\$4,055,138	5,200,897
12. Gross PP&E	\$25,988,330	1.14	Gross PP&E	\$16,916,212	19,202,013
13. Net PP&E	\$17,967,319	1.64	Net PP&E	\$9,251,450	15,189,677
14. Revenues	\$2,261,294	13.05	Revenues	\$3,320,000	43,311,484
15. EBITDA	\$907,386	32.51	EBITDA	\$612,827	19,923,601
16. EBIT	\$499,638	59.04	EBIT	\$612,827	36,182,989
17. Customers	1,796	\$16,425	Customers	4,966	81,568,486
18. Population	12,085	\$2,441	Population	14,296	34,897,145
19.					
20. Average					<u>\$31,934,537</u>

Limerick Township Wastewater System's Assets			East Norriton Township Wastewater System Assets		
Purchase Price was: \$75,100,000			East Norriton Township Wastewater System Assets's Company		
	<u>Subject Company Statistics</u>	<u>Transaction Multiple</u>		<u>Assets's Company</u>	<u>Selected Transactions Multiples Valuation</u>
21. Investor Provided Capital	\$43,501,755	1.73	Investor Provided Capital	\$4,055,138	7,000,657
22. Gross PP&E	\$60,847,250	1.23	Gross PP&E	\$16,916,212	20,878,635
23. Net PP&E	\$36,113,701	2.08	Net PP&E	\$9,251,450	19,238,790
24. Revenues	\$4,418,775	17.00	Revenues	\$3,320,000	56,425,593
25. EBITDA	\$2,487,775	30.19	EBITDA	\$612,827	18,499,787
26. EBIT	\$893,600	84.04	EBIT	\$612,827	51,503,254
27. Customers	5,416	\$13,866	Customers	4,966	68,860,155
28. Population	18,798	\$3,995	Population	14,296	57,114,033
29.					
30. Average					<u>\$37,440,113</u>

Selected Transactions Method  
For East Norriton Township Wastewater System Assets  
Based on 2016 - 2018 Acquisitions of Assets of Water or Sewer System, Without Discount for Customer Contributions

East Bradford Township Wastewater System Assets
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Purchase Price was: \$5,000,000

	Subject Company Statistics*	Transaction Multiple
1. Investor Provided Capital	\$1,298,627	3.85
2. Gross PP&E	NA	NA
3. Net PP&E	NA	NA
4. Revenues	\$1,130,372	4.42
5. EBITDA	\$49,804	100.39
6. EBIT	\$49,804	100.39
7. Customers	1,248	\$4,006
8. Population	9,942	\$503
9.		
10. Average		

East Norriton Township Wastewater System Assets
---

	East Norriton Township Wastewater System Assets's Company	Selected Transactions Multiples Valuation
Investor Provided Capital	\$4,055,138	15,613,175
Gross PP&E	\$16,916,212	NA
Net PP&E	\$9,251,450	NA
Revenues	\$3,320,000	14,685,431
EBITDA	\$612,827	61,523,874
EBIT	\$612,827	61,523,874
Customers	4,966	19,895,833
Population	14,296	7,189,700
		\$30,071,981

Mahoning Township Water & Sewer System's Assets
---

Purchase Price was: \$9,500,000

	Subject Company Statistics*	Transaction Multiple
11. Investor Provided Capital	\$2,815,114	3.37
12. Gross PP&E	\$5,460,043	1.74
13. Net PP&E	\$2,815,114	3.37
14. Revenues	\$2,143,688	4.43
15. EBITDA	\$295,873	32.11
16. EBIT	\$164,652	57.70
17. Customers	2,403	\$3,953
18. Population (Doubled)	8,472	\$1,121
19.		
20. Average		

East Norriton Township Wastewater System Assets
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	East Norriton Township Wastewater System Assets's Company	Selected Transactions Multiples Valuation
Investor Provided Capital	\$4,055,138	13,684,636
Gross PP&E	\$16,916,212	29,432,738
Net PP&E	\$9,251,450	31,220,325
Revenues	\$3,320,000	14,712,962
EBITDA	\$612,827	19,676,877
EBIT	\$612,827	35,358,553
Customers	4,966	19,632,543
Population	14,296	16,030,689
		\$22,468,665

\* - Known at bid.

Selected Transactions Method

For East Norriton Township Wastewater System Assets

Based on Recent SJW Group's Bid For Connecticut Water Service Inc., With and Without Discount for Cost Free Capital

Connecticut Water Service Inc.			East Norriton Township Wastewater System Assets		
Purchase Price was: \$1,106,267			East Norriton Township Wastewater	Selected Transactions Multiples	
	<u>Subject Company Statistics</u>	<u>Transaction Multiple</u>			
Investor Provided Capital	\$573,223	1.93	\$4,055,138	\$7,826,039	
Gross PP&E	\$939,050	1.18	\$16,916,212	\$19,928,489	
Net PP&E	\$697,723	1.59	\$9,251,450	\$14,668,535	\$13,877,264
Revenues	\$107,054	10.33	\$3,320,000	\$34,307,981	
EBITDA	\$48,920	22.61	\$612,827	\$13,858,347	
EBIT	\$32,236	34.32	\$612,827	\$21,030,845	\$25,850,035
Customers	135,645	\$8,156	4,966	\$40,500,735	
Population	450,000	\$2,458	14,296	\$35,144,875	\$37,822,805
Average				<u>\$23,408,231</u>	
	<u>Subject Company Statistics</u>	<u>Transaction Multiple</u>			
Investor Provided Capital	\$573,223	1.93	\$4,055,138	\$7,826,039	
Gross PP&E (Less "Cost Free" Capital)	\$646,723	1.71	\$16,916,212	\$28,936,436	
Net PP&E (Less "Cost Free" Capital)	\$480,521	2.30	\$9,251,450	\$21,298,912	\$18,381,238
Revenues	\$107,054	10.33	\$3,320,000	\$34,307,981	
EBITDA	\$48,920	22.61	\$612,827	\$13,858,347	
EBIT	\$32,236	34.32	\$612,827	\$21,030,845	\$28,102,021
Customers	135,645	\$8,156	4,966	\$40,500,735	
Population	450,000	\$2,458	14,296	\$35,144,875	\$37,822,805
Average				<u>\$25,363,021</u>	

East Norriton Township Wastewater System Assets  
 Summary of Approach Results and  
Fair Market Value Conclusion at Appraisal Date

<u>Valuation Approach</u>	<u>Indicated Value</u>	<u>Conclusion</u>	<u>Consideration</u>
Cost Approach	\$33,467,936		37.5%
Income Approach	10,383,787		25.0%
Market Approach	24,368,094	<b>Conclusion                  \$24,284,000</b>	37.5%

WORKPAPERS

**FED H.15**

DATE	DAAA	DBAA	DGS10	DGS20	DGS30
2019-02-01	3.81	5.01	2.70	2.88	3.03
2019-02-04	3.83	5.03	2.73	2.92	3.06
2019-02-05	3.79	4.98	2.71	2.89	3.03
2019-02-06	3.78	4.98	2.70	2.88	3.03
2019-02-07	3.75	4.96	2.65	2.85	3.00
2019-02-08	3.77	4.93	2.63	2.82	2.97
2019-02-11	3.76	4.95	2.65	2.85	3.00
2019-02-12	3.80	4.98	2.68	2.87	3.02
2019-02-13	3.78	4.98	2.71	2.89	3.04
2019-02-14	3.77	4.96	2.66	2.85	3.01
2019-02-15	3.76	4.94	2.66	2.84	3.00
2019-02-18	#N/A	#N/A	#N/A	#N/A	#N/A
2019-02-19	3.74	4.93	2.65	2.84	2.99
2019-02-20	3.76	4.88	2.65	2.84	3.00
2019-02-21	3.81	4.92	2.69	2.89	3.05
2019-02-22	3.81	4.90	2.65	2.86	3.02
2019-02-25	3.80	4.90	2.67	2.87	3.03
2019-02-26	3.78	4.88	2.64	2.84	3.01
2019-02-27	3.85	4.94	2.69	2.91	3.07
2019-02-28	3.86	4.95	2.73	2.94	3.09
2019-03-01	3.90	4.98	2.76	2.97	3.13
2019-03-04	3.87	4.94	2.72	2.93	3.09



## Daily Bond Yields and Key Indicators

Updated by 11 am ET Data as of 29-Mar-19  
with data from the  
previous business day.

Moody's Daily Long-term Corporate Bond Yield Averages			
	Utilities	Industrial	Corporate
Aaa	NA	3.62	3.62
Aa	3.81	3.7	3.76
A	3.99	4.01	4
Baa	4.49	4.84	4.67
Avg	4.1	4.04	4.07

Moody's Daily Treasury Yield Averages	
Short-Term (3-5 yrs)	2.24
Medium-Term (5-10 yrs)	2.35
Long-Term (10+ yrs)	2.73

Moody's Daily Public Utility Common Stock Yield Averages	
Price	475.82
Yield	3.85
New Dividend	18.31

Moody's Commodity and Scrap Price Indexes	
Spot Commodity Index	5,948.55
Industrial Metals Index	2,020.24

\* Moody's "Aaa" Utilities Index was suspended on 12/10/01. Since 2000, TVA was the only issuer left in the index as a decade of deregulation, debt growth, competition, and consolidation eliminated the rest of the Aaa utilities.

Index Name: S&P Municipal Bond Revenue Index

As of: Apr 03, 2019

Effective date Yield To Maturity

2/22/2019	3.56%
2/25/2019	3.55%
2/26/2019	3.54%
2/27/2019	3.54%
2/28/2019	3.55%
3/1/2019	3.56%
3/4/2019	3.55%

**FED H.15**

		10-yr T- bond	20-yr T- bond	30-yr T- bond
Spot	2/28/19	2.73	2.94	3.09

**FED H.15**

	AAA Corp	BAA CORP		A Rated Utility		
	2/28/19	3.86	4.95	Spread	0.24	0.28
Moody's Spot ==>		3.62	4.67	Moody's Spot ==>	3.99	3.99
		0.24	0.28	Implied	4.23	4.27
						4.25

**Moody's Daily Long-term Corporate Bond Yield Averages**

	3/29/2019	Utilities	Industrial	Corporate
Spot	Aaa	NA	3.62	3.62
	Aa	3.81	3.7	3.76
	A	3.99	4.01	4
	Baa	4.49	4.84	4.67
	Avg	4.1	4.04	4.07

**S&P Municipal Bond Revenue Index**

2/28/2019 3.55%

Utilities

Aa	
A	
Baa	4.25

	Decade Spread	Annual Spread
10-Year	2.73	
20-Year	2.94	0.210
30-Year	3.09	0.150

REVENUE BOND INDEX	3.55
10-20 Yr	0.11
20-30 Yr	0.15

3.81

30-Yr Rev Bond Est.	3.81
---------------------	------

2016 Lt Debt	4.1	4.25
Prf Stk	5.4	132%
Pref Stock Est.	132%	5.6

2/28/2019	
A-Rated Rev Bonds	3.81
A-Rated PU Bonds	4.25
A-Rated PU Pref Stk	5.60
30-yr T-bond	3.09

	SBBI	SBBI
Equity Risk Premium	6.93	6.93
Beta (Value Line Med.)	<u>0.70</u>	<u>0.70</u>
Risk Adjusted Equity Premium	4.85	4.85
Yield (RF)	3.09	3.09
Size Premium	<u>1.75</u>	<u>0.00</u>
	<u>9.69</u>	<u>7.94</u>

High 9.69  
Low 7.94

VL Beta

**0.70**

11.95 Total Return SBBI 1926-2016  
5.02 Income Return SBBI 1926-2016

**3.09** 30-yr T-bond

	Recent Market Value (Mill \$)	Market Quartile Name	Market Quartile	Quartile Size Premium	Value Line Beta
American States Water Co	2,615.73	Mid-Cap	2	1.02	0.7
American Water Works Co Inc	18,368.02	Large-Cap	1	0	0.55
Aqua America Inc	6,402.57	Mid-Cap	2	1.02	0.7
Artesian Resources -Cl A	361.72	Mico-Cap	4	3.67	0.7
California Water Service Gp	2,500.34	Mid-Cap	2	1.02	0.7
Middlesex Water Co	965.35	Low-Cap	3	1.75	0.75
SJW Corp	1,738.88	Low-Cap	3	1.75	0.6
York Water Co	471.37	Mico-Cap	4	3.67	0.75
Average	<u>4,178.000</u>	<u>Mid-Cap</u>	<u>2</u>	<u>1.02</u>	<u>0.68</u>
Median	<u>2,119.610</u>	<u>Low-Cap</u>	<u>3</u>	<u>1.75</u>	<u>0.70</u>

Company Name	Ticker Symbol	LT Debt	Total Qly	Preferred S	Minority In Common	Equity	Total Qly	Invested Capital	Total Qly	February-19		Market Ratios		Book Ratios		Market Ratios		
										Market Value	Monthly	LTD	Pref	Equity	LTD	Pref	Equity	LTD
AMERICAN ST. AWR		351,010	7,577,000	0.000	0.000	554,161	905,171	13,437,000	4,312,195	2,615,735	18,368,018	0.388	0.000	0.612	0.118	0.000	0.882	1,000
AMERICAN W/ AWK		2,266,460	111,826	0.000	0.000	5,860,000	4,312,195	2,045,738	261,911	6,402,567	6,402,567	0.564	0.000	0.436	0.292	0.000	0.708	1,000
AQUA AMERIC WTR		714,310	141,083	0.000	0.000	150,085	1,426,344	1,426,344	361,721	361,721	361,721	0.526	0.000	0.474	0.261	0.000	0.739	1,000
ARTESIAN RES. ARTNA		141,083	431,341	0.000	0.000	712,034	388,670	388,670	245,154	2,500,341	965,350	0.427	0.000	0.573	0.236	0.000	0.764	1,000
CALIFORNIA V CWT		79,289	79,289	0.000	0.000	124,272	474,957	474,957	203,561	471,371	471,371	0.501	0.000	0.499	0.222	0.000	0.778	1,000
MIDDLESEX W MSEX				0.000	0.000							0.363	0.006	0.631	0.127	0.002	0.871	1,000
SIW GROUP SJW				0.000	0.000							0.476	0.000	0.524	0.199	0.000	0.801	1,000
YORK WATER YORW				0.000	0.000							0.390	0.000	0.610	0.144	0.000	0.856	1,000

Assumptions: 2/28/2019  
Debt Cost 4.25  
Pref. Stock Cost 5.6  
Equity Cost 9.69  
Equity Cost 7.94

Ratio	Cost	Wt	Shield	Overall
21.10%	4.250	0.90	0.72	0.64566
0.00%	5.600	0.00	1	0
78.90%	9.690	7.65	1	7.64541
		8.54		<b>8.29</b>
				<<<<<ANSWER
21.10%	4.250	0.90	0.72	0.64566
0.00%	5.600	0.00	1	0
78.90%	7.941	6.27	1	6.265449
		7.16		<b>6.91</b>
				<<<<<ANSWER

DSIC Weighted Cost of Capital

<u>Assumptions:</u>	<u>2/28/2019</u>
Debt Cost	4.25
Pref. Stock Cost	5.6
DSIC Equity Cost	9.95

	Ratio	Cost	Wt	Shield	Overall
Debt	45.20%	4.250	1.92	0.72	1.38312
Pref	0.00%	5.600	0.00	1	0
Equity	54.80%	9.950	5.45	1	5.4526
			7.37		<b>6.84</b> <<<<ANSWER

H.15 Selected Interest Rates RSS DDP

The release is posted daily Monday through Friday at 4:15pm. The release is not posted on holidays or in the event that the Board is closed.

**Release date: April 1, 2019**

Selected Interest Rates

Yields in percent per annum

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Instruments	2019 Mar 25	2019 Mar 26	2019 Mar 27	2019 Mar 28	2019 Mar 29
Federal funds (effective) <sup>1 2 3</sup>	2.40	2.40	2.41	2.41	2.43
Commercial Paper <sup>3 4 5 6</sup>					
Nonfinancial					
1-month	2.46	2.46	2.47	2.46	2.43
2-month	2.49	2.46	n.a.	2.46	2.45
3-month	n.a.	2.47	n.a.	2.47	n.a.
Financial					
1-month	2.42	2.48	2.49	2.48	n.a.
2-month	2.46	n.a.	n.a.	n.a.	n.a.
3-month	2.49	2.51	2.51	2.43	2.43
Bank prime loan <sup>2 3 7</sup>	5.50	5.50	5.50	5.50	5.50
Discount window primary credit <sup>2 8</sup>	3.00	3.00	3.00	3.00	3.00
U.S. government securities					
Treasury bills (secondary market) <sup>3 4</sup>					
4-week	2.42	2.42	2.41	2.40	2.39
3-month	2.41	2.41	2.39	2.38	2.35
6-month	2.42	2.42	2.39	2.37	2.37
1-year	2.35	2.36	2.32	2.32	2.32
Treasury constant maturities					
Nominal <sup>9</sup>					
1-month	2.47	2.46	2.45	2.44	2.43
3-month	2.46	2.46	2.44	2.43	2.40
6-month	2.49	2.49	2.46	2.44	2.44
1-year	2.41	2.44	2.40	2.40	2.40
2-year	2.26	2.24	2.22	2.23	2.27
3-year	2.19	2.18	2.16	2.18	2.21
5-year	2.21	2.18	2.18	2.20	2.23
7-year	2.32	2.29	2.28	2.29	2.31
10-year	2.43	2.41	2.39	2.39	2.41
20-year	2.68	2.67	2.63	2.62	2.63
30-year	2.87	2.86	2.83	2.81	2.81
Inflation indexed <sup>10</sup>					
5-year	0.44	0.43	0.44	0.48	0.45
7-year	0.48	0.48	0.49	0.51	0.48
10-year	0.55	0.55	0.55	0.56	0.53
20-year	0.75	0.76	0.75	0.75	0.72
30-year	0.93	0.94	0.94	0.93	0.89
Inflation-indexed long-term average <sup>11</sup>	0.86	0.88	0.88	0.87	0.83

East Norriton Township  
Fiscal Year 2019 Budget

**008 Sewer Revenue Fund**

**Revenue**

321	LICENSES & PERMITS	\$10,000
341	INTEREST EARNED	\$1,000
342	RENTALS/ASSESSMENTS/LIENS	\$3,320,000
381	MISCELLANEOUS	\$0
391	INTERFUND TRANSFERS	\$0
398	RESERVES/FUND BALANCE	\$126,303

**Total Sewer Revenue Fund Revenue \$3,457,303**

**Expenditure**

406	ADMINISTRATION & COLLECTION	\$209,838
427	SEWER SYSTEM MAINTENANCE	\$489,275
429	CAPITAL & OPERATING EXPENSES	\$1,530,626
471	DEBT SERVICE - PRINCIPAL	\$214,240
472	DEBT SERVICE - INTEREST	\$14,096
484	EMPLOYEE BENEFITS	\$1,000
491	PENSIONS & OPEB	\$0
492	INTERFUND TRANSFERS	\$991,000
493	RESERVES/FUND BALANCE	\$7,228

**Total Sewer Revenue Fund Expenditure \$3,457,303**



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**018 Sanitary Sewer Outfall Fund**

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**Revenue**

321	LICENSES & PERMITS	\$0
341	INTEREST EARNED	\$0
351	INTERGOVERNMENTAL & GRANTS	\$0
381	MISCELLANEOUS	\$0
391	INTERFUND TRANSFERS	\$492,000
398	RESERVES/FUND BALANCE	\$0

<b>Total Sanitary Sewer Outfall Fund Revenue</b>	<b>\$492,000</b>
--	------------------

**Expenditure**

406	ADMINISTRATION & COLLECTION	\$0
427	SEWER SYSTEM MAINTENANCE	\$0
429	CAPITAL & OPERATING EXPENSES	\$492,000
465	CAPITAL OUTLAY	\$0
492	INTERFUND TRANSFERS	\$0
493	RESERVES/FUND BALANCE	\$0

<b>Total Sanitary Sewer Outfall Fund Expenditure</b>	<b>\$492,000</b>
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**East Norriton Township**  
**2018 Adopted Budget**

**Sewer Revenue Fund - Revenues**

**LICENSES & PERMITS (321)**

008-321-21-00	Connection Fees	\$0
008-321-29-00	Certifications	\$10,000
	Total:	\$10,000

**INTEREST EARNED (341)**

008-341-26-00	Int - PLGIT Plus	\$0
<del>008-341-30-00</del>	<del>Interest - Commercial Bank</del>	<del>\$0</del>
008-341-49-00	Int-Jnt Swr Auth Improve	\$0
008-341-69-00	Interest/I-Class Acct	\$1,000
008-341-91-00	Int-Sewer Rev Accts	\$0
	Total:	\$1,000

**RENTALS/ASSESSMENTS/LIENS (342)**

008-342-10-00	Sewer Rentals-Current	\$3,270,000
<del>008-342-20-00</del>	<del>Sewer Rentals - Lien</del>	<del>\$0</del>
008-342-25-00	Lien Fees	\$35,000
<del>008-342-26-00</del>	<del>Interest on Liens</del>	<del>\$0</del>
	Total:	\$3,320,000

**MISCELLANEOUS (381)**

008-381-30-00	Refund Current Expense	\$0
<del>008-381-40-00</del>	<del>Refund Prior Expenses</del>	<del>\$0</del>
008-381-86-00	PA One Call Refund	\$0
	Total:	\$0

**INTERFUND TRANSFERS (391)**

008-391-10-00	Transfer from General Fund	\$0
008-391-92-00	Transfer from San Sew Outfall	\$0
	Total:	\$0

**RESERVES/FUND BALANCE (398)**

008-398-99-00	Budgeted Use of Reserves	\$0
	Total:	\$0

**UNASSIGNED FUND BALANCE (399)**

008-399-99-00	Cash Carry Over	\$0
008-399-99-01	Unassigned Fund Balance	\$0
	Total:	\$0

Total Sewer Revenue Fund Revenue	\$3,331,000
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**East Norriton Township**  
**2018 Adopted Budget**

**Sewer Revenue Fund - Expenditures**

**ADMINISTRATION & COLLECTION (406)**

008-406-11-16	Administrative Staff	\$35,937
<del>008-406-21-11</del>	<del>Office Supplies</del>	<del>\$200</del>
008-406-31-11	Auditing Services	\$5,000
008-406-31-13	Legal Services	\$20,000
008-406-31-15	Legal Services-Gtown Pk	\$25,000
<del>008-406-31-17</del>	<del>Legal Services - DEP</del>	<del>\$10,000</del>
008-406-36-19	Legal Services - System Review	\$50,000
<del>008-406-32-12</del>	<del>Postage Expense</del>	<del>\$8,000</del>
008-406-34-11	Advertising Expense	\$0
<del>008-406-34-12</del>	<del>Printing Expense</del>	<del>\$5,000</del>
008-406-45-27	Water Reports	\$3,500
008-406-46-15	Prothonotary	\$0
008-406-46-16	Misc Petty Cash	\$200
<del>008-406-46-48</del>	<del>Bank Service Charge</del>	<del>\$0</del>
008-406-46-24	Paying Agents Fees	\$700
<del>008-406-47-28</del>	<del>PLS Software</del>	<del>\$6,500</del>
Total:		\$170,037

**SEWER SYSTEM MAINTENANCE (427)**

008-427-11-13	Professional Staff	\$243,490
008-427-11-19	Overtime	\$14,000
008-427-11-47	Sewer Maint Supervisor	\$0
<del>008-427-11-48</del>	<del>Vacation Pay</del>	<del>\$7,000</del>
008-427-11-69	Summer Help	\$0
008-427-19-11	Uniform Allowance	\$1,200
008-427-22-11	General Supplies	\$1,500
<del>008-427-23-11</del>	<del>Gasoline Expense</del>	<del>\$9,000</del>
008-427-23-12	Diesel Fuel	\$1,500
<del>008-427-23-18</del>	<del>Repairs</del>	<del>\$3,000</del>
008-427-32-11	Telephone Expense	\$4,500
<del>008-427-32-48</del>	<del>Pennsylvania One Call</del>	<del>\$1,250</del>
008-427-36-18	Electricity	\$150,000
<del>008-427-36-49</del>	<del>Water</del>	<del>\$3,000</del>
008-427-37-14	Vehicle Repair & Maint	\$5,000
<del>008-427-37-38</del>	<del>Maint &amp; Repairs - Sewers</del>	<del>\$45,000</del>
008-427-37-43	Pump Station Maint Repair	\$25,000
<del>008-427-37-44</del>	<del>Rebuild Pumps</del>	<del>\$25,000</del>
008-427-37-48	Degreaser	\$10,000
008-427-45-72	Contracted Services	\$15,000
008-427-74-13	Computer	\$750
<del>008-427-74-27</del>	<del>Station Parts</del>	<del>\$5,000</del>
008-427-74-47	Safety Equip	\$1,000
008-427-75-12	Minor Equip	\$2,500
008-427-75-18	Hand Tools	\$0
<del>008-427-81-41</del>	<del>Depreciation-Fixed Assets</del>	<del>\$0</del>
Total:		\$532,690

**CAPITAL & OPERATING EXPENSES (429)**

008-429-31-12	Engineering Services	\$0
<del>008-429-38-15</del>	<del>Treatment Charges</del>	<del>\$1,350,446</del>
008-429-38-38	Capital Contributions	\$0
Total:		\$1,350,446

**East Norriton Township  
2018 Adopted Budget**

**Sewer Revenue Fund - Expenditures**

**DEBT SERVICE - PRINCIPAL (471)**

008-471-20-93	10 Debt Principal 66.95%	\$210,893
<del>008-471-20-96</del>	<del>02 Debt Principal 26.77%</del>	<del>\$0</del>
008-471-20-97	03 Debt - Principle	\$0
	Total:	\$210,893

**DEBT SERVICE - INTEREST (472)**

008-472-20-93	10 Debt - Interest 66.95%	\$20,453
<del>008-472-20-96</del>	<del>02 Debt Interest 26.77%</del>	<del>\$0</del>
008-472-20-97	03 Debt - Interest	\$0
	Total:	\$20,453

**EMPLOYEE BENEFITS (484)**

008-484-15-27	Training	\$2,000
	Total:	\$2,000

**PENSIONS & OPEB (491)**

008-491-65-01	Non-Uniformed Pension-Twp Cost	\$0
<del>008-491-65-00</del>	<del>Loss on Sale of Capital Asset</del>	<del>\$0</del>
	Total:	\$0

**INTERFUND TRANSFERS (492)**

008-492-20-00	Transfer to Sinking Fund	\$0
008-492-91-15	Administ & Support Exp	\$543,637
008-492-91-17	Xfer to Sani Sewer Outfal	\$500,000
	Total:	\$1,043,637

**RESERVES/FUND BALANCE (493)**

008-493-92-11	Reserves	\$0
008-493-92-35	Reserve for Sewer Bond	\$0
008-493-92-37	Reserve Cap Contributions	\$0
<del>008-493-92-00</del>	<del>Unassigned Reserves</del>	<del>\$844</del>
	Total:	\$844

**UNEXPENDED FUND BALANCE (499)**

008-499-99-01	Unexpended Fund Balance	\$0
	Total:	\$0

Total Sewer Revenue Fund Expenditure	\$3,331,000
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**East Norriton Township**  
**2018 Adopted Budget**

**Sanitary Sewer Outfall Fund - Revenues**

**LICENSES & PERMITS (321)**

018-321-21-00	Connection Fees	\$0
	Total:	\$0

**INTEREST EARNED (341)**

018-341-58-00	Int-Tap Fees I/Class Acct	\$0
<del>018-341-61-00</del>	<del>Interest Mapping Fees</del>	<del>\$0</del>
018-341-68-00	Interest-PLGIT Plus	\$0
<del>018-341-93-00</del>	<del>Int-San Sewer Outfall</del>	<del>\$0</del>
	Total:	\$0

**INTERGOVERNMENTAL & GRANTS (351)**

018-351-66-00	DEP Grants - Sewer	\$0
	Total:	\$0

**MISCELLANEOUS (381)**

018-381-40-00	Refund Prior Year	\$0
	Total:	\$0

**INTERFUND TRANSFERS (391)**

018-391-10-00	Transfer From Sewer Rev	\$500,000
<del>018-391-28-00</del>	<del>Proceeds from Sale of Asset</del>	<del>\$0</del>
	Total:	\$500,000

**RESERVES/FUND BALANCE (398)**

018-398-99-00	Budgeted Use of Reserves	\$202,000
	Total:	\$202,000

**UNASSIGNED FUND BALANCE (399)**

018-399-99-00	Cash Carry Over	\$0
<del>018-399-99-01</del>	<del>Unassigned Fund Balance</del>	<del>\$0</del>
	Total:	\$0

Total Sanitary Sewer Outfall Fund Revenue	\$702,000
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**East Norriton Township  
2018 Adopted Budget**

**Sanitary Sewer Outfall Fund - Expenditures**

**ADMINISTRATION & COLLECTION (406)**

018-406-41-02	DER Fines	\$10,000
	Total:	\$10,000

**SEWER SYSTEM MAINTENANCE (427)**

018-427-37-26	Whitehall Rd Pump Station	\$70,000
018-427-37-37	Sewer Consultant	\$15,000
018-427-37-43	Pump Station Maint Repair	\$50,000
<del>018-427-37-55</del>	<del>TV Inspections &amp; Grouting</del>	<del>\$0</del>
018-427-37-68	VFD Replacement Program	\$0
<del>018-427-37-69</del>	<del>Sandra Lane P.S. VFDs</del>	<del>\$0</del>
018-427-37-70	Root Control Program	\$15,000
<del>018-427-37-71</del>	<del>North City P.S. AC Repairs</del>	<del>\$0</del>
018-427-74-47	Safety Equipment	\$0
018-427-81-11	Depreciation Expenses	\$0
	Total:	\$150,000

**CAPITAL & OPERATING EXPENSES (429)**

018-429-38-38	Capital Contributions	\$492,000
	Total:	\$492,000

**CAPITAL OUTLAY (465)**

018-465-72-02	Sewer Mains Maint/Repairs	\$50,000
018-465-72-15	Potshop Rd Surcharge Proj	\$0
018-465-72-43	Manhole Rehabilitation	\$0
<del>018-465-72-46</del>	<del>Manhole Replacement</del>	<del>\$0</del>
018-465-72-49	GTown Pk Parallel FMain	\$0
<del>018-465-72-61</del>	<del>Hanover Ln Stream Crossng</del>	<del>\$0</del>
018-465-72-63	Timberlake Drainage Area	\$0
<del>018-465-72-68</del>	<del>Spot Improvements</del>	<del>\$0</del>
018-465-72-72	Flow Totes	\$0
018-465-72-73	Flow Monitoring-Unmetered	\$0
018-465-72-74	Stony Ck Interceptor Re-Route	\$0
<del>018-465-74-70</del>	<del>New Sewer Camera Truck</del>	<del>\$0</del>
018-465-74-71	John Deere Gator	\$0
<del>018-465-74-72</del>	<del>Sewer Camera</del>	<del>\$0</del>
018-465-74-73	Sewer Utility Truck	\$0
	Total:	\$50,000

**INTERFUND TRANSFERS (492)**

018-492-91-27	Transfer to Sewer Revenue	\$0
	Total:	\$0

**RESERVES/FUND BALANCE (493)**

018-493-92-11	Revenue	\$0
<del>018-493-99-00</del>	<del>Unassigned Reserves</del>	<del>\$0</del>
	Total:	\$0

**UNEXPENDED FUND BALANCE (499)**

018-499-99-01	Unexpended Fund Balance	\$0
	Total:	\$0

Total Sanitary Sewer Outfall Fund Expenditure	\$702,000
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**East Norriton Township**

**Fiscal Year 2016 Budget**

**2016 Budget - Adopted December 8, 2015**

**Sewer Revenue Fund - Expenditures**

008-471-20-93	10 Debt Principal 66.95%	\$398,353
<del>008-471-20-96</del>	<del>02 Debt Principal 20.77%</del>	<del>\$0</del>
008-471-20-97	03 Debt - Principle	\$0
	Total:	\$398,353

**DEBT SERVICE - INTEREST (472)**

008-472-20-93	10 Debt - Interest 66.95%	\$35,940
008-472-20-96	02 Debt-Interest 20.77%	\$0
008-472-20-97	03 Debt - Interest	\$0
	Total:	\$35,940

**EMPLOYEE BENEFITS (484)**

008-484-15-27	Training	\$4,000
	Total:	\$4,000

**INTERFUND TRANSFERS (492)**

008-492-20-00	Transfer to Sinking F und	\$0
<del>008-492-91-15</del>	<del>Administ &amp; Support Exp</del>	<del>\$512,199</del>
008-492-91-17	Xfer to Sani Sewer Outfal	\$500,000
	Total:	\$1,012,199

**RESERVES (493)**

008-493-92-11	Reserves	\$55,742
008-493-92-35	Reserve for Sewer Bond	\$0
008-493-92-37	Reserve Cap Contributions	\$0
	Total:	\$55,742

Total Sewer Revenue Fund Expenditure	\$3,528,500
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**East Norriton Township  
2017 Adopted Budget**

**Sewer Revenue Fund - Expenditures**

008-471-20-93	10 Debt Principal 66.95%	\$224,283
<del>008-471-20-96</del>	<del>02 Debt Principal 20.77%</del>	<del>\$0</del>
008-471-20-97	03 Debt - Principle	\$0
	Total:	\$224,283

**DEBT SERVICE - INTEREST (472)**

008-472-20-93	10 Debt - Interest 66.95%	\$26,479
<del>008-472-20-96</del>	<del>02 Debt Interest 20.77%</del>	<del>\$0</del>
008-472-20-97	03 Debt - Interest	\$0
	Total:	\$26,479

**EMPLOYEE BENEFITS (484)**

008-484-15-27	Training	\$3,000
	Total:	\$3,000

**PENSIONS & OPEB (491)**

008-491-65-01	Non-Uniformed Pension-Twp Cost	\$0
<del>008-491-74-00</del>	<del>Loss on Sale of Capital Asset</del>	<del>\$0</del>
	Total:	\$0

**INTERFUND TRANSFERS (492)**

008-492-20-00	Transfer to Sinking F und	\$0
<del>008-492-94-15</del>	<del>Adminis &amp; Support Exp</del>	<del>\$525,000</del>
008-492-91-17	Xfer to Sani Sewer Outfal	\$500,000
	Total:	\$1,025,000

**RESERVES (493)**

008-493-92-11	Reserves	\$0
<del>008-493-92-35</del>	<del>Reserve for Sewer Bond</del>	<del>\$0</del>
008-493-92-37	Reserve Cap Contributions	\$0
008-493-99-00	Budgeted Reserves	\$0
	Total:	\$0

**UNEXPENDED FUND BALANCE (499)**

008-499-99-01	Unexpended Fund Balance	\$0
	Total:	\$0

Total Sewer Revenue Fund Expenditure	\$3,343,500
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**EAST NORRITON TOWNSHIP  
STATEMENT OF NET POSITION - PROPRIETARY FUND  
DECEMBER 31, 2014**

	Sewer Fund
<b>ASSETS</b>	
Current Assets:	
Cash and cash equivalents	\$ 793,456
Sewer rents receivable	1,302,916
Total Current Assets	2,096,372
Noncurrent Assets:	
Depreciable capital assets, net	1,682,903
Total Noncurrent Assets	1,682,903
<b>TOTAL ASSETS</b>	<b>\$ 3,779,275</b>
 <b>LIABILITIES AND NET POSITION</b>	
<b>LIABILITIES</b>	
Current Liabilities:	
Accounts payable	\$ 14,657
Accrued payroll	13,058
Due to other funds	24,794
Total Current Liabilities	52,509
Total Liabilities	52,509
 <b>NET POSITION</b>	
Net investment in capital assets	1,682,903
Unrestricted	2,043,863
Total Net Position	3,726,766
<b>TOTAL LIABILITIES AND NET POSITION</b>	<b>\$ 3,779,275</b>

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

**EAST NORRITON TOWNSHIP  
STATEMENT OF REVENUES, EXPENSES,  
AND CHANGES IN NET POSITION - PROPRIETARY FUND  
FOR THE YEAR ENDED DECEMBER 31, 2014**

	Sewer Fund
<b>OPERATING REVENUES:</b>	
Fees	<u>\$ 3,040,791</u>
Total Operating Revenues	<u>3,040,791</u>
 <b>OPERATING EXPENSES:</b>	
Administration	136,377
Contracted services	1,582,397
Depreciation	119,596
Repairs and maintenance	93,936
Salaries and wages	328,809
Supplies	28,850
Utilities	202,485
Total Operating Expenses	<u>2,492,450</u>
 <b>OPERATING INCOME</b>	 <u>548,341</u>
 <b>NONOPERATING REVENUE:</b>	
Interest income	<u>13,029</u>
 <b>INCOME BEFORE TRANSFERS</b>	 <u>561,370</u>
 <b>TRANSFERS</b>	
Transfers out	<u>(797,014)</u>
 <b>CHANGE IN NET POSITION</b>	 <u>(235,644)</u>
 <b>NET POSITION, BEGINNING OF YEAR</b>	 <u>3,962,410</u>
 <b>NET POSITION, END OF YEAR</b>	 <u><u>\$ 3,726,766</u></u>

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

**EAST NORRITON TOWNSHIP**  
**STATEMENT OF CASH FLOWS - PROPRIETARY FUND**  
**FOR THE YEAR ENDED DECEMBER 31, 2014**

	<u>Sewer Fund</u>
<b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>	
Cash received from customers	\$ 3,275,534
Cash payments to suppliers for goods and services	(2,017,356)
Cash payments to employees for services	(328,809)
<b>NET CASH PROVIDED BY OPERATING ACTIVITIES*</b>	<u>929,369</u>
 <b>CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES:</b>	
Transfers out	(797,014)
<b>NET CASH USED BY NONCAPITAL FINANCING ACTIVITIES</b>	<u>(797,014)</u>
 <b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>	
Purchase of capital assets	(110,930)
Interest received	13,029
<b>NET CASH USED BY INVESTING ACTIVITIES</b>	<u>(97,901)</u>
 <b>NET INCREASE IN CASH AND CASH EQUIVALENTS</b>	34,454
 <b>CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR</b>	<u>759,002</u>
 <b>CASH AND CASH EQUIVALENTS, END OF YEAR</b>	<u>\$ 793,456</u>
 <b>RECONCILIATION OF OPERATING INCOME TO NET CASH PROVIDED BY OPERATING ACTIVITIES:</b>	
Operating income	\$ 548,341
Adjustments to reconcile operating income to net cash provided by operating activities:	
Depreciation	119,596
Decrease in sewer rents receivable	234,743
Increase in due to other funds	6,352
Increase in accounts payable	20,337
<b>NET CASH PROVIDED BY OPERATING ACTIVITIES</b>	<u>\$ 929,369</u>

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

**EAST NORRITON TOWNSHIP  
STATEMENTS OF NET POSITION - PROPRIETARY FUND  
DECEMBER 31, 2017 AND 2016**

	Sewer Fund	
	2017	2016
<b>ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>		
Current Assets:		
Cash and cash equivalents	\$ 905,105	\$ 847,734
Sewer rents receivable	1,208,148	1,306,686
Due from other funds	-	26,000
Total Current Assets	2,113,253	2,180,420
Noncurrent Assets:		
Depreciable capital assets, net	1,435,797	1,501,791
Total Noncurrent Assets	1,435,797	1,501,791
<b>TOTAL ASSETS</b>	<b>3,549,050</b>	<b>3,682,211</b>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>		
Deferred pension	22,627	15,841
<b>TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>	<b>\$ 3,571,677</b>	<b>\$ 3,698,052</b>
<b>LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>		
<b>LIABILITIES</b>		
Current Liabilities:		
Accounts payable	\$ 48,763	\$ 62,898
Accrued payroll	6,988	6,988
Long-term Liabilities:		
Net pension liability	86,746	99,200
<b>TOTAL LIABILITIES</b>	<b>142,497</b>	<b>169,086</b>
<b>DEFERRED INFLOWS OF RESOURCES</b>		
Deferred pension	23,457	9,093
<b>TOTAL DEFERRED INFLOWS OF RESOURCES</b>	<b>23,457</b>	<b>9,093</b>
<b>TOTAL LIABILITIES AND DEFERRED INFLOWS OF RESOURCES</b>	<b>165,954</b>	<b>178,179</b>
<b>NET POSITION</b>		
Net investment in capital assets	1,435,797	1,501,791
Unrestricted	1,969,926	2,018,082
<b>TOTAL NET POSITION</b>	<b>3,405,723</b>	<b>3,519,873</b>
<b>TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>	<b>\$ 3,571,677</b>	<b>\$ 3,698,052</b>

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

**EAST NORRITON TOWNSHIP  
STATEMENTS OF REVENUES, EXPENSES, AND  
CHANGES IN NET POSITION - PROPRIETARY FUND  
FOR THE YEARS ENDED DECEMBER 31, 2017 AND 2016**

	Sewer Fund	
	2017	2016
<b>OPERATING REVENUES:</b>		
Fees	\$ 3,206,187	\$ 3,254,705
Total Operating Revenues	3,206,187	3,254,705
<b>OPERATING EXPENSES:</b>		
Administration	152,909	132,012
Contracted services	1,841,287	1,565,112
Depreciation	110,824	115,632
Repairs and maintenance	59,383	67,907
Salaries and wages	262,402	305,634
Supplies	5,652	9,982
Utilities	153,105	151,498
Total Operating Expenses	2,585,562	2,347,777
<b>OPERATING INCOME</b>	620,625	906,928
<b>NONOPERATING REVENUE:</b>		
Interest income	21,201	16,827
Total Nonoperating Revenue	21,201	16,827
<b>INCOME BEFORE TRANSFERS</b>	641,826	923,755
<b>TRANSFERS</b>		
Transfers out	(755,976)	(915,753)
<b>CHANGE IN NET POSITION</b>	(114,150)	8,002
<b>NET POSITION, BEGINNING OF YEAR</b>	3,519,873	3,511,871
<b>NET POSITION, END OF YEAR</b>	\$ 3,405,723	\$ 3,519,873

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

**EAST NORRITON TOWNSHIP  
STATEMENTS OF CASH FLOWS - PROPRIETARY FUND  
FOR THE YEARS ENDED DECEMBER 31, 2017 AND 2016**

	Sewer Fund	
	2017	2016
<b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>		
Cash received from customers	\$ 3,304,725	\$ 3,199,813
Cash payments to suppliers for goods and services	(2,200,471)	(1,979,942)
Cash payments to employees for services	(267,278)	(323,129)
<b>NET CASH PROVIDED BY OPERATING ACTIVITIES</b>	<b>836,976</b>	<b>896,742</b>
<b>CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES:</b>		
Transfers out	(755,976)	(915,753)
<b>NET CASH USED BY NONCAPITAL FINANCING ACTIVITIES</b>	<b>(755,976)</b>	<b>(915,753)</b>
<b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>		
Purchase of capital assets	(44,830)	(17,500)
Interest received	21,201	16,827
<b>NET CASH USED BY INVESTING ACTIVITIES</b>	<b>(23,629)</b>	<b>(673)</b>
<b>NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS</b>	57,371	(19,684)
<b>CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR</b>	<b>847,734</b>	<b>867,418</b>
<b>CASH AND CASH EQUIVALENTS, END OF YEAR</b>	<b>\$ 905,105</b>	<b>\$ 847,734</b>
<b>RECONCILIATION OF OPERATING INCOME TO NET CASH PROVIDED BY OPERATING ACTIVITIES:</b>		
Operating income	\$ 620,625	\$ 906,928
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation	110,824	115,632
Decrease (Increase) in:		
Sewer rents receivable	98,538	(54,892)
Due from other funds	26,000	-
Deferred outflow pension	(6,786)	8,191
Increase (Decrease) in:		
Deferred inflow pension	14,364	19
Accounts payable	(14,135)	(53,431)
Net pension liability	(12,454)	(25,705)
<b>NET CASH PROVIDED BY OPERATING ACTIVITIES</b>	<b>\$ 836,976</b>	<b>\$ 896,742</b>

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

**EAST NORRITON TOWNSHIP  
STATEMENTS OF NET POSITION - PROPRIETARY FUND  
DECEMBER 31, 2016 AND 2015**

	Sewer Fund	
	2016	2015
<b>ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>		
Current Assets:		
Cash and cash equivalents	\$ 847,734	\$ 867,418
Sewer rents receivable	1,306,686	1,251,794
Due from other funds	26,000	26,000
Total Current Assets	2,180,420	2,145,212
Noncurrent Assets:		
Depreciable capital assets, net	1,501,791	1,599,923
Total Noncurrent Assets	1,501,791	1,599,923
<b>TOTAL ASSETS</b>	<b>3,682,211</b>	<b>3,745,135</b>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>		
Deferred pension	15,841	24,032
<b>TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>	<b>\$ 3,698,052</b>	<b>\$ 3,769,167</b>
<b>LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>		
<b>LIABILITIES</b>		
Current Liabilities:		
Accounts payable	\$ 62,898	\$ 114,569
Accrued payroll	6,988	8,748
Long-term Liabilities:		
Net pension liability	99,200	124,905
Total Liabilities	169,086	248,222
<b>DEFERRED INFLOWS OF RESOURCES</b>		
Deferred pension	9,093	9,074
<b>TOTAL DEFERRED INFLOWS OF RESOURCES</b>	<b>9,093</b>	<b>9,074</b>
<b>TOTAL LIABILITIES AND DEFERRED INFLOWS OF RESOURCES</b>	<b>178,179</b>	<b>257,296</b>
<b>NET POSITION</b>		
Net investment in capital assets	1,501,791	1,599,923
Unrestricted	2,018,082	1,911,948
Total Net Position	3,519,873	3,511,871
<b>TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>	<b>\$ 3,698,052</b>	<b>\$ 3,769,167</b>

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

**EAST NORRITON TOWNSHIP  
STATEMENTS OF REVENUES, EXPENSES, AND  
CHANGES IN NET POSITION - PROPRIETARY FUND  
FOR THE YEARS ENDED DECEMBER 31, 2016 AND 2015**

	Sewer Fund	
	2016	2015
<b>OPERATING REVENUES:</b>		
Fees	<u>\$ 3,254,705</u>	<u>\$ 2,920,612</u>
Total Operating Revenues	<u>3,254,705</u>	<u>2,920,612</u>
<b>OPERATING EXPENSES:</b>		
Administration	132,012	229,094
Contracted services	1,565,112	1,233,290
Depreciation	115,632	116,707
Repairs and maintenance	67,907	89,004
Salaries and wages	305,634	336,439
Supplies	9,982	17,515
Utilities	151,498	171,947
Total Operating Expenses	<u>2,347,777</u>	<u>2,193,996</u>
<b>OPERATING INCOME</b>	<u>906,928</u>	<u>726,616</u>
<b>NONOPERATING REVENUE:</b>		
Interest income	16,827	18,994
Gain on sale of asset	-	22,580
Total Nonoperating Revenue	<u>16,827</u>	<u>41,574</u>
<b>INCOME BEFORE TRANSFERS</b>	923,755	768,190
<b>TRANSFERS</b>		
Transfers out	<u>(915,753)</u>	<u>(867,789)</u>
<b>CHANGE IN NET POSITION</b>	8,002	(99,599)
<b>NET POSITION, BEGINNING OF YEAR</b>	<u>3,511,871</u>	<u>3,611,470</u>
<b>NET POSITION, END OF YEAR</b>	<u>\$ 3,519,873</u>	<u>\$ 3,511,871</u>

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



**EAST NORRITON TOWNSHIP  
STATEMENTS OF CASH FLOWS - PROPRIETARY FUND  
FOR THE YEARS ENDED DECEMBER 31, 2016 AND 2015**

	Sewer Fund	
	2016	2015
<b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>		
Cash received from customers	\$ 3,199,813	\$ 2,971,734
Cash payments to suppliers for goods and services	(1,979,942)	(1,696,042)
Cash payments to employees for services	(323,129)	(341,788)
<b>NET CASH PROVIDED BY OPERATING ACTIVITIES</b>	<b>896,742</b>	<b>933,904</b>
<b>CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES:</b>		
Transfers out	(915,753)	(867,789)
<b>NET CASH USED BY NONCAPITAL FINANCING ACTIVITIES</b>	<b>(915,753)</b>	<b>(867,789)</b>
<b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>		
Proceeds from sale of capital asset	-	30,700
Purchase of capital assets	(17,500)	(41,847)
Interest received	16,827	18,994
<b>NET CASH (USED) PROVIDED BY INVESTING ACTIVITIES</b>	<b>(673)</b>	<b>7,847</b>
<b>NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS</b>	<b>(19,684)</b>	<b>73,962</b>
<b>CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR</b>	<b>867,418</b>	<b>793,456</b>
<b>CASH AND CASH EQUIVALENTS, END OF YEAR</b>	<b>\$ 847,734</b>	<b>\$ 867,418</b>
<b>RECONCILIATION OF OPERATING INCOME TO NET CASH PROVIDED BY OPERATING ACTIVITIES:</b>		
Operating income	\$ 906,928	\$ 726,616
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation	115,632	116,707
(Increase) Decrease in sewer rents receivable	(54,892)	51,122
Increase in due from other funds	-	(26,000)
Decrease (Increase) in deferred outflow pension	8,191	(24,032)
Increase in deferred inflow pension	19	9,074
Decrease in due to other funds	-	(24,794)
(Decrease) Increase in accounts payable	(53,431)	95,602
(Decrease) Increase in net pension liability	(25,705)	9,609
<b>NET CASH PROVIDED BY OPERATING ACTIVITIES</b>	<b>\$ 896,742</b>	<b>\$ 933,904</b>

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

**EAST NORRITON TOWNSHIP  
STATEMENT OF NET POSITION - PROPRIETARY FUND  
DECEMBER 31, 2015**

	<u>Sewer Fund</u>
<b>ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>	
Current Assets:	
Cash and cash equivalents	\$ 867,418
Sewer rents receivable	1,251,794
Due from other funds	26,000
Total Current Assets	<u>2,145,212</u>
Noncurrent Assets:	
Depreciable capital assets, net	<u>1,599,923</u>
Total Noncurrent Assets	<u>1,599,923</u>
<b>TOTAL ASSETS</b>	<u><u>3,745,135</u></u>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>	
Deferred pension	<u>24,032</u>
<b>TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES</b>	<u><u>\$ 3,769,167</u></u>
<b>LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>	
<b>LIABILITIES</b>	
Current Liabilities:	
Accounts payable	\$ 114,569
Accrued payroll	8,748
Long-term Liabilities:	
Net pension liability	<u>124,905</u>
Total Liabilities	<u>248,222</u>
<b>DEFERRED INFLOWS OF RESOURCES</b>	
Deferred pension	<u>9,074</u>
<b>TOTAL DEFERRED INFLOWS OF RESOURCES</b>	<u>9,074</u>
<b>TOTAL LIABILITIES AND DEFERRED INFLOWS OF RESOURCES</b>	<u><u>257,296</u></u>
<b>NET POSITION</b>	
Net investment in capital assets	1,599,923
Unrestricted	<u>1,911,948</u>
Total Net Position	<u><u>3,511,871</u></u>
<b>TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION</b>	<u><u>\$ 3,769,167</u></u>

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

**EAST NORRITON TOWNSHIP  
STATEMENT OF REVENUES, EXPENSES,  
AND CHANGES IN NET POSITION - PROPRIETARY FUND  
FOR THE YEAR ENDED DECEMBER 31, 2015**

	<u>Sewer Fund</u>
OPERATING REVENUES:	
Fees	\$ 2,920,612
Total Operating Revenues	<u>2,920,612</u>
OPERATING EXPENSES:	
Administration	229,094
Contracted services	1,233,290
Depreciation	116,707
Repairs and maintenance	89,004
Salaries and wages	336,439
Supplies	17,515
Utilities	171,947
Total Operating Expenses	<u>2,193,996</u>
OPERATING INCOME	<u>726,616</u>
NONOPERATING REVENUE:	
Interest income	18,994
Gain on sale of asset	22,580
Total Nonoperating Revenue	<u>41,574</u>
INCOME BEFORE TRANSFERS	768,190
TRANSFERS	
Transfers out	<u>(867,789)</u>
CHANGE IN NET POSITION	(99,599)
NET POSITION, BEGINNING OF YEAR (RESTATED)	<u>3,611,470</u>
NET POSITION, END OF YEAR	<u><u>\$ 3,511,871</u></u>

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

**EAST NORRITON TOWNSHIP  
STATEMENT OF CASH FLOWS - PROPRIETARY FUND  
FOR THE YEAR ENDED DECEMBER 31, 2015**

	<u>Sewer Fund</u>
<b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>	
Cash received from customers	\$ 2,971,734
Cash payments to suppliers for goods and services	(1,696,042)
Cash payments to employees for services	<u>(350,862)</u>
<b>NET CASH PROVIDED BY OPERATING ACTIVITIES</b>	<u><b>924,830</b></u>
 <b>CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES:</b>	
Transfers out	<u>(867,789)</u>
<b>NET CASH USED BY NONCAPITAL FINANCING ACTIVITIES</b>	<u><b>(867,789)</b></u>
 <b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>	
Proceeds from sale of capital asset	30,700
Purchase of capital assets	(41,847)
Interest received	18,994
<b>NET CASH PROVIDED BY INVESTING ACTIVITIES</b>	<u><b>7,847</b></u>
 <b>NET INCREASE IN CASH AND CASH EQUIVALENTS</b>	 64,888
 <b>CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR</b>	 <u>793,456</u>
 <b>CASH AND CASH EQUIVALENTS, END OF YEAR</b>	 <u><b>\$ 858,344</b></u>
 <b>RECONCILIATION OF OPERATING INCOME TO NET CASH PROVIDED BY OPERATING ACTIVITIES:</b>	
Operating income	\$ 726,616
Adjustments to reconcile operating income to net cash provided by operating activities:	
Depreciation	116,707
Decrease in sewer rents receivable	51,122
Increase in due from other funds	(26,000)
Increase in deferred outflow pension	(24,032)
Increase in deferred inflow pension	9,074
Decrease in due to other funds	(24,794)
Increase in accounts payable	95,602
Increase in net pension liability	<u>9,609</u>
<b>NET CASH PROVIDED BY OPERATING ACTIVITIES</b>	<u><b>\$ 933,904</b></u>

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

Fiscal Year 2015 Budget

Ledger Account Description		2013 Year End	2014 Budget	2014 Actual	2015 Budget
<b>008</b>	<b><u>Sewer Revenue Fund</u></b>				
	Total:	\$1,000,970.00	\$1,077,200	\$1,067,427	\$1,071,500
<b>471</b>	<b><u>DEBT SERVICE - PRINCIPAL</u></b>				
008-471-20-93	10 Debt Principal 66.95%	\$257,757.50	\$230,978	\$230,978	\$381,615
008-471-20-96	02 Debt-Principal 20.77%	\$30,739.60	\$43,617	\$43,617	\$0
008-471-20-97	03 Debt - Principle	\$54,000.00	\$0	\$0	\$0
	Total:	\$342,497.10	\$274,595	\$274,595	\$381,615
<b>472</b>	<b><u>DEBT SERVICE - INTEREST</u></b>				
008-472-20-93	10 Debt - Interest 66.95%	\$68,176.02	\$60,443	\$60,443	\$51,205
008-472-20-96	02 Debt-Interest 20.77%	\$3,163.74	\$1,086	\$1,188	\$0
008-472-20-97	03 Debt - Interest	\$444.15	\$0	\$0	\$0
	Total:	\$71,783.91	\$61,529	\$61,631	\$51,205
<b>484</b>	<b><u>EMPLOYEE BENEFITS</u></b>				
008-484-15-27	Training	\$1,776.00	\$4,000	\$2,871	\$4,000
	Total:	\$1,776.00	\$4,000	\$2,871	\$4,000
<b>492</b>	<b><u>INTERFUND TRANSFERS</u></b>				
008-492-91-15	Administ & Support Exp	\$460,788.00	\$460,788	\$0	\$455,000
008-492-91-17	Xfer to Sani Sewer Outfal	\$370,000.00	\$370,000	\$370,000	\$500,000
	Total:	\$830,788.00	\$830,788	\$370,000	\$955,000
<b>493</b>	<b><u>RESERVES</u></b>				
008-493-92-11	Revenue	\$0.00	\$366,455	\$0	\$0
008-493-92-35	Reserve for Sewer Bond	\$0.00	\$0	\$0	\$0
008-493-92-37	Reserve Cap Contributions	\$0.00	\$0	\$0	\$0

Consensus Forecasts of U.S. Interest Rates and Key Assumptions

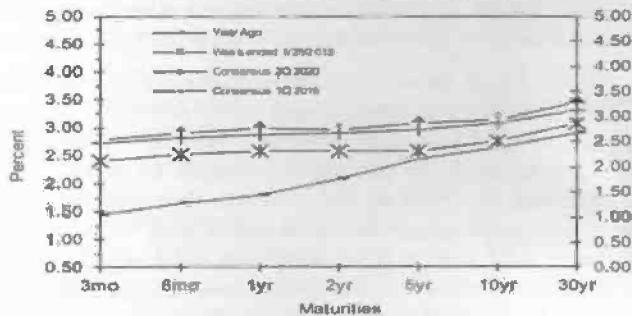
Interest Rates	History								Consensus Forecasts-Quarterly Avg.						
	Average For Week Ending				Average For Month				Latest Qtr	1Q	2Q	3Q	4Q	1Q	2Q
	Jan 18	Jan 11	Jan 4	Dec 28	Dec	Nov	Oct	Q4 2018	2019	2019	2019	2019	2020	2020	
Federal Funds Rate	2.40	2.40	2.40	2.40	2.27	2.20	2.19	2.22	2.4	2.5	2.7	2.8	2.8	2.8	
Prime Rate	5.50	5.50	5.50	5.50	5.35	5.25	5.25	5.28	5.5	5.6	5.7	5.8	5.9	5.8	
LIBOR, 3-mo.	2.77	2.79	2.80	2.80	2.79	2.65	2.46	2.63	2.8	2.9	3.0	3.1	3.1	3.1	
Commercial Paper, 1-mo.	2.49	2.49	2.50	2.42	2.44	2.29	2.23	2.32	2.5	2.5	2.7	2.8	2.9	2.8	
Treasury bill, 3-mo.	2.43	2.44	2.43	2.43	2.41	2.37	2.29	2.36	2.5	2.5	2.7	2.8	2.8	2.8	
Treasury bill, 6-mo.	2.51	2.52	2.51	2.51	2.54	2.52	2.46	2.51	2.6	2.7	2.8	2.9	2.9	2.9	
Treasury bill, 1 yr.	2.58	2.59	2.58	2.59	2.66	2.70	2.65	2.67	2.6	2.7	2.9	3.0	3.0	3.0	
Treasury note, 2 yr.	2.56	2.56	2.47	2.56	2.68	2.86	2.86	2.80	2.7	2.8	2.9	3.0	3.0	3.0	
Treasury note, 5 yr.	2.56	2.55	2.47	2.60	2.68	2.95	3.00	2.88	2.7	2.9	3.0	3.0	3.1	3.1	
Treasury note, 10 yr.	2.74	2.72	2.65	2.76	2.83	3.12	3.15	3.03	2.9	3.0	3.1	3.1	3.2	3.1	
Treasury note, 30 yr.	3.07	3.02	2.97	3.04	3.10	3.36	3.34	3.27	3.1	3.2	3.3	3.4	3.5	3.5	
Corporate Aaa bond	4.17	4.14	4.12	4.15	4.19	4.36	4.30	4.28	4.1	4.2	4.4	4.5	4.5	4.5	
Corporate Baa bond	5.07	5.05	5.06	5.07	5.08	5.17	5.02	5.09	5.1	5.3	5.4	5.5	5.5	5.5	
State & Local bonds	3.67	3.67	3.68	3.70	3.73	3.86	3.84	3.81	3.9	4.0	4.1	4.2	4.2	4.3	
Home mortgage rate	4.45	4.45	4.51	4.55	4.64	4.87	4.83	4.78	4.6	4.8	4.9	5.0	5.0	5.0	

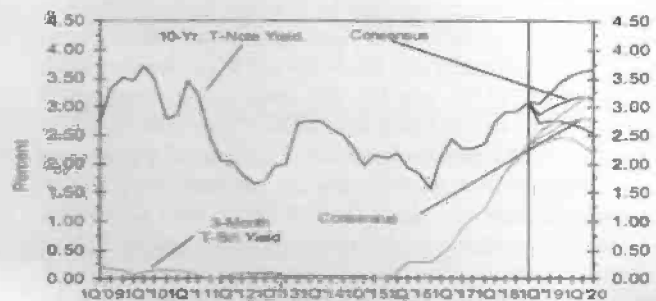
Key Assumptions	History								Consensus Forecasts-Quarterly						
	1Q				2Q				3Q				4Q		
	2017	2017	2017	2017	2018	2018	2018	2018	2018*	2019	2019	2019	2019	2020	2020
Major Currency Index	94.3	92.9	88.3	88.9	86.1	88.3	90.2	91.5	91.5	91.3	91.2	91.0	90.8	90.5	90.1
Real GDP	1.8	3.0	2.8	2.3	2.2	4.2	3.4	2.6	2.6	2.1	2.5	2.2	1.9	1.6	1.6
GDP Price Index	2.0	1.2	2.2	2.5	2.0	3.0	1.8	2.0	2.0	1.9	2.3	2.1	2.2	2.2	2.2
Consumer Price Index	3.0	0.1	2.1	3.3	3.5	1.7	2.0	1.8	1.8	1.6	2.2	2.3	2.3	2.3	2.2

Forecasts for interest rates and the Federal Reserve's Major Currency Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index and Consumer Price Index are seasonally-adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data: Treasury rates from the Federal Reserve Board's H.15; AAA-AA and A-BBB corporate bond yields from Bank of America-Merrill Lynch and are 15+ years, yield to maturity; State and local bond yields from Bank of America-Merrill Lynch, A-rated, yield to maturity; Mortgage rates from Freddie Mac, 30-year, fixed, LIBOR quotes from Intercontinental Exchange. All interest rate data are sourced from Haver Analytics. Historical data for Fed's Major Currency Index are from FRSR H.10. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS). \*Figures for Q4 2018 for Real GDP and GDP Chained Price Index are consensus forecasts based on a special question asked of the panelists this month.

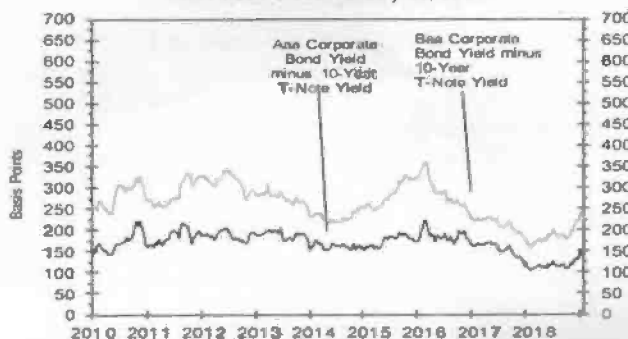
U.S. Treasury Yield Curve  
Week ended January 25, 2019 and Year Ago, 1Q 2019 & 1Q 2020 Consensus Forecasts



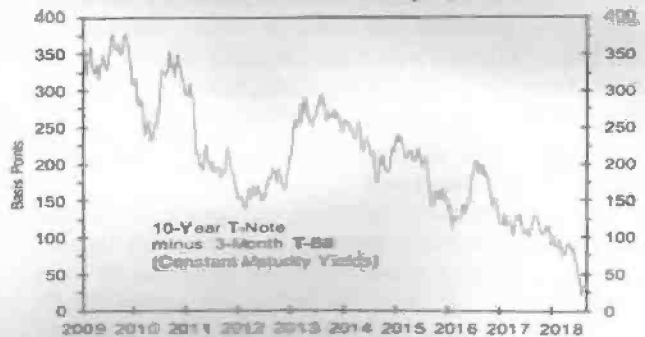
U.S. 3-Mo. T-Bills & 10-Yr. T-Note Yield  
(Quarterly Average) Forecast



Corporate Bond Spreads  
As of week ended January 25, 2019



U.S. Treasury Yield Curve  
As of week ended January 25, 2019



2017 Net Property, Plant & Equipment	Advances for construction	Contributions in aid of construction	Deferred income taxes, net	Deferred investment tax credits	2017 Known "Cost Free" Capital	2017 Percentage of Known "Cost Free" Capital
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(Millions of \$)

Comparable Group

American States Water Co	\$1,204.992	\$123.602	\$120.780	\$1.436	\$0.000	\$245.818	20%
American Water Works Co Inc	14,970.000	<b>\$271.000</b>	<b>\$1,276.000</b>	<b>\$1,551.000</b>	<b>\$22.000</b>	\$3,120.000	21%
Aqua America Inc	5,399.859	\$93.186	\$571.091	\$769.073	\$0.000	\$1,433.350	27%
Artesian Resources -CL A	464.384	\$7.797	\$128.286	\$54.137	\$0.526	\$190.746	41%
California Water Service Gp	2,083.038	\$182.502	\$186.721	\$192.946	\$0.000	\$562.169	27%
Middlesex Water Co	557.240	\$21.423	\$79.621	\$43.160	\$0.000	\$144.204	26%
SJW Corp	1,299.718	\$83.695	\$160.830	\$85.795	\$0.000	\$330.320	25%
York Water Co	289.524	\$6.324	\$38.661	\$34.754	\$0.000	\$79.739	28%
Median							26%

CONSOLIDATED BALANCE SHEETS - USD (\$) \$ in Thousands		Dec. 31, 2017	Dec. 31, 2016
<b>Regulated utility plant, at cost</b>			
Water	\$ 1,559,209	\$ 1,514,419	
Electric	99,726	94,009	
Total	1,658,935	1,608,428	
Non-regulated utility property, at cost			
Total utility plant, at cost	1,674,527	1,620,325	
Less — accumulated depreciation	(533,370)	(532,753)	
Utility plant before construction work in progress	1,141,157	1,087,572	
Construction work in progress	63,835	63,354	
Net utility plant	1,204,992	1,150,926	
<b>Other Property and Investments</b>			
Goodwill	1,116	1,116	
Other property and investments	24,070	20,836	
Total other property and investments	25,186	21,952	
<b>Current Assets</b>			
Cash and cash equivalents	214	436	
Accounts receivable-customers, less allowance for doubtful accounts	26,127	19,893	
Unbilled revenue	26,411	24,391	
Receivable from U.S. government, less allowance for doubtful accounts	3,725	8,467	
Other accounts receivable, less allowance for doubtful accounts	8,251	3,151	
Income taxes receivable	4,737	17,867	
Materials and supplies	4,795	4,294	
Regulatory assets — current	34,220	43,296	
Prepayments and other current assets	5,596	3,735	
Costs and estimated earnings in excess of billings on contracts	41,387	41,245	
Total current assets	155,463	166,875	
<b>Regulatory and Other Assets</b>			
Regulatory assets	0	102,985	
Costs and estimated earnings in excess of billings on contracts	25,426	22,687	
Other	5,667	5,068	
Total regulatory and other assets	31,093	130,740	
Total Assets	1,416,734	1,470,493	
<b>Capitalization</b>			
Common shareholder's equity	529,945	494,297	
Long-term debt	321,039	320,981	
Total capitalization	850,984	815,278	
<b>Current Liabilities</b>			
Notes payable to banks	59,000	90,000	
Long-term debt — current	324	330	
Income taxes payable	225	149	
Accounts payable	50,978	43,724	
Accrued other taxes	7,344	9,112	
Accrued other taxes	12,969	12,304	
Accrued employee expenses	3,861	3,864	
Accrued interest	2,941	4,901	
Billings in excess of costs and estimated earnings on contracts	3,911	2,263	
Unrealized loss on purchased power contracts	15,109	11,297	
Other	156,662	177,944	
<b>Other Credits</b>			
Other Credits	67,465	69,722	
Advances for construction	123,602	120,518	
Contributions in aid of construction — net	115,703	224,530	
Regulatory Liability, Noncurrent	32,178	0	
Deferred income taxes	1,436	1,529	
Unamortized investment tax credits	57,695	49,856	
Accrued pension and other post-retirement benefits	11,009	11,116	
Other	409,088	477,271	
Commitments and Contingencies (Notes 13 and 14)	0	0	
Total Capitalization and Liabilities	1,416,734	1,470,493	
<b>GSWC</b>			
<b>Regulated utility plant, at cost</b>			
Water	1,559,209	1,514,419	
Electric	99,726	94,009	
Total utility plant, at cost	1,658,935	1,608,428	
Less — accumulated depreciation	(524,481)	(524,927)	
Utility plant before construction work in progress	1,134,454	1,083,501	
Construction work in progress	63,486	61,810	
Net utility plant	1,197,940	1,145,311	
<b>Other Property and Investments</b>			
Other property and investments	21,956	18,719	
Total other property and investments	21,956	18,719	
<b>Current Assets</b>			
Cash and cash equivalents	214	209	
Accounts receivable-customers, less allowance for doubtful accounts	26,127	19,893	
Unbilled revenue	18,852	17,700	
Other accounts receivable, less allowance for doubtful accounts	6,105	1,959	
Income taxes receivable	6,590	21,856	
Materials and supplies	4,046	3,724	
Regulatory assets — current	34,220	43,296	
Prepayments and other current assets	5,090	3,520	
Total current assets	101,244	112,257	
<b>Regulatory and Other Assets</b>			
Regulatory assets	0	102,985	
Other	5,683	4,906	
Total regulatory and other assets	5,683	107,891	
Total Assets	1,326,823	1,384,178	
<b>Capitalization</b>			
Common shareholder's equity	474,374	446,770	
Long-term debt	321,039	320,981	
Total capitalization	795,413	767,751	
<b>Current Liabilities</b>			
Inter-company payable to Parent	34,836	61,726	
Long-term debt — current	324	330	
Accounts payable	42,497	34,648	
Accrued other taxes	7,108	8,870	
Accrued other taxes	11,338	10,983	
Accrued employee expenses	3,585	3,588	
Accrued interest	2,941	4,901	
Unrealized loss on purchased power contracts	14,705	10,925	
Other	117,334	135,971	
<b>Other Credits</b>			
Other Credits	67,465	69,722	
Advances for construction	123,602	120,518	
Contributions in aid of construction — net	120,780	227,798	
Regulatory Liability, Noncurrent	32,178	0	
Deferred income taxes	1,436	1,529	
Unamortized investment tax credits	57,695	49,856	
Accrued pension and other post-retirement benefits	10,920	11,033	
Other	414,076	480,456	
Total Capitalization and Liabilities	\$ 1,326,823	\$ 1,384,178	



American Water Works  
Consolidated Balance Sheets - USD (\$) \$ in Millions

EXHIBIT 19  
Page 35 of 156  
Dec. 31, 2017      Dec. 31, 2016

	Dec. 31, 2017	Dec. 31, 2016
<b>ASSETS</b>		
Property, plant and equipment	\$ 21,716	\$ 19,954
Accumulated depreciation	(5,470)	(4,962)
Property, plant and equipment, net	16,246	14,992
<b>Current assets:</b>		
Cash and cash equivalents	55	75
Restricted funds	27	20
Accounts receivable, net	272	269
Unbilled revenues	212	263
Materials and supplies	41	39
Other	113	118
Total current assets	720	784
<b>Regulatory and other long-term assets:</b>		
Regulatory assets	1,061	1,289
Goodwill	1,379	1,345
Other	76	72
Total regulatory and other long-term assets	2,516	2,706
<b>TOTAL ASSETS</b>	<b>19,482</b>	<b>18,482</b>
<b>Capitalization:</b>		
Common stock (\$0.01 par value, 500,000,000 shares authorized, 182,508,564 and 181,798,555 shares issued, respectively)	2	2
Paid-in-capital	6,432	6,388
Accumulated deficit	(723)	(873)
Accumulated other comprehensive loss	(79)	(86)
Treasury stock, at cost (4,064,010 and 3,701,867 shares, respectively)	(247)	(213)
Total common stockholders' equity	5,385	5,218
Long-term debt	6,490	5,749
Redeemable preferred stock at redemption value	8	10
Total long-term debt	6,498	5,759
Total capitalization	11,883	10,977
<b>Current liabilities:</b>		
Short-term debt	905	849
Current portion of long-term debt	322	574
Accounts payable	195	154
Accrued liabilities	630	609
Taxes accrued	33	31
Interest accrued	73	63
Other	167	112
Total current liabilities	2,325	2,392
<b>Regulatory and other long-term liabilities:</b>		
Advances for construction	271	300
Deferred income taxes, net	1,551	2,596
Deferred investment tax credits	22	23
Regulatory liabilities	1,664	403
Accrued pension expense	384	419
Accrued postretirement benefit expense	40	87
Other	66	67
Total regulatory and other long-term liabilities	3,998	3,895
Contributions in aid of construction	1,276	1,218
Commitments and contingencies (See Note 15)		
<b>TOTAL CAPITALIZATION AND LIABILITIES</b>	<b>\$ 19,482</b>	<b>\$ 18,482</b>

# Aqua America

## Consolidated Balance Sheets - USD (\$) \$ in Thousands

EXHIBIT 19

Page 36 of 156  
Dec-31, 2016

	Dec. 31, 2017	Dec. 31, 2016
<b>Assets</b>		
Property, plant and equipment, at cost	\$ 7,003,993	\$ 6,509,117
Less: accumulated depreciation	1,604,133	1,507,502
Net property, plant and equipment	5,399,860	5,001,615
<b>Current assets:</b>		
Cash and cash equivalents	4,204	3,763
Accounts receivable and unbilled revenues, net	98,596	97,394
Inventory, materials and supplies	14,361	12,961
Prepayments and other current assets	12,542	12,804
Assets held for sale	1,543	1,728
Total current assets	131,246	128,650
Regulatory assets	713,971	948,647
Deferred charges and other assets, net	38,485	30,845
Investment in joint venture	6,671	7,026
Goodwill	42,230	42,208
Total assets	6,332,463	6,158,991
<b>Aqua America stockholders' equity:</b>		
Common stock at \$.50 par value, authorized 300,000,000 shares, issued 180,700,251 and 180,311,345 in 2017 and 2016	90,350	90,155
Capital in excess of par value	807,135	797,513
Retained earnings	1,132,556	1,032,844
Treasury stock, at cost, 2,986,308 and 2,916,969 shares in 2017 and 2016	(73,280)	(71,113)
Accumulated other comprehensive income	860	669
Total stockholders' equity	1,957,621	1,850,068
Long-term debt, excluding current portion	2,029,358	1,759,962
Less: debt issuance costs	21,605	22,357
Long-term debt, excluding current portion, net of debt issuance costs	2,007,753	1,737,605
Commitments and contingencies (See Note 9)		
<b>Current liabilities:</b>		
Current portion of long-term debt	113,769	150,671
Loans payable	3,650	6,535
Accounts payable	59,165	47,256
Book overdraft	21,629	12,616
Accrued interest	21,359	18,367
Accrued taxes	23,764	25,607
Other accrued liabilities	41,152	40,484
Total current liabilities	284,488	301,536
<b>Deferred credits and other liabilities:</b>		
Deferred income taxes and investment tax credits	769,073	1,269,253
Customers' advances for construction	93,186	91,843
Regulatory liabilities	541,910	250,635
Other	107,341	115,583
Total deferred credits and other liabilities	1,511,510	1,727,314
Contributions in aid of construction	571,091	542,468
Total liabilities and equity	\$ 6,332,463	\$ 6,158,991

**Artesian Resources**  
**CONSOLIDATED BALANCE SHEETS - USD (\$) \$ in Thousands**

EXHIBIT 19  
Page 37 of 156  
Dec. 31, 2017      Dec. 31, 2016

**ASSETS**

Utility plant, at original cost (less accumulated depreciation 2017-\$116,945; 2016-\$109,684)	\$ 460,502	\$ 425,502
<b>Current assets</b>		
Cash and cash equivalents	952	226
Accounts receivable (less allowance for doubtful accounts 2017 - \$288; 2016 - \$263)	8,897	7,796
Income tax receivable	2,353	150
Unbilled operating revenues	1,427	1,403
Materials and supplies	1,519	1,564
Prepaid property taxes	1,795	1,669
Prepaid expenses and other	2,042	1,827
Total current assets	18,985	14,635
<b>Other assets</b>		
Non utility property (less accumulated depreciation 2017-\$689; 2016-\$611)	3,882	3,881
Other deferred assets	3,721	3,584
Total other assets	7,603	7,465
Regulatory assets, net	7,549	3,374
Total assets	494,639	450,976
<b>Stockholders' equity</b>		
Common stock	9,215	9,127
Preferred stock	0	0
Additional paid-in capital	99,526	97,480
Retained earnings	37,903	32,416
Total stockholders' equity	146,644	139,023
Long-term debt, net of current portion	105,587	102,331
Total stockholders' equity and long-term debt	252,231	241,354
<b>Current liabilities</b>		
Lines of credit	9,610	7,130
Current portion of long-term debt	1,344	1,316
Accounts payable	8,853	5,532
Accrued expenses	2,888	1,309
Overdraft payable	304	32
Accrued interest	1,805	1,000
Customer deposits	969	864
Other	2,688	2,145
Total current liabilities	28,461	19,328
Commitments and contingencies ( Note 10 )		
<b>Deferred credits and other liabilities</b>		
Net advances for construction	7,797	8,169
Regulatory liabilities	23,201	1,022
Deferred investment tax credits	526	544
Deferred income taxes	54,137	68,453
Total deferred credits and other liabilities	85,661	78,188
Net contributions in aid of construction	128,286	112,106
Liabilities and stockholders' equity	\$ 494,639	\$ 450,976

# California Water Services

## Consolidated Balance Sheets - USD (\$) \$ in Thousands

EXHIBIT 19

Page 38 of 156  
Dec-31, 2016

	Dec. 31, 2017	Dec. 31, 2016
<b>Utility plant:</b>		
Land	\$ 42,517	\$ 40,283
Depreciable plant and equipment	2,729,757	2,522,174
Construction work in progress	175,693	132,957
Intangible assets	22,212	21,925
Total utility plant	2,970,179	2,717,339
Less accumulated depreciation and amortization	(922,214)	(858,062)
Net utility plant	2,047,965	1,859,277
<b>Current assets:</b>		
Cash and cash equivalents	94,776	25,492
<b>Receivables: net of allowance for doubtful accounts of \$773 and \$830 in 2017 and 2016, respectively</b>		
Customers	32,451	30,305
Regulatory balancing accounts	36,783	30,332
Other	16,464	17,158
Unbilled revenue	29,756	25,228
Materials and supplies at weighted average cost	6,463	6,292
Taxes, prepaid expenses, and other assets	11,180	7,262
Total current assets	227,873	142,069
<b>Other assets:</b>		
Regulatory assets	401,147	355,930
Goodwill	2,615	2,615
Other	60,775	51,854
Total other assets	464,537	410,399
<b>TOTAL ASSETS</b>	<b>2,740,375</b>	<b>2,411,745</b>
<b>Capitalization:</b>		
Common stock, \$0.01 par value; 68,000 shares authorized, 48,012 and 47,965 outstanding in 2017 and 2016, respectively	480	480
Additional paid-in capital	336,229	334,856
Retained earnings	356,753	324,135
Total common stockholders' equity	693,462	659,471
Long-term debt, less current maturities	515,793	531,745
Total capitalization	1,209,255	1,191,216
<b>Current liabilities:</b>		
Current maturities of long-term debt	15,920	26,208
Short-term borrowings	275,100	97,100
Accounts payable	93,955	77,813
Regulatory balancing accounts	59,303	4,759
Accrued other taxes	3,888	3,629
Accrued interest	6,122	5,661
Other accrued liabilities	36,671	35,060
Total current liabilities	490,959	250,230
Unamortized investment tax credits	1,724	1,798
Deferred income taxes	192,946	298,924
Regulatory liabilities	179,706	38,735
Pension and postretirement benefits other than pensions	252,141	222,691
Advances for construction	182,502	182,448
Contributions in aid of construction	186,721	180,790
Other long-term liabilities	44,421	44,913
Commitments and contingencies		
<b>TOTAL CAPITALIZATION AND LIABILITIES</b>	<b>\$ 2,740,375</b>	<b>\$ 2,411,745</b>

<b>Middlesex Water</b>	Dec. 31, 2017	Dec. 31, 2016
<b>CONSOLIDATED BALANCE SHEETS - USD (\$) \$ in Thousands</b>		
<b>UTILITY PLANT:</b>		
Water Production	\$ 153,844	\$ 146,914
Transmission and Distribution	468,649	430,880
General	69,457	63,514
Construction Work in Progress	11,562	12,196
TOTAL	703,512	653,504
Less Accumulated Depreciation	146,272	135,728
UTILITY PLANT - NET	557,240	517,776
<b>CURRENT ASSETS:</b>		
Cash and Cash Equivalents	4,937	3,879
Accounts Receivable, net	10,785	10,129
Unbilled Revenues	6,999	6,590
Materials and Supplies (at average cost)	4,118	4,094
Prepayments	2,408	2,024
TOTAL CURRENT ASSETS	29,247	26,716
Preliminary Survey and Investigation Charges	4,676	2,365
Regulatory Assets	58,423	60,894
Operations Contracts, Developer and Other Receivables	439	1,139
Restricted Cash	1,460	439
Non-utility Assets - Net	9,478	9,131
Federal Income Tax Receivable		1,408
Other	177	293
TOTAL DEFERRED CHARGES AND OTHER ASSETS	74,653	75,669
TOTAL ASSETS	661,140	620,161
<b>CAPITALIZATION:</b>		
Common Stock, No Par Value	155,120	153,045
Retained Earnings	74,055	65,392
TOTAL COMMON EQUITY	229,175	218,437
Preferred Stock	2,433	2,436
Long-term Debt	139,045	134,538
TOTAL CAPITALIZATION	370,653	355,411
<b>CURRENT LIABILITIES:</b>		
Current Portion of Long-term Debt	6,865	6,159
Notes Payable	28,000	12,000
Accounts Payable	13,929	12,343
Accrued Taxes	11,418	12,385
Accrued Interest	1,093	1,084
Unearned Revenues and Advanced Service Fees	951	923
Other	2,281	2,162
TOTAL CURRENT LIABILITIES	64,537	47,056
<b>DEFERRED CREDITS AND OTHER LIABILITIES:</b>		
Customer Advances for Construction	21,423	20,846
Accumulated Deferred Income Taxes	43,160	72,825
Employee Benefit Plans	36,686	36,139
Regulatory Liabilities	43,745	11,337
Other	1,315	1,443
TOTAL DEFERRED CREDITS AND OTHER LIABILITIES	146,329	142,590
CONTRIBUTIONS IN AID OF CONSTRUCTION	79,621	75,104
TOTAL CAPITALIZATION AND LIABILITIES	\$ 661,140	\$ 620,161

**SJW Group**  
**Consolidated Balance Sheets - USD (\$) \$ in Thousands**

EXHIBIT 19  
Page 40 of 156  
Dec. 31, 2017      Dec. 31, 2016

<b>Utility plant:</b>		
Land	\$ 17,831	\$ 17,923
Depreciable plant and equipment	1,714,228	1,554,016
Construction in progress	45,851	70,453
Intangible assets	14,413	23,989
Property, Plant and Equipment, Gross	1,792,323	1,666,381
Less accumulated depreciation and amortization	553,059	520,018
Public Utilities, Property, Plant and Equipment, Net	1,239,264	1,146,363
Real estate investments	56,213	62,193
Less accumulated depreciation and amortization	11,132	11,734
Property, Plant and Equipment, Net	45,081	50,459
<b>Current assets:</b>		
Cash and cash equivalents	7,799	6,349
Restricted cash	0	19,001
<b>Accounts receivable:</b>		
Customers, net of allowances for uncollectible accounts of \$190 and \$200 in 2017 and 2016, respectively	17,305	16,361
Income tax	7,981	9,796
Other	1,118	3,383
Accrued unbilled utility revenue	27,905	24,255
Current regulatory assets, net	0	16,064
Other current assets	4,750	4,402
Assets, Current	66,858	99,611
<b>Other assets:</b>		
Investment in California Water Service Group	4,535	3,390
Net regulatory assets, less current portion	99,554	135,709
Other	2,709	7,844
Assets, Noncurrent	106,798	146,943
Assets	1,458,001	1,443,376
<b>Stockholders' equity:</b>		
Common stock, \$0.001 par value; authorized 36,000,000 shares; issued and outstanding 20,520,856 shares in 2017 and 20,456,225 shares in 2016	21	21
Additional paid-in capital	84,866	81,715
Retained earnings	376,119	338,386
Accumulated other comprehensive income	2,203	1,524
Total stockholders' equity	463,209	421,646
Long-term debt, less current portion	431,092	433,335
Capitalization, Long-term Debt and Equity	894,301	854,981
<b>Current liabilities:</b>		
Lines of credit	25,000	14,200
Current portion of long-term debt	0	125
Accrued groundwater extraction charges, purchased water and power	14,382	10,846
Accounts payable	22,960	18,739
Accrued interest	6,869	6,309
Accrued property taxes and other non-income taxes	1,904	1,681
Accrued payroll	6,011	4,696
Other current liabilities	7,926	6,977
Liabilities, Current	85,052	63,573
Deferred income taxes	85,795	205,203
Advances for construction	83,695	84,815
Contributions in aid of construction	160,830	151,576
Postretirement benefit plans	72,841	70,177
Regulatory liability	62,476	0
Other noncurrent liabilities	13,011	13,051
Commitments and contingencies	0	0
Liabilities and Equity	\$ 1,458,001	\$ 1,443,376

# York Water

## Balance Sheets - USD (\$) \$ in Thousands

EXHIBIT 19

Page 41 of 156  
Dec-31, 2016

**ASSETS**

	Dec. 31, 2017	Dec-31, 2016
UTILITY PLANT, at original cost	\$ 365,767	\$ 343,412
Plant acquisition adjustments	(3,234)	(3,667)
Accumulated depreciation	(73,746)	(68,838)
Net utility plant	288,787	270,907
OTHER PHYSICAL PROPERTY, net of accumulated depreciation of \$387 in 2017 and \$353 in 2016	737	745

**CURRENT ASSETS:**

Cash and cash equivalents	2	4,209
Accounts receivable, net of reserves of \$305 in 2017 and \$305 in 2016	4,547	4,296
Unbilled revenues	2,459	2,429
Recoverable income taxes	0	282
Materials and supplies inventories, at cost	906	746
Prepaid expenses	697	658
<b>Total current assets</b>	<b>8,611</b>	<b>12,620</b>

**OTHER LONG-TERM ASSETS:**

Notes receivable	255	255
Deferred regulatory assets	30,331	33,027
Other assets	3,309	2,940
<b>Total other long-term assets</b>	<b>33,895</b>	<b>36,222</b>
<b>Total Assets</b>	<b>332,030</b>	<b>320,494</b>

**COMMON STOCKHOLDERS' EQUITY:**

Common stock, no par value, authorized 46,500,000, shares issued 12,872,742 in 2017 and 12,852,295 in 2016, shares outstanding 12,872,742 and 12,852,295 in 2016	79,201	78,513
Retained earnings	40,204	35,548
<b>Total common stockholders' equity</b>	<b>119,405</b>	<b>114,061</b>
PREFERRED STOCK, authorized 500,000 shares, no shares issued	0	0
LONG-TERM DEBT, excluding current portion	90,098	84,609

**COMMITMENTS**

**CURRENT LIABILITIES:**

Short-term borrowings	1,000	0
Current portion of long-term debt	44	44
Accounts payable	3,136	3,669
Dividends payable	1,892	1,803
Accrued compensation and benefits	1,134	1,233
Accrued income taxes	531	0
Accrued interest	989	921
Other accrued expenses	419	514
<b>Total current liabilities</b>	<b>9,145</b>	<b>8,184</b>

**DEFERRED CREDITS:**

Customers' advances for construction	6,324	7,102
Deferred income taxes	34,754	54,169
Deferred employee benefits	7,075	8,990
Deferred regulatory liabilities	24,372	4,433
Other deferred credits	2,196	2,292
<b>Total deferred credits</b>	<b>74,721</b>	<b>76,986</b>
Contributions in aid of construction	38,661	36,654
<b>Total Stockholders' Equity and Liabilities</b>	<b>\$ 332,030</b>	<b>\$ 320,494</b>

**Series Id:** CUSR0000SA0  
 Seasonally Adjusted  
**Series Title:** All items in U.S. city average, all urban consumers, seasonally adjusted  
**Area:** U.S. city average  
**Item:** All items  
**Base Period:** 1982-84=100

**Download:**

 [.xlsx](#)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	HALF1	HALF2
2009	211.933	212.705	212.495	212.709	213.022	214.79	214.726	215.445	215.861	216.509	217.234	217.347		
2010	217.488	217.281	217.353	217.403	217.29	217.199	217.605	217.923	218.275	219.035	219.59	220.472		
2011	221.187	221.898	223.046	224.093	224.806	224.806	225.395	226.106	226.597	226.75	227.169	227.223		
2012	227.842	228.329	228.807	229.187	228.713	228.524	228.59	229.918	231.015	231.638	231.249	231.221		
2013	231.679	232.937	232.282	231.797	231.893	232.445	232.9	233.456	233.544	233.669	234.1	234.719		
2014	235.288	235.547	236.028	236.468	236.918	237.231	237.498	237.46	237.477	237.43	236.983	236.252		
2015	234.718	235.236	236.005	236.156	236.974	237.684	238.053	238.028	237.506	237.781	238.016	237.817		
2016	237.833	237.469	238.038	238.827	239.464	240.167	240.15	240.602	241.051	241.691	242.029	242.772		
2017	243.78	243.961	243.749	244.051	243.962	244.182	244.39	245.297	246.418	246.587	247.332	247.901		
2018	248.884	249.369	249.498	249.956	250.646	251.134	251.597	251.879	252.01	252.794	252.76	252.723		
2019	252.673	253.113	254.148											

**Series Id:** CUUR0000SA0,CUUS0000SA0  
 Not Seasonally Adjusted  
**Series Title:** All items in U.S. city average, all urban consumers, not seasonally adjusted  
**Area:** U.S. city average  
**Item:** All items  
**Base Period:** 1982-84=100

**Download:**

 [.xlsx](#)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	HALF1	HALF2
2009	211.143	212.193	212.709	213.24	213.856	215.693	215.351	215.834	215.969	216.177	216.33	215.949	213.139	215.935
2010	216.687	216.741	217.631	218.009	218.178	217.965	218.011	218.312	218.439	218.711	218.803	219.179	217.535	218.576
2011	220.223	221.309	223.467	224.906	225.964	225.722	225.922	226.545	226.889	226.421	226.23	225.672	223.598	226.28
2012	226.665	227.663	229.392	230.085	229.815	229.478	229.104	230.379	231.407	231.317	230.221	229.601	228.85	230.338
2013	230.28	232.166	232.773	232.531	232.945	233.504	233.596	233.877	234.149	233.546	233.069	233.049	232.366	233.548
2014	233.916	234.781	236.293	237.072	237.9	238.343	238.25	237.852	238.031	237.433	236.151	234.812	236.384	237.088
2015	233.707	234.722	236.119	236.599	237.805	238.638	238.654	238.316	237.945	237.838	237.336	236.525	236.265	237.769
2016	236.916	237.111	238.132	239.261	240.229	241.018	240.628	240.849	241.428	241.729	241.353	241.432	238.778	241.237
2017	242.839	243.603	243.801	244.524	244.733	244.955	244.786	245.519	246.819	246.663	246.669	246.524	244.076	246.163
2018	247.867	248.991	249.554	250.546	251.588	251.989	252.006	252.146	252.439	252.885	252.038	251.233	250.089	252.125
2019	251.712	252.776	254.202											



DEALS AUGUST 6, 2018 / 5:11 PM / 6 MONTHS AGO

## SJW Group makes \$1.1 billion all-cash offer for Connecticut Water

3 MIN READ



NEW YORK (Reuters) - SJW Group (SJW.N) and Connecticut Water Service Inc (CTWS.O) said on Monday they were changing from a merger to an acquisition agreement, with SJW offering to buy the New England utility for \$1.1 billion in cash instead of combining stock.

The switch to an all-cash offer is worth \$70 per Connecticut Water share, a 33 percent premium to Connecticut Water's share price prior to the original deal announced in March, according to a joint statement.

It was also higher than the implied \$61.86 per share value of the Clinton, Connecticut-based firm under the merger-of-equals transaction, which would have created a combined company in which existing SJW shareholders would hold 60 percent of the stock.

SJW closed 2.3 percent lower, while Connecticut Water was 9 percent higher at \$68.50.

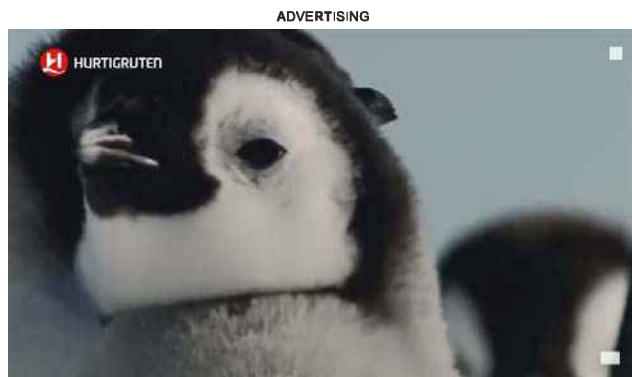
ADVERTISEMENT

To pay for the acquisition, SJW will initially utilize a \$975 million bridge loan from financial adviser JP Morgan Chase (JPM.N). Ultimately, the purchase would be covered by debt and between \$450 million and \$500 million of equity finance.

The new deal aims to conclude in the first quarter of 2019, subject to approvals from Connecticut Water's shareholders, as well as regulators in Connecticut and Maine.

The duo's original all-stock merger announcement in March triggered competing offers from Eversource Energy ([ES.N](#)) and California Water Service Group ([CWT.N](#)).

## ADVERTISEMENT



"We have converted from a stock-for-stock deal to a cash offer, which will resolve any further market distractions from the inferior proposals," SJW Chief Executive Eric Thornburg told Reuters, in reference to the actions by Eversource and CalWater.

Switching to an acquisition, versus a merger structure, means that SJW shareholders will no longer be required to vote on approving the deal, the statement said.

CalWater has an open tender offer to acquire SJW that runs until Sept. 28.

However, asked if the change was aimed at heading off any shareholder challenge to the deal, Thornburg told Reuters it "wasn't a consideration" and it had received nothing but support from its shareholders.

## RBS sounds alarm over Brexit

CalWater declined to comment. A spokesman for Eversource said the company was evaluating developments but, as it has made clear, it will be disciplined in pursuing this or any other transaction.

Reporting by David French in New York; Additional Reporting by Liana B. Baker; Editing by Lisa Shumaker

*Our Standards: [The Thomson Reuters Trust Principles.](#)*

## MORE FROM REUTERS

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**CONNECTICUT WATER SERVICE INC / CT**

**BALANCE\_SHEET2**

**Form Type: 10-K**

**Period End: Dec 31, 2017**

**Date Filed: Mar 15, 2018**

[Table Of Contents](#)

CONNECTICUT WATER SERVICE, INC.

CONSOLIDATED BALANCE SHEETS

December 31, (in thousands, except share amounts) 2017 2016

ASSETS

Utility Plant	\$ 927,289	\$ 777,860
Construction Work in Progress	11,761	33,748
	939,050	811,608
Accumulated Provision for Depreciation	(241,327)	(210,212)
Net Utility Plant	697,723	601,396
Other Property and Investments	10,662	9,071
Cash and Cash Equivalents	3,618	1,564
Accounts Receivable (Less Allowance, 2017 - \$1,265; 2016 - \$1,100)	14,965	13,024
Accrued Unbilled Revenues	8,481	8,171
Materials and Supplies, at Average Cost	1,593	1,536
Prepayments and Other Current Assets	7,021	5,069
Total Current Assets	35,678	29,364
Unrecovered Income Taxes - Regulatory Asset	66,631	93,264
Pension Benefits - Regulatory Asset	11,339	12,266
Post-Retirement Benefits Other Than Pension - Regulatory Asset	116	265
Goodwill	67,016	30,427
Deferred Charges and Other Costs	9,618	8,449
Total Regulatory and Other Long-Term Assets	154,720	144,671
Total Assets	\$ 898,783	\$ 784,502

CAPITALIZATION AND LIABILITIES

Common Stockholders' Equity:

Common Stock Without Par Value: Authorized - 25,000,000

Shares

Issued and Outstanding:

2017 - 12,065,016; 2016 - 11,248,458	\$ 191,641	\$ 145,739
Retained Earnings	102,417	91,213
Accumulated Other Comprehensive Loss	(428)	(924)
Common Stockholders' Equity	293,630	236,028
Preferred Stock	772	772
Long-Term Debt	253,367	197,047
Total Capitalization	547,769	433,847
Current Portion of Long-Term Debt	6,173	4,859
Interim Bank Loans Payable	19,281	32,953
Accounts Payable and Accrued Expenses	11,319	13,116
Accrued Interest	1,439	1,012
Current Portion of Refund to Customers - Regulatory Liability	64	855
Other Current Liabilities	3,262	2,330
Total Current Liabilities	41,538	55,125
Advances for Construction	20,024	19,127
Deferred Federal and State Income Taxes	33,579	50,558
Unfunded Future Income Taxes	58,384	90,977
Long-Term Compensation Arrangements	32,649	33,540
Unamortized Investment Tax Credits - Regulatory Liability	1,133	1,189
Excess Accumulated Deferred Income Tax - Regulatory Liability	30,937	4,373
Refund to Customers - Regulatory Liability	-	108
Other Long-Term Liabilities	1,241	701
Total Long-Term Liabilities	177,947	200,573
Contributions in Aid of Construction	131,529	94,957
Commitments and Contingencies	-	-
Total Capitalization and Liabilities	\$ 898,783	\$ 784,502

Created by EDGAR Online, Inc.

CONNECTICUT WATER SERVICE INC / CT  
INCOME\_STATEMENT2

Form Type: 10-K

Period End: Dec 31, 2017

Date Filed: Mar 15, 2018

[Table Of Contents](#)

CONNECTICUT WATER SERVICE, INC.

CONSOLIDATED STATEMENTS OF INCOME

For the Years Ended December 31, (in thousands, except per share data)

	2017	2016	2015
Operating Revenues	\$ 107,054	\$ 98,667	\$ 96,041
Operating Expenses			
Operation and Maintenance	48,017	44,191	48,052
Depreciation	16,684	13,905	12,871
Income Taxes	(1,993)	2,570	(818)
Taxes Other Than Income Taxes	10,941	9,796	9,294
Total Operating Expenses	73,649	70,462	69,399
Net Operating Revenues	33,405	28,205	26,642
Other Utility Income, Net of Taxes	824	744	797
Total Utility Operating Income	34,229	28,949	27,439
Other Income (Deductions), Net of Taxes			
(Loss) Gain on Real Estate Transactions	33	(54)	349
Non-Water Sales Earnings	1,167	1,219	1,394
Allowance for Funds Used During Construction	774	1,198	530
Other	(2,308)	(1,009)	(214)
Total Other Income (Loss), Net of Taxes	(334)	1,354	2,059
Interest and Debt Expenses			
Interest on Long-Term Debt	9,054	7,714	7,087
Other Interest Income, Net	(359)	(922)	(458)
Amortization of Debt Expense and Premium, Net	146	124	108
Total Interest and Debt Expenses	8,841	6,916	6,737
Net Income	25,054	23,387	22,761
Preferred Stock Dividend Requirement	38	38	38
Total Net Income Applicable to Common Stock	\$ 25,016	\$ 23,349	\$ 22,723
Weighted Average Common Shares Outstanding:			
Basic	11,540	11,009	10,958
Diluted	11,762	11,228	11,164
Earnings Per Common Share:			
Basic	\$ 2.17	\$ 2.12	\$ 2.07
Diluted	\$ 2.13	\$ 2.08	\$ 2.04

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

For the Years Ended December 31, (in thousands)

	2017	2016	2015
Net Income	\$ 25,054	\$ 23,387	\$ 22,761
Other Comprehensive Income (Loss), net of tax			
Adjustment to post-retirement benefit plans, net of tax benefit			
(expense) of \$(419), \$15, and \$(505) in 2017, 2016, and 2015, respectively	289	(24)	765
Unrealized Investment gain (loss), net of tax (expense) benefit of \$(13), \$(22) and \$62, in 2017, 2016, and 2015, respectively	207	35	(97)
Other Comprehensive Income, net of tax	\$ 496	\$ 11	\$ 668
Comprehensive Income	\$ 25,550	\$ 23,398	\$ 23,429

**ACCOUNT CLASSIFICATIONS**

Total Active Accounts	4966
	(4th quarter 2018)
Metered Accounts*	4719
Well-Flat Rate Accounts+	228
Well-Metered Accounts*	10
Flat Rate 'Whitpain' Accounts++	9

\* All metered customers use the same rate schedule \$63.25 minimum charge for first 4,000 gallon then \$6.54/1000 + All flat rate customers are billed at same rate of \$115.60/quarter ++ Accounts serviced yb Whitpain System - flat rate \$85/quarter

Only one account has multiple EDU's.  
1011437 - 838 W Germantown Pike is a flat rate well customer billed at 5 EDU's.

Since all metered customers are billed at the same rate, they are all internally classified as residential customers. We estimate @ 500-600 business customers.

Future Growth: All are projected to be metered accounts at 1 EDU

**GALLONS TREATED**

For 2018 as reported by JSA 32,589,983

**ACCOUNT PROJECTIONS**

We do not project connections beyond five years

**Township Of East Norriton Data &  
Demographics (As of July 1, 2018)**

**POPULATION**

Total Population	14,296
Population in Households	13,971
Population in Families	11,060
Population in Group Qrtrs	325
Population Density <sup>1</sup>	2,362
Diversity Index <sup>2</sup>	42

**HOUSEHOLDS**

Total Households	5,960
Average Household Size	2.34
Family Households	3,776
Average Family Size	3

**HOUSING**

Total Housing Units	6,149 (100%)
Owner Occupied HU	4,327 (70.4%)
Renter Occupied HU	1,633 (26.6%)
Vacant Housing Units	189 ( 3.1%)
Median Home Value	\$289,908
Average Home Value	\$311,266

**INCOME**

Median Household Income	\$83,478
Average Household Income	\$104,597
Per Capita Income	\$44,105

(Compound Annual Growth Rates)

**GROWTH RATES**

	<b>2010-2014</b>	<b>2014-2019</b>
Population	0.62%	0.53%
Households	0.52%	0.45%
Families	0.35%	0.35%
Median Household Income		1.72%
Per Capita Income		1.92%

1) Population Density = Total Population per square mile.

2) The Diversity Index is a scale of 0 to 100 that represents the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. If an area's entire population belongs to one race AND one ethnic group, then the area has zero diversity. An area's diversity index increases to 100 when the population is evenly divided into two or more race/ethnic groups.

Based on Census 2010 counts, the Diversity Index for the United States was 60.6 and it is expected to increase to 64.8 by July 1, 2018.

## U.S. States

<b>State</b>	<b>1790</b>	<b>1800</b>	<b>1810</b>	<b>1820</b>	<b>1830</b>	<b>1840</b>	<b>1850</b>
Alabama	-	1,250	9,046	127,901	309,527	590,756	771,623
Alaska	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-
Arkansas	-	-	1,062	14,273	30,388	97,574	209,897
California	-	-	-	-	-	-	92,597
Colorado	-	-	-	-	-	-	-
Connecticut	237,946	251,002	261,942	275,248	297,675	309,978	370,792
Delaware	59,096	64,273	72,674	72,749	76,748	78,085	91,532
District of Columbia	-	8,144	15,471	23,336	30,261	33,745	51,687
Florida	-	-	-	-	34,730	54,477	87,445
Georgia	82,548	162,686	252,433	340,989	516,823	691,392	906,185
Hawaii	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-
Illinois	-	-	12,282	55,211	157,445	476,183	851,470
Indiana	-	5,641	24,520	147,718	343,031	685,866	988,416
Iowa	-	-	-	-	-	43,112	192,914
Kansas	-	-	-	-	-	-	-
Kentucky	73,677	220,955	406,511	564,317	687,917	779,828	982,405
Louisiana	-	-	76,556	153,407	215,739	352,411	517,762
Maine	96,540	151,719	228,705	298,335	399,455	501,793	583,169
Maryland	319,728	341,548	380,546	407,350	447,040	470,019	583,034
Massachusetts	378,787	422,845	472,040	523,287	610,408	737,699	994,514
Michigan	-	-	4,762	8,896	31,639	212,267	397,654
Minnesota	-	-	-	-	-	-	6,077
Mississippi	-	7,600	31,306	75,448	136,621	375,651	606,526
Missouri	-	-	19,783	66,586	140,455	383,702	682,044
Montana	-	-	-	-	-	-	-
Nebraska	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-
New Hampshire	141,885	183,858	214,460	244,161	269,328	284,574	317,976
New Jersey	184,139	211,149	245,562	277,575	320,823	373,306	489,555
New Mexico	-	-	-	-	-	-	61,547
New York	340,120	589,051	959,049	1,372,812	1,918,608	2,428,921	3,097,394
North Carolina	393,751	478,103	555,500	638,829	737,987	753,419	869,039
North Dakota	-	-	-	-	-	-	-
Ohio	-	45,365	230,760	581,434	937,903	1,519,467	1,980,329
Oklahoma	-	-	-	-	-	-	-
Oregon	-	-	-	-	-	-	12,093
Pennsylvania	434,373	602,365	810,091	1,049,458	1,348,233	1,724,033	2,311,786
Rhode Island	68,825	69,122	76,931	83,059	97,199	108,830	147,545
South Carolina	249,073	345,591	415,115	502,741	581,185	594,398	668,507
South Dakota	-	-	-	-	-	-	-
Tennessee	35,691	105,602	261,727	422,823	681,904	829,210	1,002,717
Texas	-	-	-	-	-	-	212,592
Utah	-	-	-	-	-	-	11,380
Vermont	85,425	154,465	217,895	235,981	280,652	291,948	314,120
Virginia	691,737	807,557	877,683	938,261	1,044,054	1,025,227	1,119,348
Washington	-	-	-	-	-	-	1,201
West Virginia	55,873	78,592	105,469	136,808	176,924	224,537	302,313
Wisconsin	-	-	-	-	-	30,945	305,391
Wyoming	-	-	-	-	-	-	-
<b>Total - States &amp; D.C.</b>	<b>3,929,214</b>	<b>5,308,483</b>	<b>7,239,881</b>	<b>9,638,993</b>	<b>12,860,702</b>	<b>17,063,353</b>	<b>23,192,576</b>

# and District of Columbia Population Census

<b>State</b>	<b>1860</b>	<b>1870</b>	<b>1880</b>	<b>1890</b>	<b>1900</b>	<b>1910</b>
Alabama	964,201	996,992	1,262,505	1,513,401	1,828,697	2,138,093
Alaska	-	-	33,426	32,052	63,592	64,356
Arizona	-	9,658	40,440	88,243	122,931	204,354
Arkansas	435,450	484,471	802,525	1,128,211	1,311,564	1,574,449
California	379,994	560,247	864,694	1,213,398	1,485,053	2,377,549
Colorado	34,277	39,864	194,327	413,249	539,700	799,024
Connecticut	460,147	537,454	622,700	746,258	908,420	1,114,756
Delaware	112,216	125,015	146,608	168,493	184,735	202,322
District of Columbia	75,080	131,700	177,624	230,392	278,718	331,069
Florida	140,424	187,748	269,493	391,422	528,542	752,619
Georgia	1,057,286	1,184,109	1,542,180	1,837,353	2,216,331	2,609,121
Hawaii	-	-	-	-	154,001	191,874
Idaho	-	14,999	32,610	88,548	161,772	325,594
Illinois	1,711,951	2,539,891	3,077,871	3,826,352	4,821,550	5,638,591
Indiana	1,350,428	1,680,637	1,978,301	2,192,404	2,516,462	2,700,876
Iowa	674,913	1,194,020	1,624,615	1,912,297	2,231,853	2,224,771
Kansas	107,206	364,399	996,096	1,428,108	1,470,495	1,690,949
Kentucky	1,155,684	1,321,011	1,648,690	1,858,635	2,147,174	2,289,905
Louisiana	708,002	726,915	939,946	1,118,588	1,381,625	1,656,388
Maine	628,279	626,915	648,936	661,086	694,466	742,371
Maryland	687,049	780,894	934,943	1,042,390	1,188,044	1,295,346
Massachusetts	1,231,066	1,457,351	1,783,085	2,238,947	2,805,346	3,366,416
Michigan	749,113	1,184,059	1,636,937	2,093,890	2,420,982	2,810,173
Minnesota	172,023	439,706	780,773	1,310,283	1,751,394	2,075,708
Mississippi	791,305	827,922	1,131,597	1,289,600	1,551,270	1,797,114
Missouri	1,182,012	1,721,295	2,168,380	2,679,185	3,106,665	3,293,335
Montana	-	20,595	39,159	142,924	243,329	376,053
Nebraska	28,841	122,993	452,402	1,062,656	1,066,300	1,192,214
Nevada	6,857	42,491	62,266	47,355	42,335	81,875
New Hampshire	326,073	318,300	346,991	376,530	411,588	430,572
New Jersey	672,035	906,096	1,131,116	1,444,933	1,883,669	2,537,167
New Mexico	93,516	91,874	119,565	160,282	195,310	327,301
New York	3,880,735	4,382,759	5,082,871	6,003,174	7,268,894	9,113,614
North Carolina	992,622	1,071,361	1,399,750	1,617,949	1,893,810	2,206,287
North Dakota	-	2,405	36,909	190,983	319,146	577,056
Ohio	2,339,511	2,665,260	3,198,062	3,672,329	4,157,545	4,767,121
Oklahoma	-	-	-	258,657	790,391	1,657,155
Oregon	52,465	90,923	174,768	317,704	413,536	672,765
Pennsylvania	2,906,215	3,521,951	4,282,891	5,258,113	6,302,115	7,665,111
Rhode Island	174,620	217,353	276,531	345,506	428,556	542,610
South Carolina	703,708	705,606	995,577	1,151,149	1,340,316	1,515,400
South Dakota	4,837	11,776	98,268	348,600	401,570	583,888
Tennessee	1,109,801	1,258,520	1,542,359	1,767,518	2,020,616	2,184,789
Texas	604,215	818,579	1,591,749	2,235,527	3,048,710	3,896,542
Utah	40,273	86,786	143,963	210,779	276,749	373,351
Vermont	315,098	330,551	332,286	332,422	343,641	355,956
Virginia	1,219,630	1,225,163	1,512,565	1,655,980	1,854,184	2,061,612
Washington	11,594	23,955	75,116	357,232	518,103	1,141,990
West Virginia	376,688	442,014	618,457	762,794	958,800	1,221,119
Wisconsin	775,881	1,054,670	1,315,497	1,693,330	2,069,042	2,333,860
Wyoming	-	9,118	20,789	62,555	92,531	145,965
<b>Total - States &amp; D.C.</b>	<b>31,443,321</b>	<b>38,558,371</b>	<b>50,189,209</b>	<b>62,979,766</b>	<b>76,212,168</b>	<b>92,228,496</b>



# is Counts: 1790 to 2010

<b>State</b>	<b>1920</b>	<b>1930</b>	<b>1940</b>	<b>1950</b>	<b>1960</b>	<b>1970</b>
Alabama	2,348,174	2,646,248	2,832,961	3,061,743	3,266,740	3,444,165
Alaska	55,036	59,278	72,524	128,643	226,167	300,382
Arizona	334,162	435,573	499,261	749,587	1,302,161	1,770,900
Arkansas	1,752,204	1,854,482	1,949,387	1,909,511	1,786,272	1,923,295
California	3,426,861	5,677,251	6,907,387	10,586,223	15,717,204	19,953,134
Colorado	939,629	1,035,791	1,123,296	1,325,089	1,753,947	2,207,259
Connecticut	1,380,631	1,606,903	1,709,242	2,007,280	2,535,234	3,031,709
Delaware	223,003	238,380	266,505	318,085	446,292	548,104
District of Columbia	437,571	486,869	663,091	802,178	763,956	756,510
Florida	968,470	1,468,211	1,897,414	2,771,305	4,951,560	6,789,443
Georgia	2,895,832	2,908,506	3,123,723	3,444,578	3,943,116	4,589,575
Hawaii	255,881	368,300	422,770	499,794	632,772	768,561
Idaho	431,866	445,032	524,873	588,637	667,191	712,567
Illinois	6,485,280	7,630,654	7,897,241	8,712,176	10,081,158	11,113,976
Indiana	2,930,390	3,238,503	3,427,796	3,934,224	4,662,498	5,193,669
Iowa	2,404,021	2,470,939	2,538,268	2,621,073	2,757,537	2,824,376
Kansas	1,769,257	1,880,999	1,801,028	1,905,299	2,178,611	2,246,578
Kentucky	2,416,630	2,614,589	2,845,627	2,944,806	3,038,156	3,218,706
Louisiana	1,798,509	2,101,593	2,363,880	2,683,516	3,257,022	3,641,306
Maine	768,014	797,423	847,226	913,774	969,265	992,048
Maryland	1,449,661	1,631,526	1,821,244	2,343,001	3,100,689	3,922,399
Massachusetts	3,852,356	4,249,614	4,316,721	4,690,514	5,148,578	5,689,170
Michigan	3,668,412	4,842,325	5,256,106	6,371,766	7,823,194	8,875,083
Minnesota	2,387,125	2,563,953	2,792,300	2,982,483	3,413,864	3,804,971
Mississippi	1,790,618	2,009,821	2,183,796	2,178,914	2,178,141	2,216,912
Missouri	3,404,055	3,629,367	3,784,664	3,954,653	4,319,813	4,676,501
Montana	548,889	537,606	559,456	591,024	674,767	694,409
Nebraska	1,296,372	1,377,963	1,315,834	1,325,510	1,411,330	1,483,493
Nevada	77,407	91,058	110,247	160,083	285,278	488,738
New Hampshire	443,083	465,293	491,524	533,242	606,921	737,681
New Jersey	3,155,900	4,041,334	4,160,165	4,835,329	6,066,782	7,168,164
New Mexico	360,350	423,317	531,818	681,187	951,023	1,016,000
New York	10,385,227	12,588,066	13,479,142	14,830,192	16,782,304	18,236,967
North Carolina	2,559,123	3,170,276	3,571,623	4,061,929	4,556,155	5,082,059
North Dakota	646,872	680,845	641,935	619,636	632,446	617,761
Ohio	5,759,394	6,646,697	6,907,612	7,946,627	9,706,397	10,652,017
Oklahoma	2,028,283	2,396,040	2,336,434	2,233,351	2,328,284	2,559,229
Oregon	783,389	953,786	1,089,684	1,521,341	1,768,687	2,091,385
Pennsylvania	8,720,017	9,631,350	9,900,180	10,498,012	11,319,366	11,793,909
Rhode Island	604,397	687,497	713,346	791,896	859,488	946,725
South Carolina	1,683,724	1,738,765	1,899,804	2,117,027	2,382,594	2,590,516
South Dakota	636,547	692,849	642,961	652,740	680,514	665,507
Tennessee	2,337,885	2,616,556	2,915,841	3,291,718	3,567,089	3,923,687
Texas	4,663,228	5,824,715	6,414,824	7,711,194	9,579,677	11,196,730
Utah	449,396	507,847	550,310	688,862	890,627	1,059,273
Vermont	352,428	359,611	359,231	377,747	389,881	444,330
Virginia	2,309,187	2,421,851	2,677,773	3,318,680	3,966,949	4,648,494
Washington	1,356,621	1,563,396	1,736,191	2,378,963	2,853,214	3,409,169
West Virginia	1,463,701	1,729,205	1,901,974	2,005,552	1,860,421	1,744,237
Wisconsin	2,632,067	2,939,006	3,137,587	3,434,575	3,951,777	4,417,731
Wyoming	194,402	225,565	250,742	290,529	330,066	332,416
<b>Total - States &amp; D.C.</b>	<b>106,021,537</b>	<b>123,202,624</b>	<b>132,164,569</b>	<b>151,325,798</b>	<b>179,323,175</b>	<b>203,211,926</b>

<b>State</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>
Alabama	3,893,888	4,040,587	4,447,351	4,779,736
Alaska	401,851	550,043	626,931	710,231
Arizona	2,718,215	3,665,228	5,130,632	6,392,017
Arkansas	2,286,435	2,350,725	2,673,400	2,915,918
California	23,667,902	29,760,021	33,871,653	37,253,956
Colorado	2,889,964	3,294,394	4,302,015	5,029,196
Connecticut	3,107,576	3,287,116	3,405,602	3,574,097
Delaware	594,338	666,168	783,600	897,934
District of Columbia	638,333	606,900	572,059	601,723
Florida	9,746,324	12,937,926	15,982,824	18,801,310
Georgia	5,463,105	6,478,216	8,186,816	9,687,653
Hawaii	964,691	1,108,229	1,211,537	1,360,301
Idaho	943,935	1,006,749	1,293,956	1,567,582
Illinois	11,426,518	11,430,602	12,419,647	12,830,632
Indiana	5,490,224	5,544,159	6,080,517	6,483,802
Iowa	2,913,808	2,776,755	2,926,382	3,046,355
Kansas	2,363,679	2,477,574	2,688,824	2,853,118
Kentucky	3,660,777	3,685,296	4,042,285	4,339,367
Louisiana	4,205,900	4,219,973	4,468,958	4,533,372
Maine	1,124,660	1,227,928	1,274,923	1,328,361
Maryland	4,216,975	4,781,468	5,296,507	5,773,552
Massachusetts	5,737,037	6,016,425	6,349,105	6,547,629
Michigan	9,262,078	9,295,297	9,938,480	9,883,640
Minnesota	4,075,970	4,375,099	4,919,492	5,303,925
Mississippi	2,520,638	2,573,216	2,844,656	2,967,297
Missouri	4,916,686	5,117,073	5,596,683	5,988,927
Montana	786,690	799,065	902,195	989,415
Nebraska	1,569,825	1,578,385	1,711,265	1,826,341
Nevada	800,493	1,201,833	1,998,257	2,700,551
New Hampshire	920,610	1,109,252	1,235,786	1,316,470
New Jersey	7,364,823	7,730,188	8,414,347	8,791,894
New Mexico	1,302,894	1,515,069	1,819,046	2,059,179
New York	17,558,072	17,990,455	18,976,821	19,378,102
North Carolina	5,881,766	6,628,637	8,046,485	9,535,483
North Dakota	652,717	638,800	642,200	672,591
Ohio	10,797,630	10,847,115	11,353,145	11,536,504
Oklahoma	3,025,290	3,145,585	3,450,652	3,751,351
Oregon	2,633,105	2,842,321	3,421,436	3,831,074
Pennsylvania	11,863,895	11,881,643	12,281,054	12,702,379
Rhode Island	947,154	1,003,464	1,048,319	1,052,567
South Carolina	3,121,820	3,486,703	4,011,816	4,625,364
South Dakota	690,768	696,004	754,844	814,180
Tennessee	4,591,120	4,877,185	5,689,267	6,346,105
Texas	14,229,191	16,986,510	20,851,790	25,145,561
Utah	1,461,037	1,722,850	2,233,198	2,763,885
Vermont	511,456	562,758	608,827	625,741
Virginia	5,346,818	6,187,358	7,079,030	8,001,024
Washington	4,132,156	4,866,692	5,894,141	6,724,540
West Virginia	1,949,644	1,793,477	1,808,350	1,852,994
Wisconsin	4,705,767	4,891,769	5,363,715	5,686,986
Wyoming	469,557	453,588	493,782	563,626
<b>Total - States &amp; D.C.</b>	<b>226,545,805</b>	<b>248,709,873</b>	<b>281,424,603</b>	<b>308,745,538</b>



ADR 022 | July 2016

# Analytical Data Report

County- and Municipal-Level  
Population Forecasts, 2015-2045





*The Delaware Valley Regional Planning Commission is dedicated to uniting the region's elected officials, planning professionals, and the public with a common vision of making a great region even greater. Shaping the way we live, work, and play, DVRPC builds consensus on improving transportation, promoting smart growth, protecting the environment, and enhancing the economy. We serve a diverse region of nine counties: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey. DVRPC is the federally designated Metropolitan Planning Organization for the Greater Philadelphia Region – leading the way to a better future.*



The symbol in our logo is adapted from the official DVRPC seal and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

DVRPC is funded by a variety of funding sources, including federal grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA) and Federal Transit Administration (FTA); the Pennsylvania and New Jersey departments of transportation; and DVRPC's state and local member governments. The authors, however, are solely responsible for the findings and conclusions herein, which may not represent the official views or policies of the funding agencies.

The Delaware Valley Regional Planning Commission (DVRPC) fully complies with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice, and related nondiscrimination statutes and regulations in all programs and activities. DVRPC's website, [www.dvrpc.org](http://www.dvrpc.org), may be translated into multiple languages. Publications and other public documents can be made available in alternative languages and formats, if requested.

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As the region's metropolitan planning organization, DVRPC provides technical assistance and services to its member state and local governments. *Delaware Valley Data* is our periodic series of free data bulletins, analytical data reports, data reference guides, and data snapshots.

## Background

Population and employment forecasts are a critical component of long-range land use and transportation planning. As a part of the Delaware Valley Regional Planning Commission's (DVRPC's) long-range planning activities, the Commission is required to maintain forecasts with at least a 20-year horizon, or to the horizon year of the long-range plan. DVRPC last adopted forecasts through the year 2040 in January 2012. Since that time, the Census Bureau has released 2015 population estimates, and both the nation and the region have continued to recover from the significant economic recession that officially began in December 2007 and ended in June 2009.

In order to incorporate the 2015 Census estimates and maintain a 30-year planning horizon, DVRPC has prepared 2045 population forecasts for its member counties and municipalities. These forecasts were formally adopted by the DVRPC Board on July 28, 2016, and serve as the basis for DVRPC planning and modeling activities. Employment forecasts in five-year increments through 2045 are scheduled to be adopted in October 2016.

Three alternative sets of county- and municipal-level 2045 population forecasts were developed based on the method described below, and sent to the county planning staffs for review and comment. Agreement was first reached on the county- and municipal-level 2045 population forecasts; forecasts for 2020, 2025, 2030, 2035, and 2040 were then calculated by DVRPC, based on the population growth rate predicted over each five-year increment by the Commission's age-cohort survival model. These mid-cycle forecasts were again sent to the counties for review, and their suggested revisions were incorporated to produce the final set of 2045 forecasts.

## Method for Calculating County-Level 2045 Population Forecasts

Three alternative 2045 population forecasts were calculated for each county based on three separate methods, the results of which define a reasonable range of values within which each county's 2045 population total is expected to fall. This process replicates the process employed in 2007 and again in 2011, to develop the Commission's adopted 2035 and 2040 population forecasts. The three alternative methods are as follows:

- An initial set of draft county-level 2045 forecasts was obtained by running the traditional age-cohort survival model used in the previously forecasted round, but updating the model to incorporate 2000, 2005, 2010, and 2015 population data in five-year age/sex cohorts. When the analysis for this report was conducted, the Census Bureau had released 2015 estimates of the total population in each county, but had not yet released 2015 estimates by age/sex cohorts. The percentage of the population in each age/sex cohort in 2014 was therefore applied to the 2015 county estimates, to approximate 2015 age/sex breakdowns. The model incorporates birth, death, survival, and migration rates as follows:

- **Birth rate:** The model uses the number of live births per 1,000 women by five-year age cohort in New Jersey in 2013, assuming that New Jersey state-wide data is a better proxy for the Greater Philadelphia region's fertility rate than state-wide data from Pennsylvania (which has many non-metropolitan counties).
- **Survival rate:** Survival rate data (and, conversely, mortality rate data) was obtained from the National Vital Statistics System of the Center for Disease Control and Prevention (CDC). Future survival rates were adjusted to account for expected improvements in mortality related to medical advances and lifestyle changes, based on average increases in life expectancy over the past 20 years.
- **Migration:** The model assumes that migration (the change in the population that cannot be accounted for through births and deaths) in future years will be the same as the average migration rate experienced by each five-year age/sex cohort in each county between 2000 and 2015. Using the average migration rates between 2000 and 2015 accounts for changes in migration experienced prior to the economic recession, during the recession, and post-recession.

This age-cohort model replicates the model used in 2007 and again in 2011, but incorporates recent data to more accurately portray recent demographic trends. These trends include higher in-migration of seniors to certain areas of the region, declining overall fertility rates but higher fertility rates among women over age 35, and in-migration to Philadelphia and some of the region's older suburbs.

- A second set of county-level forecasts was developed utilizing the region-wide 2045 population forecast from the age-cohort model described above, but redistributing the total 2045 regional population to each of the nine counties based on the county percentages from the adopted 2040 forecasts. This alternative acknowledges that the longer-term development trends agreed upon during the process of developing the 2040 forecasts may be more important in some counties than the age-cohort births/deaths and shorter-term migration trends reflected in the county-level age-cohort method described above. It therefore continues those longer-term growth trends by reassigning the 2045 regional population among the nine counties, essentially adjusting migration rates to compensate for birth-death effects.
- A third alternative set of county-level forecasts was developed by applying the growth rates between each five-year time period from DVRPC's adopted 2040 forecasts to the previous five-year total, but using 2015 American Community Survey data as the base. The expected growth rate between 2040 and 2045 was based on the average change in the forecasted growth rate for each five-year increment between 2015 and 2040.

This alternative ignores the results of the most recent age-cohort model and simply extends to 2045 the growth rates agreed upon during the process of developing the 2040 forecasts, as applied to the new 2015 base. This method assumes future population growth will follow previously adopted trends but adjusts for the differences in growth that actually occurred between 2010 and 2015.



The two alternatives to the age-cohort model incorporate the value of local planning knowledge and recognize that the adopted 2040 forecasts did not simply reflect the age-cohort results, but included significant input from the county planning staffs. Based on the above steps, three alternative sets of 2045 forecasts were developed for each of the nine counties, creating expected minimum and maximum 2045 county-level forecasts.

### **Method for Calculating Municipal-Level 2045 Population Forecasts**

Each set of alternative county-level 2045 forecasts was disaggregated to the municipal level using the following method:

- The difference between the municipal-level 2015 Census population estimate and DVRPC's 2015 population forecast was calculated for each municipality.
- These differences were added or subtracted as appropriate from the adopted municipal-level 2040 forecasts. These adjusted 2040 forecasts were then used as a base for the calculation of the 2045 municipal forecasts.
- The adjusted 2040 population forecasts were summed and, for each set of alternatives, the percentage of the population forecasted to live in each municipality in 2040 (based on the adjusted 2040 forecasts) was applied to each of the 2045 county-level alternatives to create preliminary 2045 municipal forecasts, with the sum of all municipalities within each county matching the county-level 2045 forecast for each of the three alternatives.

This method assumes that the proportion of the county's population living in each municipality in 2040 will remain the same in 2045 and, when applied to the three alternative county-level forecasts, produced three alternative sets of municipal-level 2045 forecasts. These alternatives were sent to DVRPC's member counties' planning staff for review and comment, and consensus was reached on a full set of 2045 county and municipal forecasts.

### **Method for Developing Mid-Year Population Forecasts**

Once agreement was reached on the county- and municipal-level 2045 population forecasts, forecasts for 2020, 2025, 2030, 2035, and 2040 were developed by DVRPC, based on the population growth predicted for each mid-year increment by the regional age-cohort survival model. The age-cohort model predicted a slight curve (rather than a straight line), with slightly more growth in the early years and a slight slowing near the end.

Obviously, the population of every municipality is not going to increase at exactly the same rate during each five-year interval. These mid-year numbers were simply intended to provide a logical starting point for discussion, and were sent to the county planning staffs for final review, based on their local knowledge of pending and approved development proposals and population growth trends. Their suggested revisions were incorporated to produce the final set of 2045 forecasts. Table 1 summarizes DVRPC's adopted regional and county forecasts in five-year increments through 2045, and municipal-level forecasts are provided in Appendix A.

**Table 1: Forecasted Population by County, 2015-2045**

County	2010 Census	2015 Census Estimate	2015-2045					2015-2045		
			2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	Absolute Change	Percentage Change
Bucks County	625,249	627,367	640,495	654,792	669,299	681,273	691,111	699,498	72,131	11.5%
Chester County	498,886	515,939	543,702	571,641	599,932	624,832	645,562	662,283	146,344	28.4%
Delaware County	558,979	563,894	568,337	572,758	577,248	581,136	584,329	587,037	23,143	4.1%
Montgomery County	799,874	819,264	840,934	863,327	884,387	903,114	918,918	932,820	113,556	13.9%
Philadelphia County	1,526,006	1,567,443	1,594,787	1,616,816	1,643,971	1,667,290	1,683,402	1,696,133	128,690	8.2%
<b>Five Pennsylvania Counties</b>	<b>4,008,994</b>	<b>4,093,907</b>	<b>4,188,255</b>	<b>4,279,333</b>	<b>4,374,837</b>	<b>4,457,645</b>	<b>4,523,322</b>	<b>4,577,771</b>	<b>483,864</b>	<b>11.8%</b>
Burlington County	448,734	450,226	459,344	468,428	475,978	482,560	488,026	492,709	42,483	9.4%
Camden County	513,657	510,923	514,006	517,073	520,189	522,886	525,101	526,997	16,074	3.1%
Gloucester County	288,288	291,479	307,766	323,969	340,425	354,677	366,383	376,308	84,829	29.1%
Mercer County	367,511	371,398	377,328	383,227	389,219	394,407	398,669	402,283	30,885	8.3%
<b>Four New Jersey Counties</b>	<b>1,618,190</b>	<b>1,624,026</b>	<b>1,658,444</b>	<b>1,692,697</b>	<b>1,725,811</b>	<b>1,754,530</b>	<b>1,778,179</b>	<b>1,798,296</b>	<b>174,270</b>	<b>10.7%</b>
<b>Nine-County DVRPC Region</b>	<b>5,627,184</b>	<b>5,717,933</b>	<b>5,846,699</b>	<b>5,972,030</b>	<b>6,100,648</b>	<b>6,212,175</b>	<b>6,301,501</b>	<b>6,376,067</b>	<b>658,134</b>	<b>11.5%</b>

Source: Delaware Valley Regional Planning Commission, July 2016.



Table 2 identifies the 20 municipalities expected to gain the most residents between 2015 and 2045, and Table 3 identifies municipalities with the highest forecasted percentage change in population. Figure 1 illustrates the 2040 population forecasts by municipality, with concentrations of population seen in Philadelphia and the region's mature suburbs and along major highway corridors, including Route 422, Route 30, Mercer County's Route 1 corridor, and the Route 55 in Gloucester County and southern Camden County. Figures 2 and 3 illustrate absolute and percent change in population by municipality between 2015 and 2045, respectively.

Figure 4 illustrates the absolute increase in population per square mile in each of the region's 352 municipalities. This map illustrates not just where the population is increasing, but also the impact of relatively small population increases on the population density in specific municipalities. Significant increases in density are forecast not just in the City of Philadelphia, but also in many of the region's smaller boroughs, including Phoenixville, Atglen, Parkesburg, Oxford, Avondale, West Grove, and Kennett Square in Chester County; Bridgeport and Conshohocken in Montgomery County; and Riverside and Beverly in Burlington County.

## Highlights

- The DVRPC region is forecast to gain over 658,000 residents between 2015 and 2045 (an 11.5 percent increase).
- As it has since the mid-2000s, the population of the City of Philadelphia increased between 2010 and 2015, with the city adding more than 41,000 residents. This trend is forecast to continue, with the city's population expected to increase by over 8 percent by 2045, adding over 128,000 residents. The share of the region's population living in the city is expected to increase slightly by 2045, from 26 percent, in 2015, to 27 percent.
- The population of the region's five southeastern Pennsylvania counties is forecast to increase by 11.8 percent between 2015 and 2045, while the population of the four New Jersey counties is expected to increase by 10.7 percent.
- The largest percentage increases in population are expected in municipalities in Gloucester County, New Jersey (where the county's population is forecast to increase by over 29 percent) and Chester County, Pennsylvania (where the population is forecast to increase by more than 28 percent).

- The largest absolute increase in population is forecast for Chester County, which is expected to gain over 146,000 residents and surpass Delaware County to become the region’s fourth most populous county by 2045. Other counties forecast to see a significant number of additional residents include Philadelphia (as mentioned above), Montgomery County (with a forecasted increase of over 113,000 people), and Gloucester County, New Jersey (forecast to add almost 85,000 residents).

**Table 2: Municipalities with the Greatest Forecasted Absolute Change in Population, 2015–2045**

Rank	Municipality or City Planning Area	County	Absolute Change	Rank	Municipality or City Planning Area	County	Absolute Change
1	Central	Philadelphia	30,406	11	Harrison Township	Gloucester	7,666
2	Lower North	Philadelphia	16,360	12	Washington Township	Gloucester	7,504
3	University/Southwest	Philadelphia	14,586	13	Bristol Township	Bucks	6,766
4	Monroe Township	Gloucester	13,519	14	Mantua Township	Gloucester	6,667
5	Woolwich Township	Gloucester	12,362	15	River Wards	Philadelphia	6,566
6	Phoenixville Borough	Chester	9,052	16	East Whiteland Township	Chester	6,250
7	North	Philadelphia	8,607	17	Glassboro Borough	Gloucester	6,063
8	West	Philadelphia	8,278	18	Lower Merion Township	Montgomery	6,054
9	Bensalem Township	Bucks	7,838	19	Upper Providence Township	Montgomery	6,050
10	South	Philadelphia	7,767	20	Horsham Township	Montgomery	5,954

Source: Delaware Valley Regional Planning Commission, July 2016.

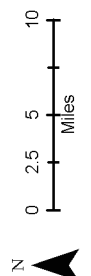
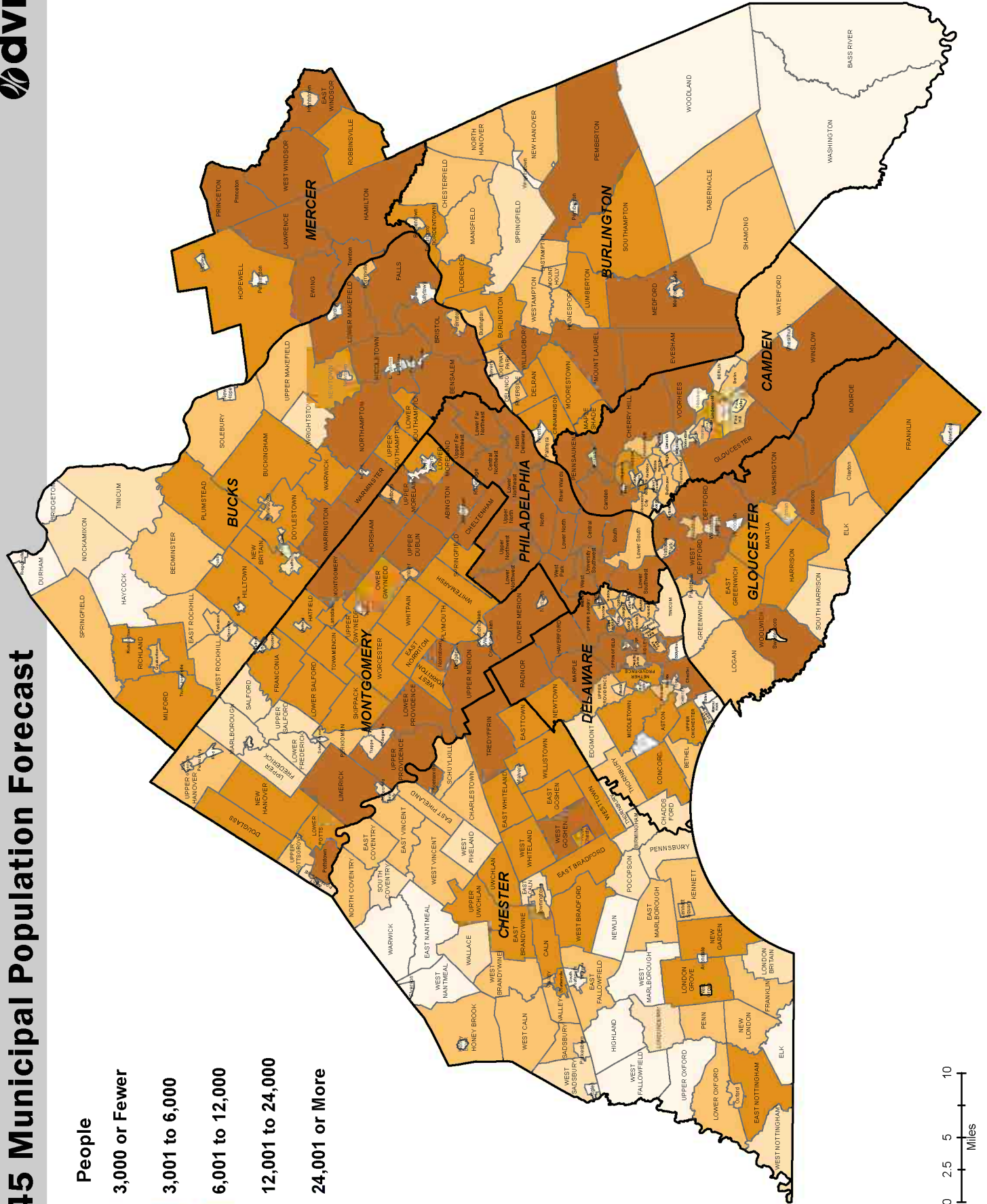
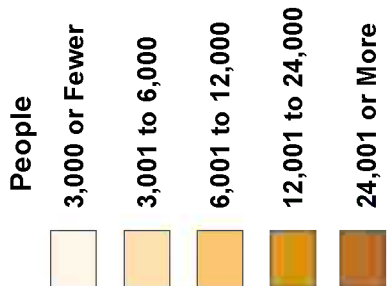
**Table 3: Municipalities with the Greatest Forecasted Percentage Change in Population, 2015–2045**

Rank	Municipality or City Planning Area	County	Absolute Change	Rank	Municipality or City Planning Area	County	Absolute Change
1	Woolwich Township	Gloucester	100.5%	11	London Grove Township	Chester	52.4%
2	Elk Township	Gloucester	70.3%	12	South Coatesville Borough	Chester	50.5%
3	Atglen Borough	Chester	63.9%	13	West Brandywine Township	Chester	48.2%
4	Elverson Borough	Chester	62.6%	14	East Vincent Township	Chester	47.6%
5	Modena Borough	Chester	62.5%	15	East Brandywine Township	Chester	47.0%
6	Sadsbury Township	Chester	62.3%	16	Penn Township	Chester	46.5%
7	Harrison Township	Gloucester	59.0%	17	Charlestown Township	Chester	46.5%
8	East Whiteland Township	Chester	58.4%	18	New Hanover Township	Montgomery	46.3%
9	West Sadsbury Township	Chester	54.5%	19	Hainesport Township	Burlington	45.5%
10	Phoenixville Borough	Chester	54.3%	20	Mantua Township	Gloucester	44.3%

Source: Delaware Valley Regional Planning Commission, July 2016.

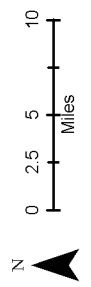
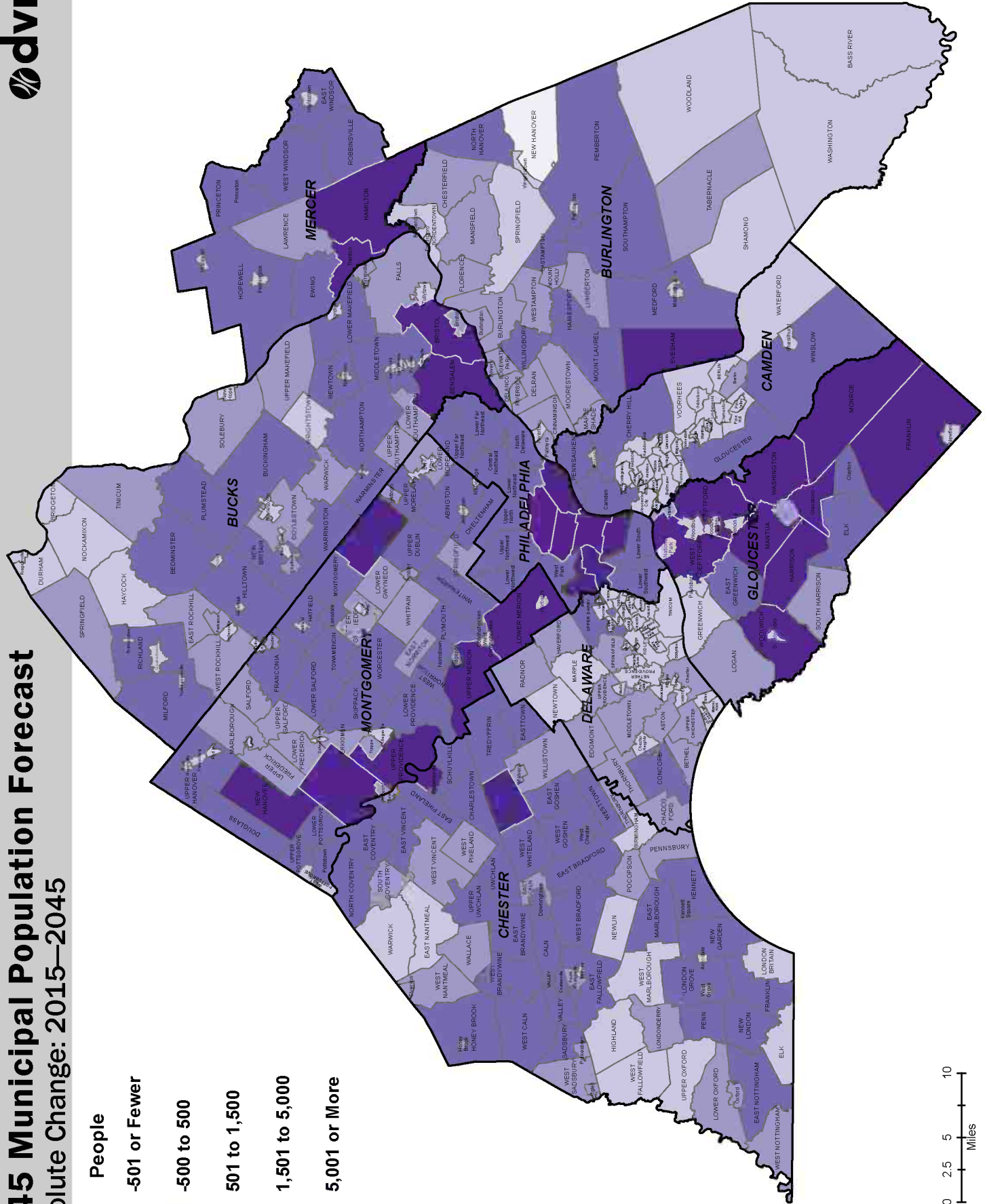
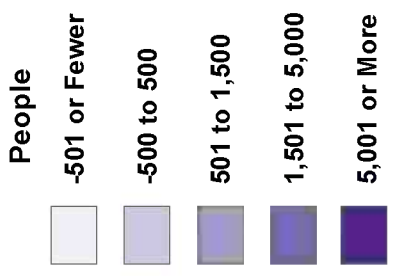


**Figure 1:  
2045 Municipal Population Forecast**










**Figure 2:**  
**2045 Municipal Population Forecast**  
**Absolute Change: 2015–2045**

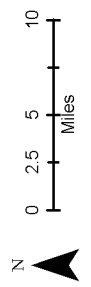
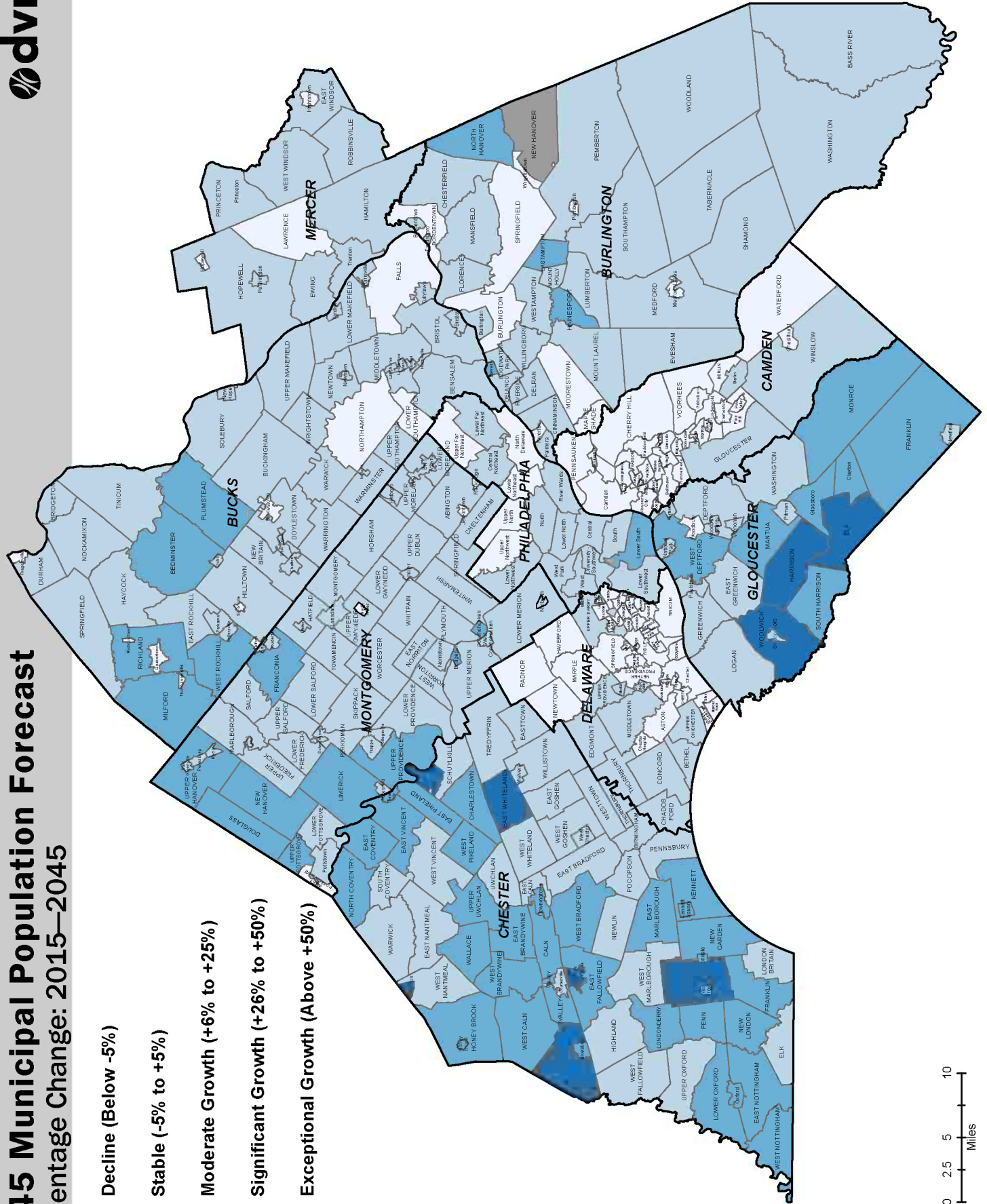






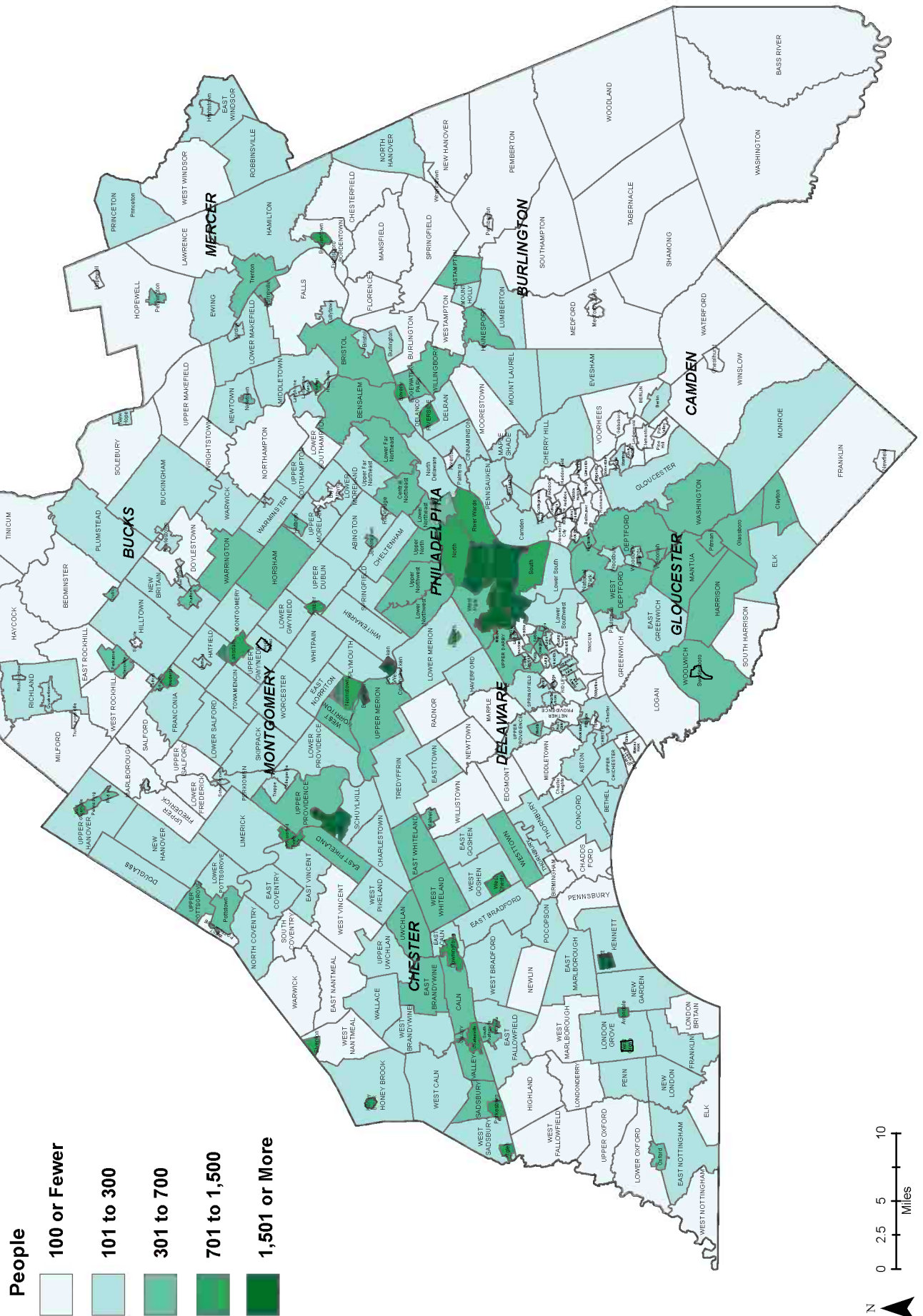
**Figure 3:**  
**2045 Municipal Population Forecast**  
**Percentage Change: 2015–2045**

-  Decline (Below -5%)
-  Stable (-5% to +5%)
-  Moderate Growth (+6% to +25%)
-  Significant Growth (+26% to +50%)
-  Exceptional Growth (Above +50%)





**Figure 4:**  
**2045 Municipal Population Forecast**  
**Absolute Change per Square Mile by Municipality:**  
**2015–2045**



## Summary

This report summarizes the method used to develop 2045 and interim-year population forecasts, which were adopted by the DVRPC Board on July 28, 2016. The population of the nine-county DVRPC region is forecast to increase by 11.5 percent between 2015 and 2045, with much of this growth concentrated in the suburbs, particularly in Chester County, Pennsylvania, and Gloucester County, New Jersey. The population of the City of Philadelphia is expected to increase by over 8 percent by 2045, and the share of the region's population living in the city is expected to increase slightly, from 26 percent in 2015 to 27 percent in 2045.

Population and employment forecasts are a critical component of long-range land use and transportation planning. The adopted population forecasts provided in this report will serve as the basis for DVRPC's planning and modeling activities. Employment forecasts in five-year increments through 2045 will be prepared and adopted in October 2016. The population and employment forecasts will be included in and support *Connections 2045*, the region's long-range plan update, scheduled for adoption in July 2017.





Appendix A: Forecasted Population by County and Municipality, 2015-2045

County / Municipality	2015 Census Estimate					2015-2045					
	2000 Census	2010 Census	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	Absolute Change	Percentage Change	
<b>Bucks County</b>	<b>597,636</b>	<b>625,249</b>	<b>627,367</b>	<b>640,495</b>	<b>654,792</b>	<b>669,299</b>	<b>681,273</b>	<b>691,111</b>	<b>699,498</b>	<b>72,131</b>	<b>11.5%</b>
Bedminster Township	4,800	6,574	7,037	7,407	7,775	8,149	8,473	8,739	8,965	1,928	27.4%
Bensalem Township	58,435	60,427	60,374	61,878	63,377	64,898	66,212	67,296	68,212	7,838	13.0%
Bridgeton Township	1,410	1,277	1,283	1,309	1,335	1,361	1,384	1,402	1,418	135	10.5%
Bristol Borough	9,923	9,726	9,569	9,674	9,778	9,884	9,976	10,051	10,115	546	5.7%
Bristol Township	55,521	54,582	54,086	54,360	56,166	57,990	59,127	60,060	60,852	6,766	12.5%
Buckingham Township	16,440	20,075	20,385	21,079	21,770	22,471	23,078	23,577	24,000	3,615	17.7%
Chalfont Borough	3,900	4,009	4,069	4,496	4,559	4,625	4,672	4,699	4,726	657	16.1%
Doylestown Borough	8,230	8,380	8,301	8,368	8,435	8,502	8,561	8,609	8,650	349	4.2%
Doylestown Township	18,387	17,565	17,563	17,806	18,048	18,293	18,506	18,681	18,829	1,266	7.2%
Dublin Borough	2,085	2,158	2,169	2,221	2,273	2,325	2,371	2,408	2,440	271	12.5%
Durham Township	1,313	1,144	1,144	1,175	1,206	1,238	1,265	1,288	1,307	163	14.2%
East Rockhill Township	5,200	5,706	5,742	5,924	6,106	6,290	6,450	6,581	6,692	950	16.5%
Falls Township	34,865	34,300	33,901	34,074	34,245	34,420	34,571	34,695	34,800	899	2.7%
Haycock Township	2,190	2,225	2,218	2,266	2,315	2,363	2,406	2,441	2,470	252	11.4%
Hilltown Township	12,100	15,029	15,262	15,807	16,349	16,900	17,376	17,768	18,100	2,838	18.6%
Hulmeville Borough	895	1,003	996	1,007	1,017	1,028	1,037	1,045	1,051	55	5.5%
Iyland Borough	492	1,041	1,053	1,071	1,089	1,108	1,124	1,137	1,148	95	9.0%
Langhorne Borough	1,980	1,622	1,599	1,618	1,638	1,657	1,674	1,688	1,700	101	6.3%
Langhorne Manor Borough	925	1,442	1,431	1,449	1,467	1,485	1,501	1,514	1,525	94	6.6%
Lower Makefield Township	32,691	32,559	32,755	33,683	34,074	34,474	34,855	35,181	35,500	2,745	8.4%
Lower Southampton Township	19,275	18,909	19,142	19,266	19,389	19,515	19,623	19,712	19,788	646	3.4%
Middletown Township	44,140	45,436	45,407	46,097	46,784	47,480	48,084	48,580	49,000	3,593	7.9%
Milford Township	8,810	9,902	10,053	10,555	11,055	11,562	12,002	12,363	12,669	2,616	26.0%
Morrisville Borough	10,020	8,728	8,605	8,623	8,796	8,968	9,074	9,160	9,234	629	7.3%
New Britain Borough	2,358	3,152	3,017	3,080	3,143	3,207	3,263	3,308	3,347	330	10.9%
New Britain Township	10,695	11,070	11,236	11,653	12,068	12,489	12,854	13,154	13,408	2,172	19.3%
New Hope Borough	2,250	2,528	2,510	2,550	2,590	2,631	2,666	2,695	2,719	209	8.3%
Newtown Borough	2,310	2,248	2,222	2,284	2,345	2,407	2,461	2,505	2,543	321	14.4%
Newtown Township	18,206	19,299	19,704	20,059	20,412	20,770	21,081	21,336	21,552	1,848	9.4%
Nockamixon Township	3,520	3,441	3,413	3,491	3,568	3,647	3,715	3,771	3,818	405	11.9%
Northampton Township	39,384	39,726	39,587	39,841	40,262	40,691	41,012	41,276	41,500	1,913	4.8%
Pennel Borough	2,420	2,328	2,221	2,283	2,345	2,408	2,462	2,507	2,545	324	14.6%
Perkasie Borough	8,830	8,511	8,471	8,671	8,869	9,071	9,246	9,389	9,511	1,040	12.3%
Plumstead Township	11,410	12,442	13,511	14,417	15,318	16,233	17,025	17,676	18,228	4,717	34.9%
Quakertown Borough	8,935	8,979	8,855	8,912	8,968	9,025	9,075	9,115	9,150	295	3.3%
Richland Township	9,920	13,052	13,155	13,855	14,551	15,258	15,871	16,374	16,800	3,645	27.7%

County / Municipality	2015 Census					2015-2045					
	2000 Census	2010 Census	Estimate	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	Absolute Change	Percentage Change
Richlandtown Borough	1,285	1,327	1,312	1,319	1,327	1,334	1,340	1,346	1,350	38	2.9%
Riegelsville Borough	863	868	858	865	873	880	886	892	896	38	4.4%
Sellersville Borough	4,564	4,249	4,212	4,297	4,382	4,469	4,544	4,605	4,657	445	10.6%
Silverdale Borough	1,000	871	856	863	869	876	881	886	890	34	4.0%
Solebury Township	7,740	8,692	8,639	8,766	8,892	9,020	9,131	9,223	9,300	661	7.7%
Springfield Township	4,965	5,035	5,036	5,239	5,440	5,645	5,823	5,968	6,092	1,056	21.0%
Telford Borough (part)	2,201	2,207	2,193	2,214	2,234	2,255	2,273	2,287	2,300	107	4.9%
Tinicum Township	4,205	3,995	3,963	4,136	4,307	4,482	4,633	4,757	4,862	899	22.7%
Trumbauersville Borough	1,060	974	959	967	975	983	990	995	1,000	41	4.3%
Tullytown Borough	2,035	1,872	1,859	1,906	1,953	2,000	2,042	2,075	2,104	245	13.2%
Upper Makefield Township	7,180	8,190	8,255	8,477	8,697	8,921	9,115	9,275	9,410	1,155	14.0%
Upper Southampton Township	15,765	15,152	15,121	15,271	15,419	15,570	15,701	15,809	15,900	779	5.2%
Warminster Township	31,383	32,682	32,594	33,035	33,473	33,918	34,304	34,620	34,889	2,295	7.0%
Warrington Township	17,580	23,418	23,942	24,796	25,646	26,510	27,257	27,871	28,392	4,450	18.6%
Warwick Township	11,975	14,437	14,694	14,972	15,249	15,531	15,774	15,974	16,144	1,450	9.9%
West Rockhill Township	4,230	5,256	5,277	5,369	5,733	6,098	6,337	6,534	6,700	1,423	27.0%
Wrightstown Township	2,840	2,995	3,110	3,197	3,284	3,373	3,449	3,512	3,565	455	14.6%
Yardley Borough	2,500	2,434	2,441	2,497	2,554	2,611	2,660	2,701	2,735	294	12.0%
<b>Chester County</b>	<b>433,512</b>	<b>498,886</b>	<b>515,939</b>	<b>543,702</b>	<b>571,641</b>	<b>599,932</b>	<b>624,832</b>	<b>645,562</b>	<b>662,283</b>	<b>146,344</b>	<b>28.4%</b>
Atglen Borough	1,215	1,406	1,408	1,532	1,683	1,858	2,030	2,203	2,308	900	63.9%
Avondale Borough	1,110	1,265	1,399	1,490	1,581	1,672	1,752	1,818	1,873	474	33.9%
Birmingham Township	4,220	4,208	4,262	4,320	4,377	4,435	4,486	4,527	4,562	300	7.0%
Cain Township	11,916	13,817	14,115	15,025	15,929	16,848	17,644	18,299	18,852	4,737	33.6%
Charlestown Township	4,050	5,671	5,690	6,198	6,703	7,217	7,661	8,026	8,336	2,646	46.5%
Coatesville City	10,838	13,100	13,148	13,666	14,182	14,706	15,160	15,532	15,848	2,700	20.5%
Downingtown Borough	7,590	7,891	7,946	8,508	9,068	9,636	10,128	10,532	10,875	2,929	36.9%
East Bradford Township	9,405	9,942	10,038	10,470	10,900	11,336	11,714	12,025	12,288	2,250	22.4%
East Brandywine Township	5,825	6,742	8,295	9,044	9,789	10,545	11,201	11,739	12,195	3,900	47.0%
East Cain Township	2,855	4,838	4,873	5,073	5,273	5,475	5,651	5,795	5,917	1,044	21.4%
East Coventry Township	4,565	6,636	6,753	7,173	7,592	8,017	8,385	8,687	8,943	2,190	32.4%
East Fallowfield Township	5,160	7,449	7,570	7,992	8,412	8,839	9,208	9,512	9,769	2,199	29.0%
East Goshen Township	16,825	18,026	18,339	18,685	19,028	19,378	19,680	19,928	20,139	1,800	9.8%
East Marlborough Township	6,315	7,026	7,283	7,850	8,414	8,986	9,482	9,890	10,235	2,952	40.5%
East Nantmeal Township	1,785	1,803	1,842	1,871	1,899	1,929	1,954	1,974	1,992	150	8.1%
East Nottingham Township	5,515	8,650	8,930	9,571	10,208	10,855	11,415	11,876	12,266	3,336	37.4%
East Pikeland Township	6,550	7,079	7,359	7,932	8,502	9,081	9,583	9,995	10,344	2,985	40.6%
East Vincent Township	5,493	6,821	6,920	7,552	8,182	8,821	9,374	9,829	10,214	3,294	47.6%
East Whiteland Township	9,335	10,650	10,702	12,002	13,196	14,309	15,358	16,221	16,952	6,250	58.4%

County / Municipality	2015 Census					2015-2045					2015-2045	
	2000 Census	2010 Census	2015 Census Estimate	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	Absolute Change	Percentage Change	
Easttown Township	10,265	10,477	10,620	10,966	11,309	11,659	11,961	12,209	12,420	1,800	16.9%	
Elk Township	1,490	1,681	1,695	1,753	1,810	1,868	1,919	1,960	1,995	300	17.7%	
Elverson Borough	960	1,225	1,314	1,472	1,629	1,788	1,926	2,040	2,136	822	62.6%	
Franklin Township	3,850	4,352	4,518	4,861	5,202	5,548	5,848	6,094	6,303	1,785	39.5%	
Highland Township	1,125	1,272	1,289	1,332	1,375	1,419	1,457	1,488	1,514	225	17.5%	
Honey Brook Borough	1,285	1,713	1,758	1,873	1,988	2,104	2,205	2,288	2,358	600	34.1%	
Honey Brook Township	6,280	7,647	8,124	8,510	8,980	9,523	10,058	10,596	10,924	2,800	34.5%	
Kennett Square Borough	5,275	6,072	6,167	6,666	7,163	7,667	8,104	8,463	8,767	2,600	42.2%	
Kennett Township	6,450	7,565	8,172	8,690	9,206	9,730	10,184	10,556	10,872	2,700	33.0%	
London Britain Township	2,795	3,139	3,268	3,314	3,360	3,406	3,447	3,480	3,508	240	7.3%	
London Grove Township	5,265	7,475	8,592	9,213	9,969	10,842	11,702	12,566	13,092	4,500	52.4%	
Londonderry Township	1,630	2,149	2,400	2,553	2,706	2,860	2,995	3,105	3,198	798	33.3%	
Lower Oxford Township	4,320	5,200	5,001	5,289	5,576	5,867	6,119	6,326	6,501	1,500	30.0%	
Malvern Borough	3,060	2,998	3,430	3,557	3,684	3,813	3,924	4,015	4,093	663	19.3%	
Modena Borough	610	535	528	591	654	718	774	819	858	330	62.5%	
New Garden Township	9,080	11,984	12,096	12,730	13,360	14,000	14,555	15,010	15,396	3,300	27.3%	
New London Township	4,585	5,631	5,944	6,438	6,930	7,429	7,862	8,217	8,518	2,574	43.3%	
Newlin Township	1,150	1,285	1,356	1,415	1,474	1,534	1,586	1,629	1,665	309	22.8%	
North Coventry Township	7,380	7,866	8,024	8,397	8,851	9,375	9,891	10,409	10,724	2,700	33.6%	
Oxford Borough	4,315	5,077	5,385	5,571	5,798	6,060	6,318	6,577	6,735	1,350	25.1%	
Parkesburg Borough	3,375	3,593	3,687	3,974	4,260	4,551	4,802	5,009	5,184	1,497	40.6%	
Penn Township	2,810	5,364	5,475	5,964	6,451	6,945	7,373	7,724	8,022	2,547	46.5%	
Pennsbury Township	3,505	3,604	3,659	3,763	3,867	3,972	4,064	4,138	4,202	543	14.8%	
Phoenixville Borough	14,795	16,440	16,658	18,696	20,725	22,481	24,002	25,051	25,710	9,052	54.3%	
Pocopson Township	3,350	4,582	4,856	5,060	5,264	5,471	5,649	5,796	5,921	1,065	21.9%	
Sadsbury Township	2,580	3,570	3,850	4,311	4,769	5,235	5,638	5,969	6,250	2,400	62.3%	
Schuylkill Township	6,965	8,516	8,576	8,922	9,265	9,615	9,917	10,165	10,376	1,800	21.0%	
South Coatesville Borough	995	1,303	1,435	1,574	1,713	1,853	1,975	2,075	2,160	725	50.5%	
South Coventry Township	1,895	2,604	2,616	2,721	2,825	2,931	3,023	3,098	3,162	546	20.9%	
Spring City Borough	3,305	3,323	3,322	3,514	3,705	3,898	4,066	4,204	4,321	999	30.1%	
Thornbury Township	2,678	3,017	3,343	3,503	3,662	3,824	3,964	4,079	4,177	834	24.9%	
Tredyffrin Township	29,065	29,332	29,559	30,232	30,900	31,578	32,165	32,648	33,059	3,500	11.8%	
Upper Oxford Township	2,095	2,484	2,504	2,594	2,684	2,776	2,855	2,920	2,975	471	18.8%	
Upper Uwchlan Township	6,850	11,227	11,545	12,179	12,809	13,449	14,004	14,459	14,845	3,300	28.6%	
Uwchlan Township	16,575	18,088	19,072	19,763	20,451	21,149	21,754	22,251	22,672	3,600	18.9%	
Valley Township	5,115	6,794	7,632	8,187	8,740	9,301	9,787	10,186	10,524	2,892	37.9%	
Wallace Township	3,240	3,458	3,698	3,985	4,270	4,560	4,811	5,017	5,192	1,494	40.4%	
Warwick Township	2,555	2,507	2,550	2,610	2,671	2,732	2,785	2,828	2,865	315	12.4%	
West Bradford Township	10,775	12,223	12,779	13,519	14,255	15,003	15,651	16,183	16,634	3,855	30.2%	

County / Municipality	2015 Census Estimate					2015-2045					
	2000 Census	2010 Census	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	Absolute Change	Percentage Change	
West Brandywine Township	7,160	7,394	7,468	8,159	8,847	9,545	10,150	10,647	11,068	3,600	48.2%
West Cain Township	7,055	9,014	9,085	9,539	9,990	10,449	10,846	11,172	11,449	2,364	26.0%
West Chester Borough	17,861	18,461	19,842	20,361	20,876	21,400	21,853	22,225	22,542	2,700	13.6%
West Fallowfield Township	2,485	2,566	2,596	2,625	2,653	2,683	2,708	2,728	2,746	150	5.8%
West Goshen Township	20,495	21,866	23,137	23,713	24,284	24,868	25,369	25,786	26,137	3,000	13.0%
West Grove Borough	2,650	2,854	2,859	3,002	3,144	3,288	3,413	3,516	3,603	744	26.0%
West Marlborough Township	855	814	821	830	838	847	855	861	866	45	5.5%
West Nantmeal Township	2,030	2,170	2,190	2,294	2,397	2,502	2,592	2,667	2,730	540	24.7%
West Nottingham Township	2,634	2,722	2,706	2,879	3,051	3,225	3,377	3,501	3,606	900	33.3%
West Pikealand Township	3,550	4,024	4,085	4,324	4,562	4,803	5,013	5,184	5,330	1,245	30.5%
West Sadsbury Township	2,440	2,444	2,475	2,661	2,888	3,150	3,408	3,667	3,825	1,350	54.5%
West Vincent Township	3,170	4,567	5,038	5,230	5,422	5,616	5,784	5,923	6,040	1,002	19.9%
West Whiteland Township	16,500	18,274	18,450	19,266	20,077	20,901	21,614	22,201	22,698	4,248	23.0%
Westtown Township	10,352	10,827	10,913	11,426	11,936	12,454	12,902	13,271	13,583	2,670	24.5%
Willistown Township	10,015	10,497	10,905	11,177	11,448	11,724	11,962	12,158	12,324	1,419	13.0%
<b>Delaware County</b>	<b>551,989</b>	<b>558,979</b>	<b>563,894</b>	<b>568,337</b>	<b>572,758</b>	<b>577,248</b>	<b>581,136</b>	<b>584,329</b>	<b>587,037</b>	<b>23,143</b>	<b>4.1%</b>
Aldan Borough	4,315	4,152	4,165	4,186	4,208	4,230	4,248	4,264	4,277	112	2.7%
Aston Township	16,205	16,592	16,799	16,942	17,083	17,227	17,352	17,455	17,541	742	4.4%
Bethel Township	6,420	8,791	9,166	9,359	9,550	9,745	9,914	10,052	10,170	1,004	11.0%
Brookhaven Borough	7,985	8,006	8,078	8,138	8,198	8,259	8,311	8,355	8,391	313	3.9%
Chadds Ford Township	3,170	3,640	3,740	3,848	3,955	4,064	4,159	4,237	4,302	562	15.0%
Chester City	36,855	33,972	34,092	34,281	34,468	34,659	34,824	34,960	35,075	983	2.9%
Chester Heights Borough	2,481	2,531	2,626	2,647	2,667	2,688	2,706	2,721	2,733	107	4.1%
Chester Township	4,605	3,940	4,103	4,140	4,178	4,216	4,248	4,275	4,298	195	4.8%
Clifton Heights Borough	6,780	6,652	6,684	6,709	6,733	6,758	6,780	6,798	6,813	129	1.9%
Collingdale Borough	8,665	8,786	8,792	8,866	8,939	9,014	9,079	9,132	9,177	385	4.4%
Colwyn Borough	2,455	2,546	2,553	2,584	2,615	2,646	2,673	2,695	2,714	161	6.3%
Concord Township	11,235	17,231	17,663	18,150	18,635	19,127	19,554	19,904	20,201	2,538	14.4%
Darby Borough	10,300	10,687	10,687	10,756	10,825	10,896	10,956	11,006	11,049	362	3.4%
Darby Township	9,625	9,264	9,318	9,322	9,326	9,330	9,333	9,336	9,338	20	0.2%
East Lansdowne Borough	2,585	2,668	2,665	2,673	2,682	2,690	2,697	2,703	2,709	44	1.7%
Eddystone Borough	2,440	2,410	2,407	2,414	2,420	2,427	2,433	2,438	2,442	35	1.5%
Edgmont Township	3,915	3,987	4,069	4,214	4,358	4,504	4,631	4,735	4,823	754	18.5%
Folcroft Borough	6,980	6,606	6,637	6,631	6,625	6,619	6,614	6,610	6,606	-31	-0.5%
Glenolden Borough	7,475	7,153	7,173	7,194	7,215	7,236	7,255	7,270	7,283	110	1.5%
Haverford Township	49,608	48,491	49,057	49,279	49,500	49,724	49,918	50,078	50,213	1,156	2.4%
Lansdowne Borough	11,044	10,620	10,639	10,655	10,671	10,688	10,702	10,714	10,724	85	0.8%
Lower Chichester Township	3,590	3,469	3,477	3,488	3,499	3,510	3,519	3,527	3,534	57	1.6%

County / Municipality	2015 Census					2015-2045					2015-2045	
	2000 Census	2010 Census	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	2045 Forecast	Absolute Change	Percentage Change	
Marcus Hook Borough	2,315	2,397	2,397	2,415	2,433	2,451	2,466	2,479	2,490	93	3.9%	
Maple Township	23,735	23,428	23,743	23,794	23,846	23,898	23,942	23,979	24,011	268	1.1%	
Media Borough	5,530	5,327	5,363	5,445	5,526	5,608	5,679	5,738	5,788	425	7.9%	
Middletown Township	16,065	15,807	15,998	16,185	16,371	16,560	16,724	16,858	16,972	974	6.1%	
Millbourne Borough	945	1,159	1,162	1,178	1,194	1,210	1,223	1,235	1,244	82	7.1%	
Morton Borough	2,715	2,669	2,695	2,707	2,720	2,732	2,743	2,752	2,760	65	2.4%	
Nether Providence Township	13,456	13,706	13,808	13,893	13,977	14,063	14,138	14,199	14,251	443	3.2%	
Newtown Township	11,705	12,216	12,754	12,849	12,943	13,038	13,121	13,189	13,246	492	3.9%	
Norwood Borough	5,985	5,890	5,898	5,917	5,935	5,954	5,970	5,984	5,995	97	1.6%	
Parkside Borough	2,265	2,328	2,334	2,349	2,365	2,380	2,394	2,405	2,414	80	3.4%	
Prospect Park Borough	6,595	6,454	6,481	6,515	6,548	6,582	6,612	6,636	6,656	175	2.7%	
Radnor Township	30,880	31,531	31,612	31,808	32,003	32,201	32,373	32,513	32,633	1,021	3.2%	
Ridley Park Borough	7,195	7,002	7,035	7,071	7,106	7,143	7,174	7,200	7,221	186	2.6%	
Ridley Township	30,790	30,768	31,053	31,129	31,205	31,281	31,348	31,402	31,449	396	1.3%	
Rose Valley Borough	945	913	949	970	991	1,012	1,031	1,046	1,058	109	11.5%	
Rutledge Borough	860	784	795	798	801	804	807	809	811	16	2.0%	
Sharon Hill Borough	5,465	5,697	5,702	5,733	5,764	5,795	5,822	5,845	5,863	161	2.8%	
Springfield Township	23,675	24,211	24,401	24,612	24,822	25,035	25,220	25,372	25,500	1,099	4.5%	
Swarthmore Borough	6,170	6,194	6,211	6,249	6,287	6,325	6,359	6,386	6,409	198	3.2%	
Thornbury Township	5,787	8,028	7,857	8,039	8,219	8,403	8,562	8,692	8,803	946	12.0%	
Tinicum Township	4,355	4,091	4,109	4,113	4,117	4,120	4,124	4,126	4,129	20	0.5%	
Trainer Borough	1,905	1,828	1,844	1,833	1,822	1,810	1,801	1,793	1,786	-58	-3.1%	
Upland Borough	2,980	3,239	3,251	3,263	3,274	3,286	3,296	3,304	3,311	60	1.8%	
Upper Chichester Township	16,845	16,738	17,003	17,177	17,350	17,526	17,678	17,803	17,909	906	5.3%	
Upper Darby Township	81,821	82,795	82,878	83,699	84,521	85,354	86,073	86,662	87,167	4,289	5.2%	
Upper Providence Township	10,510	10,142	10,448	10,592	10,735	10,881	11,007	11,110	11,198	750	7.2%	
Yeadon Borough	11,762	11,443	11,523	11,528	11,533	11,539	11,543	11,547	11,550	27	0.2%	
<b>Montgomery County</b>	<b>748,978</b>	<b>799,874</b>	<b>819,264</b>	<b>840,934</b>	<b>863,327</b>	<b>884,387</b>	<b>903,114</b>	<b>918,918</b>	<b>932,820</b>	<b>113,556</b>	<b>13.9%</b>	
Abington Township	56,105	55,310	55,590	56,172	56,754	57,336	57,918	58,500	59,083	3,493	6.3%	
Ambler Borough	6,425	6,417	6,505	6,657	6,810	6,963	7,116	7,269	7,422	917	14.1%	
Bridgesport Borough	4,370	4,554	4,564	4,964	5,464	5,533	5,602	5,671	5,740	1,176	25.8%	
Bryn Athyn Borough	1,350	1,375	1,392	1,408	1,423	1,439	1,453	1,464	1,474	82	5.9%	
Cheltenham Township	36,880	36,793	37,014	37,364	37,714	38,146	38,578	39,092	39,607	2,593	7.0%	
Collegeville Borough	4,930	5,089	5,287	5,360	5,432	5,506	5,569	5,622	5,666	379	7.2%	
Conshohocken Borough	7,590	7,833	7,956	8,706	9,456	9,877	10,297	10,567	10,837	2,881	36.2%	
Douglas Township	9,104	10,195	10,432	10,950	11,464	11,987	12,440	12,812	13,128	2,696	25.8%	
East Greenville Borough	3,105	2,951	2,985	3,047	3,109	3,171	3,233	3,295	3,358	373	12.5%	
East Norriton Township	13,211	13,590	14,082	14,256	14,430	14,606	14,759	14,884	14,990	908	6.4%	



County / Municipality	2015 Census					2020 Forecast					2035 Forecast					2045 Forecast					2015-2045	
	2000 Census	2010 Census	2015 Census Estimate	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	2050 Forecast	2055 Forecast	2060 Forecast	2065 Forecast	2070 Forecast	2075 Forecast	2080 Forecast	2085 Forecast	Absolute Change	Percentage Change			
Franconia Township	11,525	13,064	13,241	13,798	14,355	14,912	15,469	16,026	16,584								3,343	25.2%				
Green Lane Borough	580	508	500	508	515	523	530	535	540								40	8.0%				
Hatboro Borough	7,390	7,360	7,411	7,591	7,770	7,952	8,110	8,240	8,349								938	12.7%				
Hatfield Borough	2,605	3,290	3,306	3,342	3,378	3,415	3,447	3,473	3,495								189	5.7%				
Hatfield Township	16,712	17,249	17,558	18,057	18,553	19,057	19,493	19,851	20,155								2,597	14.8%				
Horsham Township	24,234	26,147	26,587	26,987	28,319	29,668	31,023	31,845	32,541								5,954	22.4%				
Jenkintown Borough	4,475	4,422	4,431	4,467	4,504	4,541	4,572	4,599	4,621								190	4.3%				
Lansdale Borough	16,070	16,269	16,512	17,019	17,523	18,035	18,479	18,843	19,152								2,640	16.0%				
Limerick Township	13,535	18,074	18,798	19,854	20,904	21,970	22,894	23,653	24,296								5,498	29.2%				
Lower Frederick Township	4,795	4,840	4,892	4,985	5,078	5,171	5,263	5,355	5,447								555	11.3%				
Lower Gwynedd Township	10,420	11,405	11,548	11,732	11,916	12,100	12,284	12,468	12,651								1,103	9.6%				
Lower Merion Township	58,740	57,825	58,177	59,676	61,027	62,135	62,983	63,732	64,231								6,054	10.4%				
Lower Moreland Township	11,280	12,982	13,220	13,426	13,631	13,839	14,020	14,168	14,294								1,074	8.1%				
Lower Pottsgrove Township	11,213	12,059	12,174	12,565	12,954	13,350	13,692	13,973	14,212								2,038	16.7%				
Lower Providence Township	22,390	25,436	26,187	26,679	27,168	27,664	28,094	28,448	28,747								2,560	9.8%				
Lower Salford Township	12,895	14,959	15,344	15,922	16,497	17,081	17,587	18,002	18,355								3,011	19.6%				
Marlborough Township	3,110	3,178	3,308	3,405	3,501	3,599	3,683	3,753	3,812								504	15.2%				
Montgomery Township	22,025	24,790	26,025	26,545	27,063	27,588	28,044	28,418	28,735								2,710	10.4%				
Narberth Borough	4,235	4,282	4,309	4,378	4,447	4,517	4,578	4,627	4,669								360	8.4%				
New Hanover Township	7,365	10,939	12,495	13,605	14,708	15,829	16,800	17,598	18,274								5,779	46.3%				
Norristown Borough	31,280	34,324	34,412	34,777	35,212	35,737	36,344	36,942	37,543								3,131	9.1%				
North Wales Borough	3,340	3,229	3,250	3,277	3,304	3,332	3,356	3,375	3,392								142	4.4%				
Pennsburg Borough	2,730	3,843	3,873	3,942	4,010	4,080	4,140	4,190	4,232								359	9.3%				
Perkiomen Township	7,095	9,139	9,245	9,486	9,726	9,969	10,180	10,354	10,501								1,256	13.6%				
Plymouth Township	16,045	16,525	17,653	18,091	18,527	18,969	19,353	19,668	19,934								2,281	12.9%				
Pottstown Borough	21,859	22,377	22,664	22,959	23,253	23,551	23,809	24,021	24,201								1,537	6.8%				
Red Hill Borough	2,195	2,383	2,383	2,441	2,498	2,557	2,607	2,649	2,684								301	12.6%				
Rockledge Borough	2,575	2,543	2,541	2,553	2,565	2,577	2,588	2,596	2,604								63	2.5%				
Royersford Borough	4,245	4,752	4,771	4,893	5,014	5,136	5,243	5,330	5,404								633	13.3%				
Salford Township	2,365	2,504	2,954	3,088	3,222	3,358	3,475	3,572	3,654								700	23.7%				
Schwenksville Borough	1,395	1,385	1,398	1,422	1,445	1,469	1,489	1,506	1,521								123	8.8%				
Skippack Township	9,915	13,715	14,992	15,475	15,958	16,441	16,924	17,407	17,891								2,899	19.3%				
Souderton Borough	6,725	6,618	6,747	6,917	7,086	7,258	7,406	7,528	7,632								885	13.1%				
Springfield Township	19,530	19,418	19,574	19,766	19,957	20,151	20,319	20,457	20,574								1,000	5.1%				
Telford Borough (pt.)	2,474	2,665	2,668	2,720	2,771	2,823	2,868	2,905	2,937								269	10.1%				
Towamencin Township	17,600	17,578	18,272	18,755	19,235	19,723	20,146	20,493	20,787								2,515	13.8%				
Trappe Borough	3,210	3,509	3,553	3,656	3,758	3,862	3,952	4,026	4,089								536	15.1%				
Upper Dublin Township	25,875	25,569	26,211	26,890	27,715	28,501	28,995	29,745	29,383								3,534	13.5%				
Upper Frederick Township	3,140	3,523	3,564	3,662	3,760	3,860	3,946	4,016	4,076								512	14.4%				

County / Municipality	2015 Census					2015-2045				
	2000 Census	2010 Census	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	Absolute Change	Percentage Change
Upper Gwynedd Township	14,245	15,552	16,116	16,304	16,492	16,679	16,866	17,053	1,125	7.1%
Upper Hanover Township	4,885	6,464	7,696	8,103	8,516	8,874	9,168	9,417	2,130	29.2%
Upper Merion Township	26,863	28,395	30,147	31,668	32,607	33,393	34,003	34,491	5,871	20.5%
Upper Moreland Township	24,990	24,015	24,522	24,812	25,107	25,362	25,572	25,749	1,518	6.3%
Upper Pottsgrove Township	4,105	5,315	5,774	6,065	6,357	6,649	6,941	7,233	1,750	31.9%
Upper Providence Township	15,395	21,219	24,622	25,777	26,951	27,967	28,802	29,510	6,050	25.8%
Upper Salford Township	3,025	3,299	3,507	3,636	3,765	3,894	4,024	4,154	776	23.0%
West Conshohocken Borough	1,445	1,320	1,441	1,442	1,472	1,499	1,521	1,539	158	11.4%
West Norriton Township	14,900	15,663	16,145	16,509	16,878	17,198	17,461	17,684	1,905	12.1%
West Pottsgrove Township	3,815	3,874	3,915	3,945	3,976	4,003	4,025	4,044	160	4.1%
Whitemarsh Township	16,702	17,349	18,503	19,040	19,486	19,859	20,197	20,476	2,813	15.9%
Whitpain Township	18,562	18,875	19,464	19,747	20,034	20,283	20,487	20,661	1,481	7.7%
Worcester Township	7,789	9,750	10,917	11,396	11,882	12,304	12,650	12,943	2,508	24.0%
<b>Philadelphia County</b>	<b>1,517,550</b>	<b>1,526,006</b>	<b>1,594,787</b>	<b>1,616,816</b>	<b>1,643,971</b>	<b>1,667,290</b>	<b>1,683,402</b>	<b>1,696,133</b>	<b>128,690</b>	<b>8.2%</b>
Central	100,188	117,132	132,848	137,233	143,015	148,841	153,321	157,035	30,406	24.0%
Central Northeast	72,179	78,266	81,333	82,568	83,813	84,123	84,490	84,713	4,843	6.1%
Lower Far Northeast	71,657	70,340	71,526	72,319	73,060	73,588	74,087	74,502	3,906	5.5%
Lower North	95,139	95,176	105,069	108,227	111,507	114,601	116,878	118,052	16,360	16.1%
Lower Northeast	93,471	100,232	103,621	104,301	104,837	105,110	105,080	105,424	2,770	2.7%
Lower Northwest	51,869	50,799	53,241	54,072	54,730	55,162	55,406	55,811	3,492	6.7%
Lower South	4,318	5,150	5,747	5,998	6,501	6,749	7,001	7,335	1,836	33.4%
Lower Southwest	41,642	42,117	43,288	43,711	44,054	44,854	45,183	45,439	2,977	7.0%
North	141,061	137,849	138,663	140,022	142,561	144,724	145,520	146,656	8,607	6.2%
North Delaware	96,005	100,631	102,210	102,553	102,944	102,909	103,041	103,280	2,029	2.0%
River Wards	66,321	68,489	72,380	73,004	74,203	75,613	76,270	76,951	6,566	9.3%
South	131,616	132,904	138,842	140,432	141,898	143,712	144,223	144,877	7,767	5.7%
University/Southwest	83,639	81,746	92,546	94,735	97,599	99,607	101,667	102,305	14,586	16.6%
Upper Far Northeast	64,469	66,605	68,387	69,071	69,893	69,943	70,370	70,660	2,674	3.9%
Upper North	154,560	144,381	146,533	147,898	149,046	149,501	150,207	150,422	4,509	3.1%
Upper Northwest	89,851	85,093	86,048	87,079	88,209	89,309	89,432	89,915	4,282	5.0%
West	111,973	105,642	107,403	108,060	109,844	112,163	114,009	115,200	8,278	7.7%
West Park	47,592	43,454	45,102	45,533	46,257	46,781	47,217	47,556	2,802	6.3%
<b>Burlington County</b>	<b>423,397</b>	<b>448,734</b>	<b>459,344</b>	<b>468,428</b>	<b>475,978</b>	<b>482,560</b>	<b>488,026</b>	<b>492,709</b>	<b>42,483</b>	<b>9.4%</b>
Bass River Township	1,510	1,443	1,483	1,516	1,550	1,580	1,604	1,624	175	12.1%
Beverly City	2,660	2,577	2,710	2,859	3,011	3,143	3,251	3,343	784	30.6%
Bordentown City	3,970	3,924	4,012	4,141	4,273	4,387	4,480	4,559	677	17.4%
Bordentown Township	8,375	11,367	11,965	11,996	12,027	12,053	12,075	12,094	159	1.3%

County / Municipality	2015 Census					2015-2045					
	2000 Census	2010 Census	2015 Census Estimate	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	Absolute Change	Percentage Change
Burlington City	9,740	9,920	9,808	10,010	10,210	10,414	10,590	10,735	10,858	1,050	10.7%
Burlington Township	20,190	22,594	22,826	22,936	23,045	23,156	23,252	23,331	23,398	572	2.5%
Chesterfield Township	5,955	7,699	7,572	7,715	7,857	8,002	8,127	8,230	8,317	745	9.8%
Cinnaminson Township	14,595	15,569	16,651	16,880	17,108	17,339	17,540	17,704	17,844	1,193	7.2%
Delanco Township	3,335	4,283	4,541	4,644	4,746	4,849	4,939	5,013	5,075	534	11.8%
Delran Township	15,535	16,896	16,767	16,959	17,150	17,343	17,511	17,649	17,766	999	6.0%
Eastampton Township	6,205	6,069	6,011	6,450	6,887	7,331	7,715	8,031	8,298	2,287	38.0%
Edgewater Park Township	7,865	8,881	8,788	8,995	9,200	9,409	9,590	9,738	9,864	1,076	12.2%
Evesham Township	42,275	45,538	45,577	47,546	49,519	49,847	50,175	50,504	50,831	5,254	11.5%
Fieldsboro Borough	522	540	532	539	547	554	560	565	570	38	7.1%
Florence Township	10,745	12,109	12,688	12,864	13,038	13,216	13,369	13,495	13,602	914	7.2%
Hainesport Township	4,125	6,110	6,053	6,582	7,108	7,643	8,105	8,486	8,808	2,755	45.5%
Lumberton Township	10,455	12,559	12,428	12,712	12,995	13,281	13,530	13,734	13,907	1,479	11.9%
Mansfield Township	5,090	8,544	8,574	8,735	8,896	9,058	9,200	9,315	9,414	840	9.8%
Maple Shade Township	19,080	19,131	18,963	19,071	19,178	19,287	19,381	19,459	19,524	561	3.0%
Medford Lakes Borough	4,175	4,146	4,085	4,097	4,109	4,122	4,132	4,141	4,149	64	1.6%
Medford Township	22,250	23,033	23,414	23,916	24,415	24,922	25,361	25,721	26,027	2,613	11.2%
Moorestown Township	19,020	20,726	20,564	20,745	20,925	21,107	21,265	21,395	21,505	941	4.6%
Mount Holly Township	10,728	9,536	9,493	9,620	9,747	9,875	9,987	10,078	10,156	663	7.0%
Mount Laurel Township	40,225	41,864	41,842	42,342	42,839	43,346	43,784	44,146	44,449	2,607	6.2%
New Hanover Township	9,744	7,385	8,078	7,927	7,777	7,625	7,493	7,384	7,292	-786	-9.7%
North Hanover Township	7,347	7,678	7,609	8,049	8,486	8,930	9,315	9,630	9,898	2,289	30.1%
Palmyra Borough	7,090	7,398	7,314	7,420	7,525	7,632	7,725	7,801	7,865	551	7.5%
Pemberton Borough	1,210	1,409	1,383	1,390	1,397	1,404	1,410	1,415	1,419	36	2.6%
Pemberton Township	28,575	27,912	27,771	28,279	28,784	29,297	29,741	30,106	30,416	2,645	9.5%
Riverside Township	7,910	8,079	7,997	8,254	8,511	8,771	8,996	9,181	9,338	1,341	16.8%
Riverton Borough	2,760	2,779	2,748	2,753	2,758	2,763	2,768	2,771	2,774	26	0.9%
Shamong Township	6,465	6,490	6,419	6,494	6,568	6,644	6,709	6,763	6,809	390	6.1%
Southampton Township	10,388	10,464	10,337	10,735	11,131	11,533	11,881	12,167	12,409	2,072	20.0%
Springfield Township	3,225	3,414	3,355	3,386	3,417	3,448	3,475	3,498	3,517	162	4.8%
Tabernacle Township	7,170	6,949	6,954	7,051	7,147	7,244	7,329	7,398	7,457	503	7.2%
Washington Township	621	687	674	681	689	697	703	708	713	39	5.8%
Westampton Township	7,217	8,813	8,726	8,932	9,137	9,345	9,525	9,673	9,799	1,073	12.3%
Willingboro Township	33,010	31,629	31,270	31,831	32,391	32,959	33,451	33,855	34,198	2,928	9.4%
Woodland Township	1,290	1,788	1,793	1,833	1,873	1,913	1,948	1,977	2,001	208	11.6%
Wrightstown Borough	750	802	796	801	806	811	815	819	822	26	3.3%
<b>Camden County</b>	<b>508,929</b>	<b>513,657</b>	<b>510,923</b>	<b>514,006</b>	<b>517,073</b>	<b>520,189</b>	<b>522,886</b>	<b>525,101</b>	<b>526,997</b>	<b>16,074</b>	<b>3.1%</b>
Audubon Borough	9,180	8,819	8,730	8,699	8,668	8,637	8,609	8,587	8,568	-162	-1.9%



County / Municipality	2015 Census					2015-2045					2015-2045	
	2000 Census	2010 Census	2015 Census Estimate	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	Absolute Change	Percentage Change	
Audubon Park Borough	1,100	1,023	1,011	1,008	1,006	1,003	1,001	999	997	-14	-1.4%	
Barrington Borough	7,084	6,983	6,817	6,816	6,815	6,814	6,813	6,812	6,811	-6	-0.1%	
Bellmawr Borough	11,265	11,583	11,462	11,464	11,467	11,469	11,470	11,471	11,472	10	0.1%	
Berlin Borough	6,150	7,588	7,590	7,688	7,785	7,884	7,970	8,040	8,100	510	6.7%	
Berlin Township	5,290	5,357	5,434	5,439	5,444	5,448	5,453	5,456	5,459	25	0.5%	
Brooklawn Borough	2,355	1,955	1,933	1,939	1,945	1,951	1,956	1,960	1,964	31	1.6%	
Camden City	79,905	77,344	76,119	76,512	76,904	77,302	77,643	77,929	78,169	2,050	2.7%	
Cherry Hill Township	69,960	71,045	71,340	71,903	72,462	73,031	73,523	73,927	74,270	2,930	4.1%	
Chesilhurst Borough	1,520	1,634	1,634	1,632	1,631	1,629	1,628	1,627	1,626	-8	-0.5%	
Clementon Borough	4,985	5,000	4,947	4,981	5,014	5,048	5,077	5,102	5,122	175	3.5%	
Collingswood Borough	14,326	13,926	14,000	13,997	13,994	13,991	13,988	13,986	13,984	-16	-0.1%	
Gibbsboro Borough	2,435	2,274	2,244	2,242	2,239	2,236	2,234	2,233	2,231	-13	-0.6%	
Gloucester City	11,484	11,456	11,329	11,326	11,323	11,320	11,318	11,316	11,314	-15	-0.1%	
Gloucester Township	64,350	64,634	63,939	64,859	65,777	66,707	67,514	68,176	68,737	4,798	7.5%	
Haddon Heights Borough	7,545	7,473	7,514	7,474	7,434	7,393	7,358	7,329	7,305	-209	-2.8%	
Haddon Township	14,651	14,707	14,543	14,580	14,617	14,655	14,688	14,714	14,737	194	1.3%	
Haddonfield Borough	11,661	11,593	11,414	11,412	11,410	11,408	11,407	11,405	11,404	-10	-0.1%	
Hi-Nella Borough	1,035	870	860	860	859	859	859	858	858	-2	-0.2%	
Laurel Springs Borough	1,970	1,908	1,884	1,883	1,882	1,882	1,881	1,880	1,880	-4	-0.2%	
Lawnside Borough	2,692	2,945	2,919	2,917	2,915	2,913	2,911	2,909	2,908	-11	-0.4%	
Lindenwold Borough	17,410	17,613	17,458	17,449	17,441	17,432	17,424	17,418	17,413	-45	-0.3%	
Magnolia Borough	4,405	4,341	4,298	4,290	4,282	4,274	4,267	4,260	4,256	-42	-1.0%	
Merchantville Borough	3,800	3,821	3,778	3,778	3,777	3,777	3,777	3,776	3,776	-2	-0.1%	
Mount Ephraim Borough	4,495	4,676	4,639	4,637	4,636	4,634	4,633	4,632	4,631	-8	-0.2%	
Oaklyn Borough	4,188	4,038	3,992	4,001	4,010	4,019	4,026	4,033	4,038	46	1.2%	
Pennsauken Township	35,737	35,885	35,628	35,924	36,219	36,518	36,778	36,990	37,171	1,543	4.3%	
Pine Hill Borough	10,880	10,233	10,510	10,501	10,492	10,482	10,474	10,468	10,462	-48	-0.5%	
Pine Valley Borough	20	12	12	12	12	12	12	12	12	0	0.0%	
Runnemede Borough	8,535	8,468	8,381	8,380	8,378	8,377	8,376	8,375	8,374	-7	-0.1%	
Somerdale Borough	5,192	5,151	5,460	5,444	5,427	5,411	5,397	5,385	5,375	-85	-1.6%	
Stratford Borough	7,270	7,040	7,013	7,047	7,081	7,116	7,146	7,170	7,191	178	2.5%	
Tavistock Borough	24	5	5	5	5	5	5	5	5	0	0.0%	
Voorhees Township	28,130	29,131	29,370	29,305	29,240	29,174	29,117	29,071	29,031	-339	-1.2%	
Waterford Township	10,494	10,649	10,753	10,749	10,744	10,740	10,736	10,733	10,747	-6	-0.1%	
Winslow Township	34,611	39,499	39,019	39,910	40,797	41,698	42,478	43,119	43,662	4,643	11.9%	
Woodlyne Borough	2,795	2,978	2,944	2,943	2,941	2,940	2,939	2,938	2,937	-7	-0.2%	
<b>Gloucester County</b>	<b>255,719</b>	<b>288,288</b>	<b>291,479</b>	<b>307,766</b>	<b>323,969</b>	<b>340,425</b>	<b>354,677</b>	<b>366,363</b>	<b>376,308</b>	<b>84,829</b>	<b>29.1%</b>	
Clayton Borough	7,135	8,179	8,493	9,013	9,531	10,057	10,512	10,886	11,203	2,710	31.9%	

County / Municipality	2015 Census										2015-2045	
	2000 Census	2010 Census	2015 Census Estimate	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	Absolute Change	Percentage Change	
Deptford Township	26,770	30,561	30,569	31,601	32,628	33,671	34,574	35,316	35,945	5,376	17.6%	
East Greenwich Township	5,430	9,555	10,380	10,798	11,214	11,637	12,003	12,303	12,558	2,178	21.0%	
Elk Township	3,615	4,216	4,156	4,717	5,274	5,841	6,331	6,734	7,076	2,920	70.3%	
Franklin Township	15,470	16,820	16,669	17,714	18,753	19,808	20,722	21,473	22,110	5,441	32.6%	
Glassboro Borough	18,970	18,579	19,216	20,380	21,538	22,715	23,733	24,570	25,279	6,063	31.6%	
Greenwich Township	4,880	4,899	4,857	4,942	5,027	5,113	5,188	5,249	5,301	444	9.1%	
Harrison Township	8,785	12,417	12,984	14,456	15,920	17,407	18,695	19,753	20,650	7,666	59.0%	
Logan Township	6,035	6,042	5,983	6,217	6,450	6,687	6,892	7,061	7,203	1,220	20.4%	
Mantua Township	14,217	15,217	15,054	16,334	17,608	18,901	20,021	20,941	21,721	6,667	44.3%	
Monroe Township	28,967	36,129	36,862	39,459	42,040	44,662	46,934	48,799	50,381	13,519	36.7%	
National Park Borough	3,205	3,036	2,999	3,053	3,107	3,162	3,210	3,249	3,282	283	9.4%	
Newfield Borough	1,615	1,553	1,534	1,561	1,588	1,615	1,639	1,659	1,675	141	9.2%	
Paulsboro Borough	6,160	6,097	5,989	6,054	6,118	6,184	6,241	6,287	6,327	338	5.6%	
Pitman Borough	9,330	9,011	8,898	9,092	9,285	9,482	9,652	9,791	9,910	1,012	11.4%	
South Harrison Township	2,415	3,162	3,138	3,397	3,655	3,917	4,144	4,331	4,489	1,951	43.1%	
Swedesboro Borough	2,055	2,584	2,613	2,686	2,758	2,831	2,895	2,947	2,991	378	14.5%	
Washington Township	48,155	48,559	47,862	49,302	50,738	52,192	53,452	54,488	55,366	7,504	15.7%	
Wenonah Borough	2,315	2,278	2,254	2,318	2,382	2,447	2,503	2,549	2,588	334	14.8%	
West Deptford Township	19,370	21,677	21,420	22,506	23,586	24,683	25,634	26,414	27,076	5,656	26.4%	
Westville Borough	4,500	4,288	4,224	4,338	4,451	4,566	4,665	4,747	4,816	592	14.0%	
Woodbury City	10,305	10,174	10,020	10,105	10,190	10,276	10,351	10,412	10,464	444	4.4%	
Woodbury Heights Borough	2,990	3,055	3,010	3,054	3,098	3,143	3,181	3,213	3,240	230	7.6%	
Woolwich Township	3,030	10,200	12,295	14,669	17,030	19,428	21,505	23,211	24,657	12,362	100.5%	
<b>Mercer County</b>	<b>320,527</b>	<b>367,511</b>	<b>371,398</b>	<b>377,328</b>	<b>383,227</b>	<b>389,219</b>	<b>394,407</b>	<b>398,669</b>	<b>402,283</b>	<b>30,885</b>	<b>8.3%</b>	
East Windsor Township	24,915	27,190	27,603	28,068	28,531	29,002	29,409	29,743	30,027	2,424	8.8%	
Ewing Township	35,710	35,790	36,486	37,076	37,660	38,254	38,769	39,192	39,550	3,064	8.4%	
Hamilton Township	87,109	88,464	89,030	90,099	91,163	92,243	93,178	93,947	94,598	5,568	6.3%	
Hightstown Borough	5,215	5,494	5,517	5,562	5,607	5,653	5,693	5,725	5,753	236	4.3%	
Hopewell Borough	2,035	1,922	1,929	1,932	1,936	1,939	1,942	1,944	1,946	17	0.9%	
Hopewell Township	16,105	18,302	18,606	19,460	20,310	21,174	21,921	22,535	23,056	4,450	23.9%	
Lawrence Township	29,160	33,472	33,242	33,511	33,779	34,052	34,287	34,481	34,645	1,403	4.2%	
Pennington Borough	2,695	2,585	2,598	2,654	2,710	2,766	2,816	2,856	2,890	292	11.2%	
Princeton**	28,572	29,603	29,603	30,084	30,559	31,044	31,463	31,808	32,100	2,497	8.4%	
Robbinsville	10,275	13,642	14,176	14,784	15,390	16,006	16,538	16,978	17,347	3,171	22.4%	
Trenton City	85,403	84,913	84,225	85,213	86,197	87,194	88,059	88,767	89,372	5,147	6.1%	
West Windsor Township	21,905	27,165	28,383	28,885	29,385	29,892	30,332	30,693	30,999	2,616	9.2%	

Source: Delaware Valley Regional Planning Commission, June 2016. \*\* In January 2013, Princeton Township and Princeton Borough, in Mercer County, merged to form one single municipality, known simply as Princeton.

**Report Title: Analytical Data Report # 022: County- and Municipal-Level Population Forecasts, 2015-2045**

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**Geographic Area Covered:** DVRPC's 9-county region, including Burlington, Camden, Gloucester, and Mercer counties in New Jersey, and Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania.

**Key Words:** population, population forecasts, age-cohort survival model, birth rates, survival rates, migration, Connections 2045, long-range plan

**ABSTRACT:** This report presents the Delaware Valley Regional Planning Commission's (DVRPC's) adopted 2045 county- and municipal-level population forecasts and describes the method used to develop them. Population and employment forecasts are a critical component of long-range land use and transportation planning. As a part of DVRPC's long-range planning activities, the Commission is required to maintain forecasts with at least a 20-year horizon, or to the horizon year of the long-range plan. DVRPC last adopted forecasts through the year 2040 in January 2012. Since that time, the Census Bureau has released 2015 population estimates, and both the nation and the region have continued to recover from the significant economic recession that officially began in December 2007 and ended in June 2009.

In order to incorporate the 2015 Census estimates and maintain a 30-year planning horizon, DVRPC has prepared 2045 population forecasts for its member counties and municipalities. These forecasts were formally adopted by the DVRPC Board on July 28, 2016, and serve as the basis for DVRPC planning and modeling activities. Employment forecasts in five-year increments through 2045 are scheduled to be adopted in October 2016.

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ADR 023 | October 2016

# Analytical Data Report

Regional, County, and  
Municipal Employment  
Forecasts, 2015-2045





*The Delaware Valley Regional Planning Commission is dedicated to uniting the region’s elected officials, planning professionals, and the public with a common vision of making a great region even greater. Shaping the way we live, work, and play, DVRPC builds consensus on improving transportation, promoting smart growth, protecting the environment, and enhancing the economy. We serve a diverse region of nine counties: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey. DVRPC is the federally designated Metropolitan Planning Organization for the Greater Philadelphia Region – leading the way to a better future.*



The symbol in our logo is adapted from the official DVRPC seal and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

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As the region’s metropolitan planning organization, DVRPC provides technical assistance and services to its member state and local governments. *Delaware Valley Data* is our periodic series of free data bulletins, analytical data reports, data reference guides, and data snapshots.



## Introduction

As a part of our long-range planning activities, DVRPC is required to maintain forecasts with at least a 20-year horizon, or to the horizon year of the long-range plan. Population forecasts in five-year increments between 2015 and 2045 were adopted by the DVRPC Board on July 28, 2016. This document presents employment forecasts in five-year increments between 2015 and 2045, developed by DVRPC in coordination with its member county planning staffs. These population and employment forecasts will support the region's 2045 long-range plan, scheduled for adoption in July 2017, and serve as the basis for DVRPC's planning and modeling activities.

## 2010 and 2013 Employment Base

DVRPC has traditionally based its long-range employment forecasts on employment data from the American Association of State Highway and Transportation Officials' (AASHTO) Census Transportation Planning Products (CTPP). However, 2010 CTPP data was not released until mid-2013, too late to be used for forecasting purposes prior to the 2013 adoption of the current Connections 2040 Long Range Plan. Additionally, changes in the method for calculating CTPP data has increased the margins of error and made it a less reliable source of employment data for small geographies. Subsequently, DVRPC staff researched and compared several sources of employment data, including government sources (such as ES-202 data, the BLS' Quarterly Census of Employment and Wages, and the Current Employment Statistics survey) and private proprietary sources (including Dun and Bradstreet). The National Establishment Time-Series (NETS), produced by Walls and Associates, was determined to be superior to other sources in terms of coverage, accuracy, and the provision of locational data.

The NETS database is essentially a "cleaned-up" version of the Dun and Bradstreet database. Using each company's unique DUNS number (or numbers, in cases where separate divisions within a company have unique DUNS numbers), Walls and Associates creates a time series for each business and then screens the data to eliminate duplicates and identify anomalies. If a file contains suspicious information, the data is cross-checked with previous annual records and adjusted or eliminated as appropriate, based on information collected from other sources (including government and non-profits). One advantage of the establishment-based NETS Database is that all employment, sales, and other activity is reported at the actual facility—not the headquarters.

Unlike government sources of employment data, the NETS database includes sole proprietors, part-time jobs, and farm operations, and has been found to be more accurate in reporting data for small privately-owned firms and public sector employers such as post offices and public schools. Employment from the NETS database is therefore generally higher than many of these other sources. As a base for the 2040 forecasts, DVRPC and county planning staffs reviewed 2000 and 2010 employment data from a NETS database that was acquired in 2013.

In March 2016, DVRPC acquired an updated NETS dataset that included both revised 2010 and 2013 employment data. All corrections made to the previous NETS database by DVRPC and county planning staffs, either during the previous forecasting round or as a result of ongoing DVRPC land

use and transportation studies, were incorporated in to the new database. DVRPC staff reviewed the revised 2010 data and the 2013 data to eliminate any remaining duplicates and correct obvious errors, using resources that included CoStar, company web sites, and on-line business directories. The data was then reviewed by the region's county planning staffs, and further corrections were made based on local knowledge (including errors in location and missing large employers).

The NETS database used by DVRPC includes the street address and the most current latitude-longitude for each establishment as well as the origin and destination latitude-longitudes for all significant moves, at the four-decimal-place-level. In order to assign each employer to a specific municipality, every employer in the NETS database was geocoded. Based on an internal review by DVRPC staff, several spatially inaccurate results were identified, and numerous adjustments were made to improve the accuracy of the dataset before the results were sent to the counties for review. While the counties were reviewing the employment data, DVRPC staff continued to refine the NETS GIS dataset, by comparing TomTom results with other geocoding services, and by manually checking the location of hundreds of significant employers.

## 2015 Employment Estimates

Estimates of the 2015 employment were then calculated, based on both the changes in NETS employment by sector in each county between 2010 and 2013, and the employment change in each county between 2010 and 2015 released by the BLS in September 2016. The estimated 2015 county employment was allocated to municipalities based on the proportion of the county's employment that was present in each municipality in 2013.

## 2045 Employment Forecasts

Employment forecasts in five-year increments through 2045 were developed using a similar method as was used in previous forecasting rounds. Various studies and past experience have shown that there is a direct relationship between the number of workers living in a region (which is a function of population) and the number of jobs. To forecast future employment, DVRPC determined an expected future ratio of employment to population for each county, based on the known ratio in 2015. These ratios were applied to the Commission's adopted 2045 population forecasts, to create employment forecasts for each county, in five-year increments through 2045.

County-level employment forecasts between 2020 and 2040 were disaggregated to the municipal level based on the proportion of each county's employment that was expected to be in each municipality by DVRPC's adopted 2040 forecasts, as adjusted by the differences between the Commission's adopted 2015 forecast and the 2015 NETS employment estimates. The proportion of each county's employment expected to be in each municipality in 2045 was forecast based on the linear trend in the proportion from 2015 to 2040. The draft employment forecasts in five-year increments were then reviewed by county planning staffs, and final revisions were made based on their recommendations.

Military employment, which DVRPC staff believes was not accurately reflected in the NETS database, was accounted for by adding the military employment in each municipality reported in the 2006-2010 five-



year CTPP estimates to the 2015 employment estimate and the future employment forecasts. Given the difficulty of forecasting future military employment, the number of military employees was kept stable in future years.

Table 1 summarizes regional and county employment forecasts in five-year increments through 2045, and municipal-level forecasts are provided in Appendix A. Table 2 identifies the 20 municipalities expected to gain the most employees between 2015 and 2045 in absolute numbers, while Table 3 identifies municipalities with the highest forecast percentage change in employment. Figure 1 illustrates the DVRPC region's 2045 municipal employment forecasts, and Figures 2 and 3 illustrate absolute and percent change in employment by municipality between 2015 and 2045.

Figure 4 illustrates the absolute increase in employment per square mile in each of the region's 352 municipalities and 18 City of Philadelphia planning districts. This map highlights not only where employment is increasing, but also the impact of relatively small increases on employment density in many of the region's centers. Employment density is forecast to increase not only in the City of Philadelphia, but also in many of the region's smaller boroughs, including Conshohocken and West Conshohocken boroughs in Montgomery County; Dublin, Penndel, and Ivyland boroughs in Bucks County; and Kennett Square, Phoenixville, and Downingtown boroughs in Chester County.

Highlights include the following:

- The DVRPC region is forecast to gain almost 373,000 jobs between 2015 and 2045 (an increase of almost 12 percent), with much of this growth concentrated in the suburbs.
- The region's five southeastern Pennsylvania counties are forecast to experience a 12.6 percent increase in employment, while employment in the four New Jersey counties is expected to increase by 9.8 percent.
- The largest percent increases are forecast in Gloucester County in New Jersey and Chester County in Pennsylvania, where employment is forecast to increase by 29 and 28 percent, respectively.
- The largest absolute increase in employment is forecast for Chester County, expected to gain 87,800 employees. Other counties forecast to see a significant number of additional employees include Montgomery County (expected to gain almost 82,000 employees) and Philadelphia (with a forecasted increase of almost 64,000 jobs).
- Both Philadelphia and Camden City, New Jersey, are forecast to gain employment, with forecasted percentage increases of 8.3 percent and 10.1 percent, respectively. The region's other two core cities are expected to see their employment stabilize and increase slightly, with a 2.8 percent increase in employment in Trenton, New Jersey, and a 2.6 percent increase in Chester City, Pennsylvania.

## Summary

Population and employment forecasts are a critical component of long-range land use and transportation planning. This report presents the method used to develop 2045 and interim year employment forecasts, adopted by the DVRPC Board on October 27, 2016.

Data from the National Establishments Time Series (NETS) database served as the base for the 2045 employment forecasts. In March 2016, DVRPC acquired an updated NETS database that included 2013 employment data and revised 2010 data. The 2010 and 2013 employment data was reviewed and revised by DVRPC staff, utilizing resources that included CoStar, on-line business directories, company websites and, when appropriate, direct telephone calls. The revised data was then sent to the county planning staffs for additional revision. Additionally, during the summer of 2016, DVRPC acquired improved geocoding resources that allowed staff to further correct the spatial locations of employers.

Based on changes in the NETS employment between 2010 and 2013, and changes in employment in each county between 2010 and 2015 as reported by the U.S. Bureau of Labor Statistics (BLS), 2015 employment was estimated by county and municipality. Given that studies have shown that there is a direct relationship between the number of workers living in an area and the number of jobs, employment forecasts were calculated in five-year increments through 2045, by estimating a future ratio of population to employment in each county and applying it to DVRPC's adopted population forecasts.

Employment in the nine-county region is forecast to increase by almost 12 percent between 2015 and 2045, with the greatest absolute increases in employment expected in Chester, Montgomery, and Philadelphia counties and the greatest percentage increases forecast in Gloucester County, New Jersey, and Chester County, Pennsylvania. Together with the 2045 population forecasts adopted by the DVRPC Board in July 2016, these employment forecasts will serve as the basis for DVRPC's planning and modeling activities, and support the region's 2045 long-range plan, scheduled for adoption in July 2017.

**Table 1: 2045 Employment Forecasts by County**

County	2015 Employment	2020 Employment Forecast	2025 Employment Forecast	2030 Employment Forecast	2035 Employment Forecast	2040 Employment Forecast	2045 Employment Forecast	Forecasted Absolute Change, 2015-2045	Forecasted Percent Change, 2015-2045
Bucks County	322,731	329,645	337,203	344,859	351,310	356,671	361,124	38,393	11.9%
Chester County	309,605	326,320	343,050	359,774	374,967	387,391	397,405	87,800	28.4%
Delaware County	268,054	270,167	272,269	274,401	276,248	277,763	279,050	10,996	4.1%
Montgomery County	582,443	598,434	614,469	629,563	642,996	654,966	664,385	81,942	14.1%
Philadelphia County	772,847	786,308	797,156	810,574	822,002	829,937	836,825	63,978	8.3%
<b>Five Pennsylvania Counties</b>	<b>2,255,680</b>	<b>2,310,874</b>	<b>2,364,147</b>	<b>2,419,171</b>	<b>2,467,523</b>	<b>2,506,728</b>	<b>2,538,789</b>	<b>283,109</b>	<b>12.6%</b>
Burlington County	241,298	246,351	251,368	255,562	258,363	261,195	263,622	22,324	9.3%
Camden County	263,582	265,169	266,753	268,359	269,750	270,892	271,869	8,287	3.1%
Gloucester County	121,382	128,161	134,902	141,752	147,682	152,554	156,686	35,304	29.1%
Mercer County	286,295	290,864	295,408	300,025	304,021	307,302	310,084	23,789	8.3%
<b>Four New Jersey Counties</b>	<b>912,557</b>	<b>930,545</b>	<b>948,431</b>	<b>965,698</b>	<b>979,816</b>	<b>991,943</b>	<b>1,002,261</b>	<b>89,704</b>	<b>9.8%</b>
<b>Nine DVRPC Counties</b>	<b>3,168,237</b>	<b>3,241,419</b>	<b>3,312,578</b>	<b>3,384,869</b>	<b>3,447,339</b>	<b>3,498,671</b>	<b>3,541,050</b>	<b>372,813</b>	<b>11.8%</b>

Source: Delaware Valley Regional Planning Commission, October 2016.

**Table 2: Municipalities with the Greatest Forecasted Absolute Change in Employment, 2015–2045**

Rank	Municipality/County	Absolute Change	Rank	Municipality/County	Absolute Change
1	Upper Merion Township/ Montgomery	9,470	11	Plymouth Township/ Montgomery	4,500
2	Horsham Township/ Montgomery	8,660	12	Woolwich Township/ Gloucester	4,338
3	East Whiteland Township/ Chester	7,224	13	Camden City/ Camden	4,206
4	Uwchlan Township/ Chester	6,737	14	West Deptford Township/ Gloucester	3,844
5	Tredyffrin Township/ Chester	6,625	15	West Windsor Township/ Mercer	3,713
6	West Whiteland Township/ Chester	6,259	16	Hopewell Township/ Mercer	3,712
7	West Goshen Township/ Chester	5,459	17	Phoenixville Borough/ Chester	3,621
8	Conshohocken Borough/ Montgomery	5,000	18	Lower Merion Township/ Montgomery	3,500
9	Monroe Township/ Camden	4,999	19	Mt. Laurel Township/ Burlington	3,444
10	Upper Providence Township/ Montgomery	4,520	20	Upper Dublin Township/Bucks	3,400

**Source:** Delaware Valley Regional Planning Commission, October 2016. Does not include Philadelphia, which is both a county and a municipality.

**Table 3: Municipalities with the Greatest Forecasted Percentage Change in Employment, 2015–2045**

Rank	Municipality/County	Absolute Change	Rank	Municipality/County	Absolute Change
1	Woolwich Township/ Gloucester	164%	11	Parkesburg Borough/ Chester	59%
2	Modena Borough/ Chester	125%	12	West Sadsbury Township/ Chester	58%
3	Elk Township/ Gloucester	92%	13	Mantua Township/ Gloucester	57%
4	Dublin Borough/ Bucks	84%	14	Honey Brook Borough/ Chester	55%
5	Lower Oxford Township/ Chester	82%	15	Conshohocken Borough/ Montgomery	53%
6	West Brandywine Township/ Chester	77%	16	Wallace Township/ Chester	53%
7	Elverson Borough/ Chester	72%	17	Phoenixville Borough/ Chester	53%
8	East Vincent Township/ Chester	68%	18	West Nottingham Township/ Chester	53%
9	Harrison Township/ Gloucester	64%	19	Sellersville Borough/ Bucks	52%
10	South Coventry Township/ Chester	61%	20	Upper Oxford Township/ Chester	52%

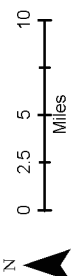
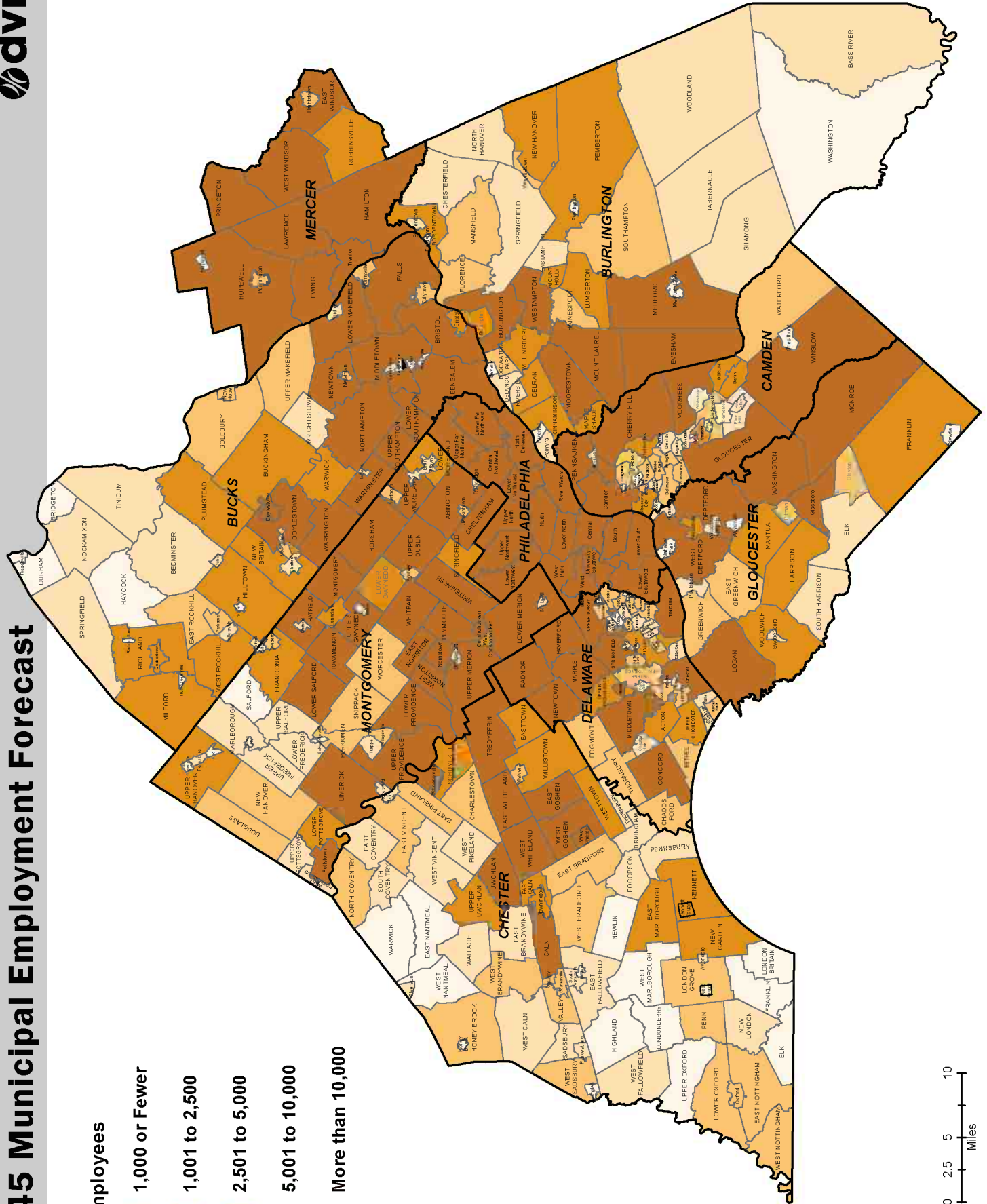
**Source:** Delaware Valley Regional Planning Commission, October, 2016. Does not include Philadelphia, which is both a county and a municipality.



**Figure 1:  
2045 Municipal Employment Forecast**

**Employees**

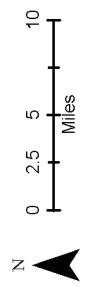
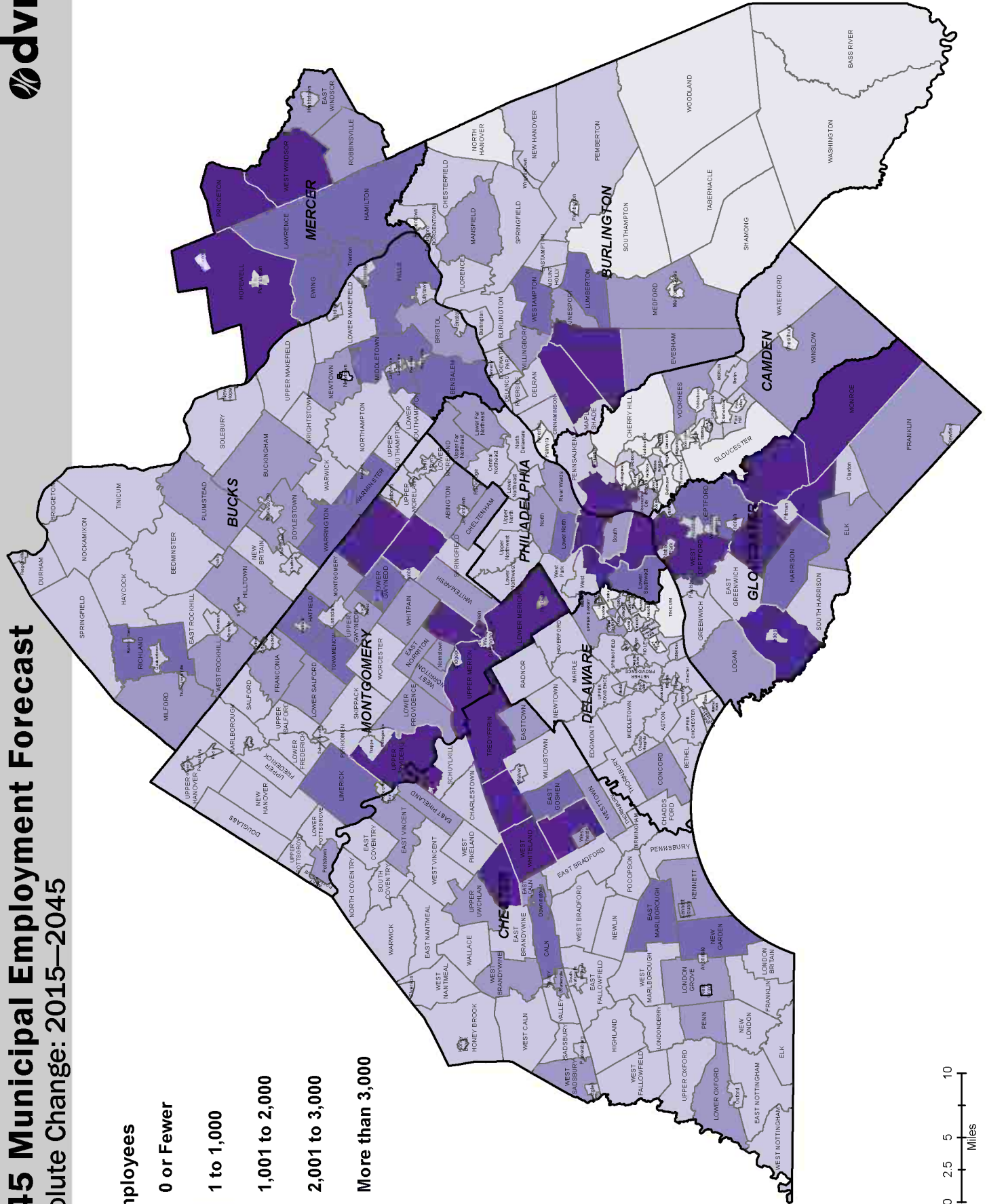
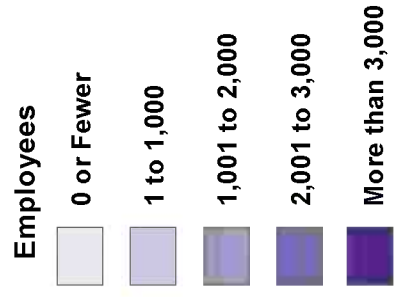
- 1,000 or Fewer**
- 1,001 to 2,500**
- 2,501 to 5,000**
- 5,001 to 10,000**
- More than 10,000**







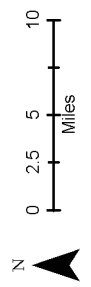
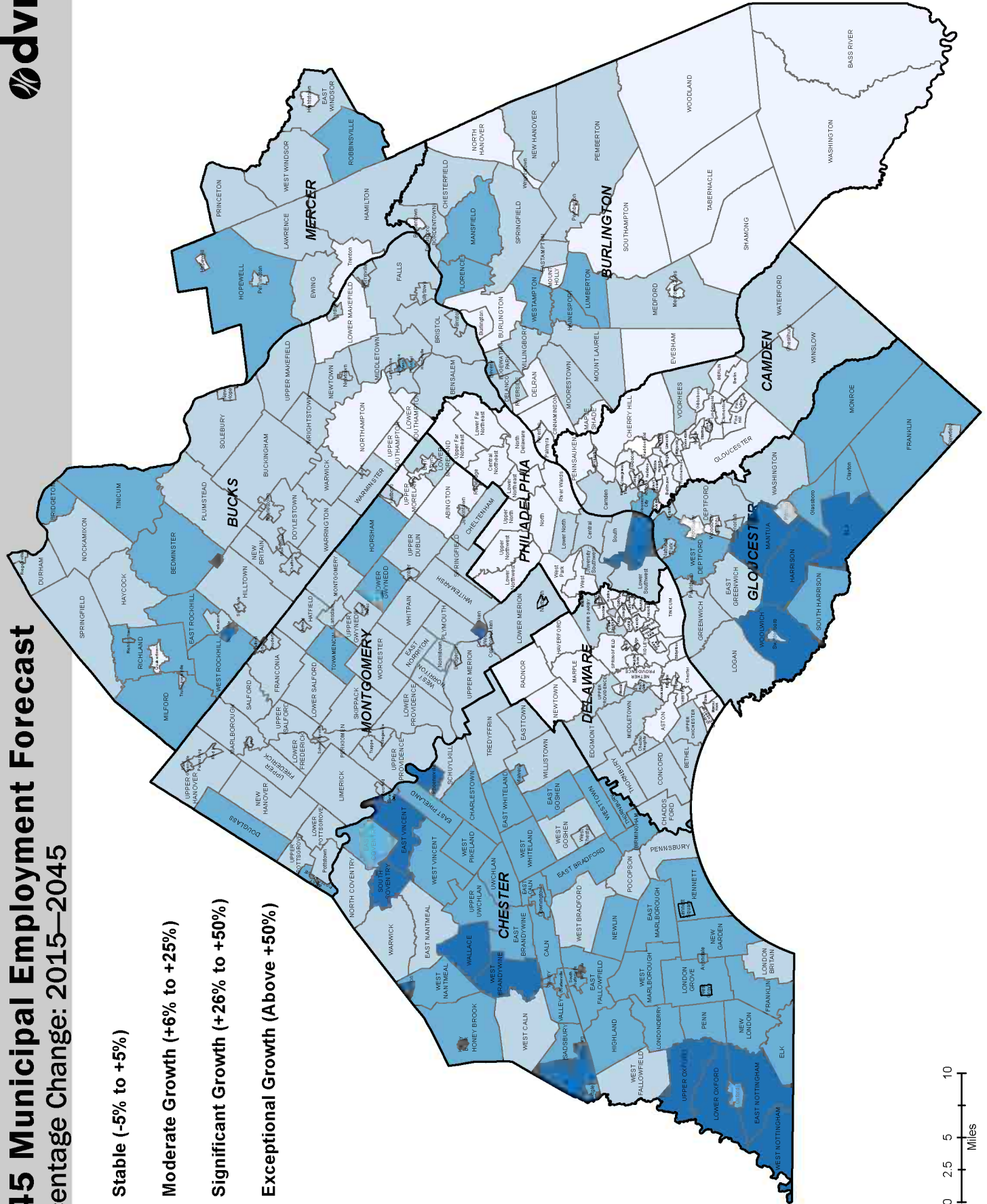
**Figure 2:**  
**2045 Municipal Employment Forecast**  
**Absolute Change: 2015–2045**





**Figure 3:**  
**2045 Municipal Employment Forecast**  
**Percentage Change: 2015–2045**

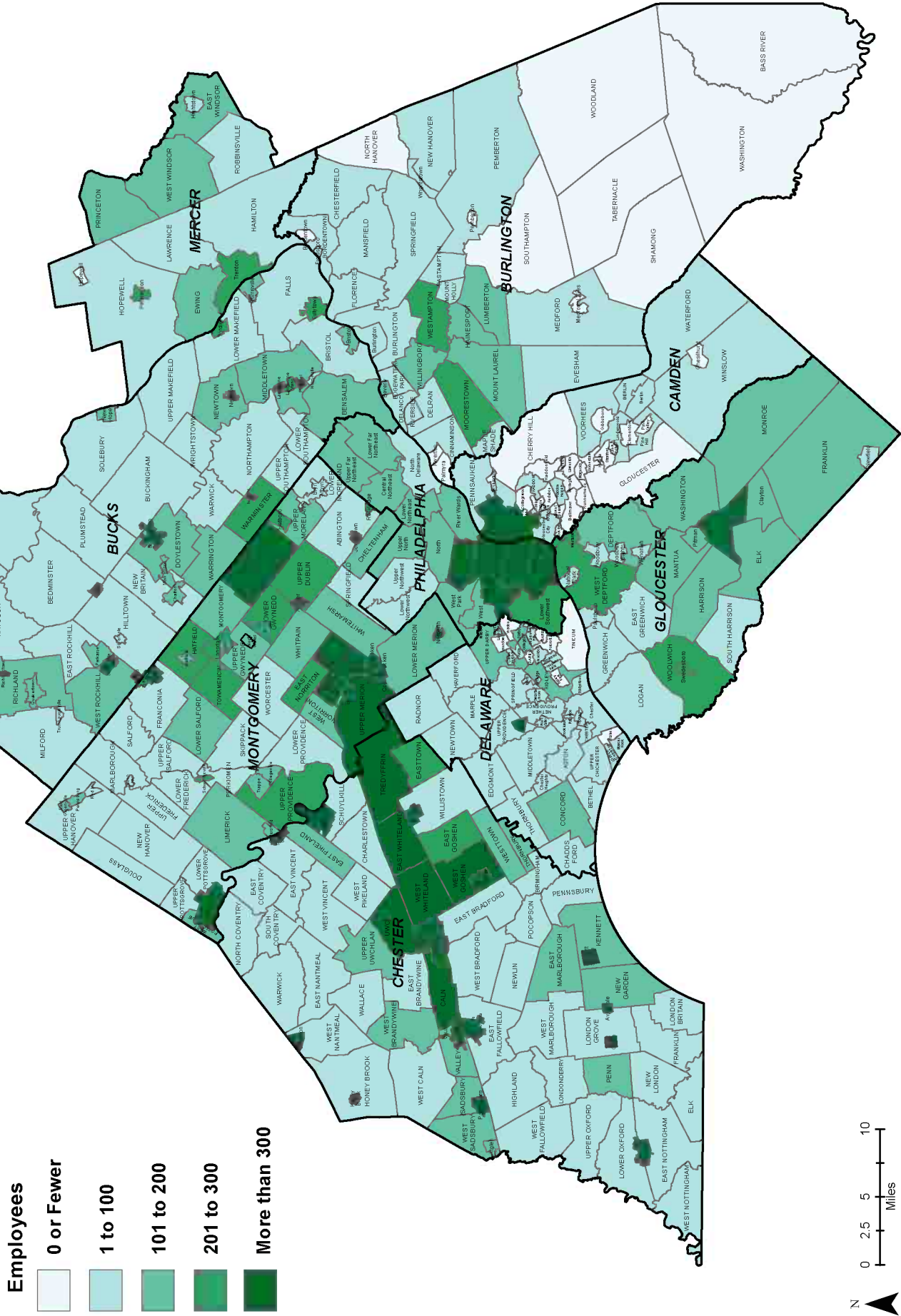
- Stable (-5% to +5%)
- Moderate Growth (+6% to +25%)
- Significant Growth (+26% to +50%)
- Exceptional Growth (Above +50%)







**Figure 4:**  
**2045 Municipal Employment Forecast**  
**Absolute Change per Square Mile by Municipality:**  
**2015–2045**





**Appendix A: Forecasted Employment by County and Municipality, 2015-2045**

County / Municipality	2015	2020	2025	2030	2035	2040	2045	Absolute Change, 2015-2045	Percentage Change 2015-2045
	Employment Estimate	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast		
<b>Bucks County</b>	<b>322,731</b>	<b>329,645</b>	<b>337,203</b>	<b>344,859</b>	<b>351,310</b>	<b>356,671</b>	<b>361,124</b>	<b>38,393</b>	<b>11.9%</b>
Bedminster Township	1,864	2,018	2,116	2,215	2,260	2,311	2,424	560	30.0%
Bensalem Township	43,829	44,472	44,697	44,952	45,567	46,304	46,023	2,194	5.0%
Bridgeton Township	334	351	368	395	402	419	434	100	29.9%
Bristol Borough	5,111	5,166	5,239	5,315	5,366	5,396	5,415	304	5.9%
Bristol Township	23,168	23,575	23,799	24,037	24,370	24,768	24,740	1,572	6.8%
Buckingham Township	7,609	7,755	8,012	8,271	8,409	8,476	8,667	1,058	13.9%
Chalfont Borough	1,300	1,332	1,393	1,454	1,485	1,499	1,550	250	19.2%
Doylestown Borough	10,480	10,628	10,861	11,097	11,236	11,309	11,438	958	9.1%
Doylestown Township	11,453	11,838	12,071	12,308	12,652	13,030	13,163	1,710	14.9%
Dublin Borough	820	879	926	962	1,225	1,530	1,520	700	85.4%
Durham Township	254	256	257	259	267	276	273	19	7.5%
East Rockhill Township	2,140	2,259	2,335	2,411	2,520	2,636	2,700	560	26.2%
Falls Township	16,290	16,575	17,065	17,558	17,827	17,961	18,302	2,012	12.4%
Haycock Township	486	507	519	532	556	582	590	104	21.4%
Hilltown Township	6,113	6,252	6,509	6,766	6,897	6,959	7,167	1,054	17.2%
Hulmeville Borough	254	262	268	274	282	290	294	40	15.7%
Ivyland Borough	1,671	1,749	1,789	1,830	1,869	1,913	1,948	277	16.6%
Langhorne Borough	1,150	1,176	1,225	1,274	1,299	1,311	1,351	201	17.5%
Langhorne Manor Borough	313	329	364	398	413	420	454	141	45.0%
Lower Makefield Township	11,612	11,717	11,768	11,827	12,007	12,219	12,111	499	4.3%
Lower Southampton Township	13,210	13,289	13,334	13,387	13,457	13,512	13,401	191	1.4%
Middletown Township	24,781	25,116	25,630	26,154	26,465	26,634	26,900	2,119	8.6%
Milford Township	3,753	3,912	4,241	4,567	4,720	4,784	5,100	1,347	35.9%
Morrisville Borough	2,903	2,951	3,033	3,115	3,161	3,184	3,238	335	11.5%
New Britain Borough	3,004	3,046	3,088	3,132	3,176	3,214	3,204	200	6.7%
New Britain Township	5,330	5,453	5,528	5,605	5,791	5,992	5,999	669	12.6%
New Hope Borough	2,854	2,893	2,953	3,015	3,051	3,071	3,102	248	8.7%
Newtown Borough	2,375	2,404	2,426	2,447	2,522	2,604	2,588	213	9.0%
Newtown Township	13,519	13,712	14,016	14,325	14,505	14,601	14,771	1,252	9.3%
Nockamixon Township	1,519	1,580	1,617	1,655	1,733	1,816	1,838	319	21.0%

County / Municipality	2015	2020	2025	2030	2035	2040	2045	Absolute Change, 2015-2045	Percentage Change, 2015-2045
	Employment Estimate	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast		
Northampton Township	14,669	14,801	14,953	15,113	15,233	15,310	15,299	630	4.3%
Pennel Borough	1,403	1,453	1,555	1,656	1,704	1,725	1,819	416	29.7%
Perkasie Borough	2,991	3,058	3,182	3,305	3,369	3,399	3,499	508	17.0%
Plumstead Township	6,583	6,785	7,183	7,578	7,771	7,856	8,214	1,631	24.8%
Quakertown Borough	5,546	5,598	5,660	5,724	5,772	5,801	5,802	256	4.6%
Richland Township	6,678	7,236	7,597	7,956	8,221	8,510	8,904	2,226	33.3%
Richlandtown Borough	288	300	326	351	363	368	393	105	36.5%
Riegelsville Borough	142	145	148	149	154	159	159	17	12.0%
Sellersville Borough	1,150	1,230	1,377	1,520	1,597	1,632	1,750	600	52.2%
Silverdale Borough	299	301	303	305	315	327	323	24	8.0%
Solebury Township	3,399	3,472	3,605	3,739	3,808	3,841	3,946	547	16.1%
Springfield Township	1,474	1,524	1,555	1,586	1,638	1,693	1,710	236	16.0%
Telford Borough (part)	778	815	894	971	1,007	1,022	1,099	321	41.3%
Tinicum Township	1,532	1,584	1,690	1,794	1,844	1,866	1,963	431	28.1%
Trumbauersville Borough	307	309	314	317	333	348	346	39	12.7%
Tullytown Borough	3,097	3,158	3,267	3,377	3,435	3,463	3,546	449	14.5%
Upper Makefield Township	2,741	2,790	2,876	2,962	3,008	3,031	3,092	351	12.8%
Upper Southampton Township	9,981	10,006	10,026	10,053	10,322	10,618	10,459	478	4.8%
Warminster Township	16,109	16,891	17,210	17,536	17,956	18,424	18,702	2,593	16.1%
Warrington Township	9,581	9,863	10,414	10,963	11,232	11,352	11,842	2,261	23.6%
Warwick Township	5,967	6,074	6,258	6,444	6,544	6,594	6,724	757	12.7%
West Rockhill Township	5,227	5,442	5,885	6,323	6,530	6,617	7,040	1,813	34.7%
Wrightstown Township	1,294	1,324	1,378	1,433	1,461	1,474	1,519	225	17.4%
Yardley Borough	1,996	2,034	2,100	2,167	2,203	2,220	2,269	273	13.7%
<b>Chester County</b>	<b>309,605</b>	<b>326,320</b>	<b>343,050</b>	<b>359,774</b>	<b>374,967</b>	<b>387,391</b>	<b>397,405</b>	<b>87,800</b>	<b>28.4%</b>
Atglen Borough	498	521	549	577	599	617	643	145	29.1%
Avondale Borough	780	840	906	971	1,026	1,071	1,122	342	43.8%
Birmingham Township	1,573	1,664	1,754	1,846	1,927	1,994	2,046	473	30.1%
Cain Township	8,191	8,719	9,294	9,872	10,358	10,761	11,181	2,990	36.5%
Charlestown Township	3,134	3,309	3,483	3,661	3,818	3,947	4,050	916	29.2%
Coatesville City	2,579	2,759	2,958	3,160	3,327	3,465	3,619	1,040	40.3%
Downingtown Borough	6,455	6,798	7,192	7,588	7,910	8,175	8,499	2,044	31.7%

County / Municipality	2015	2020		2025		2030		2035		2040		2045		Absolute Change, 2015-2045	Percentage Change, 2015-2045
	Employment Estimate	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast		
East Bradford Township	1,844	1,966	2,097	2,229	2,341	2,433	2,527	683	37.0%						
East Brandywine Township	1,649	1,777	1,921	2,068	2,187	2,285	2,404	755	45.8%						
East Caln Township	4,254	4,474	4,685	4,900	5,096	5,258	5,367	1,113	26.2%						
East Coventry Township	1,515	1,618	1,730	1,842	1,937	2,015	2,096	581	38.3%						
East Fallowfield Township	911	969	1,029	1,089	1,140	1,186	1,221	310	34.0%						
East Goshen Township	8,156	8,597	9,036	9,482	9,877	10,205	10,461	2,305	28.3%						
East Marlborough Township	5,264	5,608	6,002	6,399	6,721	6,987	7,308	2,044	38.8%						
East Nantmeal Township	821	862	896	931	966	996	999	178	21.7%						
East Nottingham Township	1,713	1,854	2,020	2,187	2,320	2,430	2,571	858	50.1%						
East Pikeland Township	2,836	3,040	3,268	3,499	3,687	3,845	4,025	1,189	41.9%						
Easttown Township	7,006	7,347	7,667	7,992	8,291	8,545	8,694	1,688	24.1%						
East Vincent Township	1,867	2,063	2,298	2,306	2,716	2,858	3,129	1,262	67.6%						
East Whiteland Township	23,399	24,735	26,117	27,514	28,722	29,730	30,623	7,224	30.9%						
Elk Township	266	287	305	324	342	357	363	97	36.5%						
Elverson Borough	596	663	746	829	894	947	1,026	430	72.1%						
Franklin Township	608	659	715	773	820	859	905	297	48.8%						
Highland Township	535	567	594	623	649	674	681	146	27.3%						
Honey Brook Borough	389	425	466	507	541	569	602	213	54.8%						
Honey Brook Township	2,990	3,164	3,342	3,522	3,678	3,809	3,920	930	31.1%						
Kennett Township	5,782	6,112	6,450	6,793	7,092	7,341	7,555	1,773	30.7%						
Kennett Square Borough	4,177	4,405	4,632	4,862	5,066	5,239	5,370	1,193	28.6%						
London Britain Township	630	665	691	719	747	772	773	143	22.7%						
Londonderry Township	488	530	575	621	660	694	729	241	49.4%						
London Grove Township	2,535	2,738	2,972	3,208	3,400	3,559	3,755	1,220	48.1%						
Lower Oxford Township	1,874	2,096	2,397	2,698	2,918	3,098	3,418	1,544	82.4%						
Malvern Borough	2,359	2,500	2,646	2,794	2,921	3,027	3,121	762	32.3%						
Modena Borough	124	147	178	207	230	248	279	155	125.0%						
New Garden Township	6,534	6,884	7,277	7,673	7,999	8,268	8,578	2,044	31.3%						
Newlin Township	271	293	315	336	357	375	387	116	42.8%						
New London Township	1,041	1,098	1,155	1,213	1,263	1,306	1,385	344	33.0%						
North Coventry Township	3,730	3,896	4,037	4,182	4,323	4,444	4,483	753	20.2%						
Oxford Borough	2,156	2,319	2,504	2,691	2,843	2,968	3,118	962	44.6%						
Parkesburg Borough	671	734	811	888	948	997	1,065	394	58.7%						

County / Municipality	2015		2020		2025		2030		2035		2040		2045		Absolute Change, 2015-2045	Percentage Change 2015-2045
	Employment Estimate	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast			
Penn Township	2,916	3,084	3,286	3,490	3,649	3,781	3,961	1,045	35.8%							
Pennsbury Township	1,395	1,460	1,514	1,568	1,624	1,671	1,680	285	20.4%							
Phoenixville Borough	6,835	7,419	8,119	8,823	9,378	9,835	10,456	3,621	53.0%							
Pocopson Township	1,030	1,081	1,123	1,165	1,208	1,244	1,252	222	21.6%							
Sadsbury Township	1,571	1,692	1,830	1,969	2,083	2,176	2,288	717	45.6%							
Schuylkill Township	4,530	4,706	4,840	4,977	5,124	5,197	5,247	717	15.8%							
South Coatesville Borough	1,390	1,502	1,629	1,759	1,862	1,949	2,055	665	47.8%							
South Coventry Township	1,146	1,257	1,392	1,528	1,633	1,721	1,844	698	60.9%							
Spring City Borough	959	1,027	1,100	1,173	1,235	1,287	1,339	380	39.6%							
Thornbury Township	1,302	1,384	1,470	1,557	1,631	1,693	1,749	447	34.3%							
Tredyffrin Township	55,495	57,323	58,540	59,802	61,270	62,518	62,120	6,625	11.9%							
Upper Oxford Township	361	393	428	465	494	519	547	186	51.5%							
Upper Uwchlan Township	4,216	4,447	4,677	4,910	5,116	5,288	5,421	1,205	28.6%							
Uwchlan Township	14,889	16,014	17,312	18,619	19,674	20,545	21,626	6,737	45.2%							
Valley Township	2,085	2,249	2,440	2,633	2,787	2,915	3,074	989	47.4%							
Wallace Township	903	981	1,074	1,168	1,242	1,304	1,383	480	53.2%							
Warwick Township	614	648	674	701	729	753	754	140	22.8%							
West Bradford Township	2,095	2,190	2,269	2,349	2,429	2,497	2,514	419	20.0%							
West Brandywine Township	2,088	2,331	2,643	2,955	3,192	3,386	3,694	1,606	76.9%							
West Caln Township	1,450	1,523	1,590	1,657	1,721	1,775	1,799	349	24.1%							
West Chester Borough	11,440	11,787	11,979	12,181	12,448	12,678	12,510	1,070	9.4%							
West Fallowfield Township	958	1,006	1,043	1,082	1,122	1,155	1,159	201	21.0%							
West Goshen Township	24,174	25,299	26,334	27,385	28,369	29,189	29,633	5,459	22.6%							
West Grove Borough	674	719	763	808	848	881	907	233	34.6%							
West Marlborough Township	330	353	371	388	409	424	426	96	29.1%							
West Nantmeal Township	647	690	732	775	814	845	870	223	34.5%							
West Nottingham Township	1,736	1,884	2,060	2,238	2,378	2,493	2,647	911	52.5%							
West Pikeland Township	964	1,029	1,097	1,165	1,225	1,274	1,320	356	36.9%							
West Sadsbury Township	2,106	2,300	2,537	2,774	2,959	3,112	3,327	1,221	58.0%							
West Vincent Township	1,476	1,552	1,623	1,695	1,759	1,816	1,846	370	25.1%							
West Whiteland Township	23,476	24,691	25,883	27,093	28,175	29,076	29,735	6,259	26.7%							
Westtown Township	4,257	4,479	4,693	4,910	5,107	5,271	5,383	1,126	26.5%							
Willistown Township	7,896	8,118	8,275	8,436	8,616	8,769	8,741	845	10.7%							



County / Municipality	2015	2020	2025	2030	2035	2040	2045	Absolute Change, 2015-2045	Percentage Change 2015-2045
	Employment Estimate	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast		
<b>Delaware County</b>	<b>268,054</b>	<b>270,167</b>	<b>272,269</b>	<b>274,401</b>	<b>276,248</b>	<b>277,763</b>	<b>279,050</b>	<b>10,996</b>	<b>4.1%</b>
Aldan Borough	957	963	966	969	973	978	978	21	2.2%
Aston Township	6,558	6,615	6,678	6,742	6,793	6,832	6,876	318	4.8%
Bethel Township	2,297	2,331	2,388	2,445	2,478	2,497	2,548	251	10.9%
Brookhaven Borough	2,702	2,722	2,739	2,756	2,773	2,787	2,796	94	3.5%
Chadda Ford Twp.	4,153	4,232	4,374	4,516	4,593	4,634	4,768	615	14.8%
Chester City	11,939	12,014	12,062	12,112	12,174	12,234	12,244	305	2.6%
Chester Township	942	956	980	1,004	1,017	1,025	1,047	105	11.1%
Chester Heights Borough	2,926	2,945	2,958	2,971	2,987	3,002	3,005	79	2.7%
Clifton Heights Borough	2,142	2,153	2,155	2,157	2,165	2,175	2,169	27	1.3%
Collingdale Borough	2,108	2,125	2,143	2,161	2,176	2,188	2,199	91	4.3%
Colwyn Borough	417	421	425	430	433	435	439	22	5.3%
Concord Township	11,491	11,733	12,179	12,629	12,864	12,988	13,416	1,925	16.8%
Darby Borough	3,955	3,982	4,003	4,025	4,047	4,068	4,077	122	3.1%
Darby Township	2,593	2,602	2,595	2,588	2,594	2,604	2,588	-5	-0.2%
East Lansdowne Borough	658	661	661	661	664	667	665	7	1.1%
Eddystone Borough	2,429	2,439	2,436	2,433	2,440	2,450	2,439	10	0.4%
Edgmont Township	2,247	2,307	2,424	2,542	2,601	2,630	2,745	498	22.2%
Folcroft Borough	3,501	3,507	3,484	3,460	3,462	3,474	3,437	-64	-1.8%
Glenolden Borough	2,366	2,376	2,376	2,375	2,383	2,394	2,385	19	0.8%
Haverford Township	16,973	17,066	17,103	17,142	17,217	17,298	17,279	306	1.8%
Lansdowne Borough	2,650	2,659	2,652	2,646	2,652	2,662	2,646	-4	-0.2%
Lower Chichester Township	1,374	1,380	1,381	1,381	1,386	1,392	1,387	13	0.9%
Marcus Hook Borough	3,014	3,037	3,058	3,079	3,099	3,115	3,127	113	3.7%
Marple Township	14,026	14,082	14,063	14,045	14,085	14,143	14,075	49	0.3%
Media Borough	11,882	11,974	12,064	12,156	12,236	12,303	12,357	475	4.0%
Middletown Township	14,076	14,220	14,407	14,597	14,727	14,820	14,968	892	6.3%
Millbourne Borough	370	375	382	389	393	396	402	32	8.6%
Morton Borough	1,290	1,297	1,300	1,303	1,309	1,315	1,314	24	1.9%
Nether Providence Township	4,626	4,656	4,677	4,698	4,723	4,747	4,753	127	2.7%
Newtown Township	12,615	12,710	12,798	12,888	12,971	13,040	13,090	475	3.8%

County / Municipality	2015		2020		2025		2030		2035		2040		2045		Absolute Change, 2015-2045	Percentage Change, 2015-2045
	Employment Estimate	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast			
Norwood Borough	1,140	1,145	1,146	1,146	1,146	1,151	1,156	1,156	1,156	1,156	1,156	1,156	1,152	12	1.1%	
Parkside Borough	328	330	332	332	332	336	334	334	336	336	337	337	338	10	3.0%	
Prospect Park Borough	1,726	1,736	1,742	1,742	1,742	1,756	1,747	1,747	1,756	1,756	1,764	1,764	1,764	38	2.2%	
Radnor Township	25,694	25,861	25,978	25,978	25,978	26,239	26,099	26,099	26,239	26,239	26,371	26,371	26,407	713	2.8%	
Ridley Township	2,809	2,814	2,795	2,795	2,795	2,777	2,776	2,776	2,777	2,777	2,786	2,786	2,757	-52	-1.9%	
Ridley Park Borough	9,411	9,463	9,483	9,483	9,483	9,546	9,505	9,505	9,546	9,546	9,591	9,591	9,580	169	1.8%	
Rose Valley Borough	297	302	310	310	310	323	318	318	323	323	326	326	333	36	12.1%	
Rutledge Borough	131	132	132	132	132	133	132	132	133	133	133	133	133	2	1.5%	
Sharon Hill Borough	2,985	3,003	3,014	3,014	3,014	3,041	3,026	3,026	3,041	3,041	3,056	3,056	3,058	73	2.4%	
Springfield Township	14,177	14,292	14,411	14,411	14,411	14,633	14,532	14,532	14,633	14,633	14,715	14,715	14,791	614	4.3%	
Swarthmore Borough	2,660	2,677	2,688	2,688	2,688	2,714	2,700	2,700	2,714	2,714	2,727	2,727	2,730	70	2.6%	
Thornbury Township	2,366	2,418	2,514	2,514	2,514	2,661	2,610	2,610	2,661	2,661	2,687	2,687	2,780	414	17.5%	
Tinicum Township	12,489	12,531	12,495	12,495	12,495	12,488	12,461	12,461	12,488	12,488	12,537	12,537	12,457	-32	-0.3%	
Trainer Borough	1,799	1,799	1,779	1,779	1,779	1,757	1,760	1,760	1,757	1,757	1,762	1,762	1,735	-64	-3.6%	
Upland Borough	1,222	1,227	1,228	1,228	1,228	1,232	1,228	1,228	1,232	1,232	1,237	1,237	1,233	11	0.9%	
Upper Chichester Township	6,648	6,710	6,786	6,786	6,786	6,918	6,862	6,862	6,918	6,918	6,959	6,959	7,016	368	5.5%	
Upper Darby Township	25,058	25,282	25,543	25,543	25,543	26,007	25,806	25,806	26,007	26,007	26,159	26,159	26,346	1,288	5.1%	
Upper Providence Township	5,055	5,114	5,198	5,198	5,198	5,338	5,283	5,283	5,338	5,338	5,373	5,373	5,445	390	7.7%	
Yeadon Borough	2,782	2,791	2,784	2,784	2,784	2,783	2,776	2,776	2,783	2,783	2,794	2,794	2,776	-6	-0.2%	
<b>Montgomery County</b>	<b>582,443</b>	<b>598,434</b>	<b>614,469</b>	<b>614,469</b>	<b>614,469</b>	<b>642,996</b>	<b>629,563</b>	<b>629,563</b>	<b>642,996</b>	<b>642,996</b>	<b>654,966</b>	<b>654,966</b>	<b>664,385</b>	<b>81,942</b>	<b>14.1%</b>	
Abington Township	30,656	31,098	31,327	31,327	31,327	31,899	31,512	31,512	31,899	31,899	32,371	32,371	32,156	1,500	4.9%	
Ambler Borough	3,185	3,248	3,322	3,322	3,322	3,450	3,392	3,392	3,450	3,450	3,501	3,501	3,537	352	11.1%	
Bridgeport Borough	2,180	2,248	2,298	2,298	2,298	2,399	2,345	2,345	2,399	2,399	2,455	2,455	2,480	300	13.8%	
Bryn Athyn Borough	1,427	1,440	1,452	1,452	1,452	1,474	1,463	1,463	1,474	1,474	1,484	1,484	1,477	50	3.5%	
Cheltenham Township	18,189	18,517	18,725	18,725	18,725	19,201	18,906	18,906	19,201	19,201	19,546	19,546	19,489	1,300	7.1%	
Collegedale Borough	2,626	2,668	2,705	2,705	2,705	2,775	2,738	2,738	2,775	2,775	2,814	2,814	2,815	189	7.2%	
Conshohocken Borough	9,368	10,531	11,292	11,292	11,292	12,854	12,036	12,036	12,854	12,854	13,522	13,522	14,368	5,000	53.4%	
Douglass Township	3,661	3,820	4,038	4,038	4,038	4,380	4,249	4,249	4,380	4,380	4,431	4,431	4,661	1,000	27.3%	
East Greenville Borough	651	663	675	675	675	697	687	687	697	697	707	707	711	60	9.2%	
East Norriton Township	10,682	10,999	11,317	11,317	11,317	11,813	11,617	11,617	11,813	11,813	11,880	11,880	12,182	1,500	14.0%	
Franconia Township	7,630	7,696	8,004	8,004	8,004	8,439	8,297	8,297	8,439	8,439	8,497	8,497	8,745	1,115	14.6%	
Green Lane Borough	183	186	187	187	187	191	189	189	191	191	193	193	193	10	5.5%	

County / Municipality	2015		2020		2025		2030		2035		2040		2045		Absolute Change, 2015-2045	Percentage Change, 2015-2045
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Hatboro Borough	3,893	3,978	4,018	4,055	4,125	4,204	4,193	300	7.7%							
Hatfield Borough	1,150	1,172	1,190	1,208	1,227	1,248	1,250	100	8.7%							
Hatfield Township	17,580	18,120	18,629	19,110	19,533	19,857	20,218	2,638	15.0%							
Horsham Township	30,408	31,549	33,538	35,468	36,584	37,907	39,068	8,660	28.5%							
Jenkintown Borough	4,597	4,677	4,722	4,761	4,833	4,918	4,897	300	6.5%							
Lansdale Borough	7,772	7,952	8,045	8,126	8,254	8,372	8,384	612	7.9%							
Limerick Township	11,533	11,874	12,362	12,826	13,324	13,799	14,151	2,618	22.7%							
Lower Frederick Township	1,110	1,146	1,178	1,208	1,260	1,320	1,334	224	20.2%							
Lower Gwynedd Township	7,006	7,282	7,770	8,244	8,514	8,687	9,125	2,119	30.2%							
Lower Merion Township	55,354	56,522	57,038	57,471	58,209	58,915	58,854	3,500	6.3%							
Lower Moreland Township	8,085	8,225	8,331	8,424	8,551	8,692	8,685	600	7.4%							
Lower Pottsgrove Township	4,670	4,768	4,943	5,109	5,239	5,346	5,470	800	17.1%							
Lower Providence Township	12,994	13,230	13,581	13,910	14,129	14,290	14,494	1,500	11.5%							
Lower Salford Township	9,663	9,864	10,234	10,586	10,776	10,886	11,163	1,500	15.5%							
Marlborough Township	978	991	1,010	1,027	1,051	1,071	1,078	100	10.2%							
Montgomery Township	16,097	16,473	16,923	17,343	17,580	17,640	18,012	1,915	11.9%							
Narberth Borough	2,039	2,076	2,101	2,122	2,155	2,193	2,189	150	7.4%							
New Hanover Township	2,020	2,102	2,198	2,290	2,370	2,435	2,515	495	24.5%							
Norristown Borough	14,095	14,558	14,873	15,166	15,560	15,972	16,095	2,000	14.2%							
North Wales Borough	1,419	1,443	1,460	1,476	1,498	1,522	1,519	100	7.0%							
Pennsburg Borough	1,519	1,552	1,573	1,592	1,617	1,641	1,645	126	8.3%							
Perkiomen Township	2,416	2,469	2,537	2,602	2,651	2,693	2,733	317	13.1%							
Plymouth Township	23,839	24,550	25,500	26,410	27,090	27,652	28,339	4,500	18.9%							
Pottstown Borough	10,757	11,090	11,342	11,578	11,857	12,128	12,257	1,500	13.9%							
Red Hill Borough	631	642	654	666	676	685	689	58	9.2%							
Rockledge Borough	957	979	996	1,011	1,031	1,054	1,057	100	10.4%							
Royersford Borough	1,393	1,419	1,443	1,466	1,489	1,511	1,518	125	9.0%							
Salford Township	526	544	564	583	605	627	641	115	21.9%							
Schwenksville Borough	418	434	454	474	490	504	518	100	23.9%							
Skippack Township	4,197	4,300	4,402	4,496	4,565	4,631	4,697	500	11.9%							
Souderton Borough	2,788	2,876	2,972	3,064	3,147	3,227	3,288	500	17.9%							
Springfield Township	7,874	8,000	8,084	8,158	8,271	8,399	8,374	500	6.4%							
Telford Borough (part)	643	659	684	707	722	734	751	108	16.8%							

County / Municipality	2015		2020		2025		2030		2035		2040		2045		Absolute Change, 2015-2045	Percentage Change 2015-2045
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Towamencin Township	7,548	8,086	8,612	9,125	9,567	9,909	10,421	2,873	38.1%							
Trappe Borough	2,144	2,190	2,248	2,303	2,345	2,381	2,414	270	12.6%							
Upper Dublin Township	21,566	22,207	22,864	23,485	24,048	24,546	24,966	3,400	15.8%							
Upper Frederick Township	871	899	930	960	998	1,037	1,056	185	21.2%							
Upper Gwynedd Township	25,099	25,428	25,751	26,036	26,324	26,607	26,599	1,500	6.0%							
Upper Hanover Township	4,221	4,395	4,541	4,680	4,831	4,957	5,078	857	20.3%							
Upper Merion Township	57,038	59,232	60,940	62,559	64,072	65,430	66,508	9,470	16.6%							
Upper Moreland Township	18,160	18,395	18,536	18,650	18,853	19,092	18,977	817	4.5%							
Upper Pottsgrove Township	1,161	1,186	1,227	1,264	1,301	1,335	1,361	200	17.2%							
Upper Providence Township	22,276	23,028	24,014	24,960	25,575	25,947	26,796	4,520	20.3%							
Upper Salford Township	1,273	1,303	1,338	1,371	1,407	1,442	1,462	189	14.8%							
West Conshohocken Borough	5,836	5,978	6,180	6,371	6,506	6,612	6,748	912	15.6%							
West Norriton Township	9,363	9,557	9,802	10,031	10,212	10,367	10,499	1,136	12.1%							
West Pottsgrove Township	1,476	1,530	1,622	1,711	1,764	1,798	1,879	403	27.3%							
Whitemarsh Township	20,727	21,090	21,343	21,565	21,894	22,235	22,227	1,500	7.2%							
Whitpain Township	19,871	20,231	20,641	21,020	21,350	21,653	21,819	1,948	9.8%							
Worcester Township	2,954	3,069	3,189	3,304	3,394	3,457	3,560	606	20.5%							
<b>Philadelphia County</b>	<b>772,847</b>	<b>786,308</b>	<b>797,156</b>	<b>810,574</b>	<b>822,002</b>	<b>829,937</b>	<b>836,825</b>	<b>63,978</b>	<b>8.3%</b>							
Central	277,884	280,877	283,540	287,458	289,839	291,941	294,586	16,702	6.0%							
South	32,348	32,823	33,052	33,584	33,897	34,118	34,233	1,885	5.8%							
Lower South	19,366	22,053	25,327	28,043	30,830	33,279	35,111	15,745	81.3%							
Lower Southwest	21,287	21,570	22,013	22,546	22,943	23,231	23,518	2,231	10.5%							
University/Southwest	81,863	84,881	86,678	89,222	91,692	92,487	94,866	13,003	15.9%							
West	14,073	14,203	14,299	14,439	14,598	14,699	14,774	701	5.0%							
West Park	17,141	17,404	17,509	17,692	17,785	17,928	17,987	846	4.9%							
Lower North	27,134	27,582	28,096	28,441	28,963	29,335	29,204	2,070	7.6%							
River Wards	23,154	23,578	23,698	23,934	24,224	24,485	24,249	1,095	4.7%							
North	41,243	41,508	41,777	42,342	42,647	42,878	42,941	1,698	4.1%							
Lower Northwest	18,212	18,475	18,586	18,710	18,889	19,048	19,008	796	4.4%							
Upper Northwest	25,673	25,928	26,010	26,217	26,435	26,540	26,478	805	3.1%							
Upper North	33,741	34,068	34,214	34,353	34,589	34,656	34,655	914	2.7%							
Lower Northeast	27,338	27,591	27,740	27,958	28,086	28,125	28,124	786	2.9%							



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Central Northeast	22,546	22,843	23,015	23,244	23,395	23,498	23,473	927	4.1%
North Delaware	23,938	24,269	24,330	24,557	24,692	24,819	24,807	869	3.6%
Lower Far Northeast	31,433	31,835	32,080	32,378	32,667	32,893	32,853	1,420	4.5%
Upper Far Northeast	34,473	34,820	35,192	35,456	35,831	35,977	35,958	1,485	4.3%
<b>Burlington County</b>	<b>241,298</b>	<b>246,351</b>	<b>251,368</b>	<b>255,562</b>	<b>258,363</b>	<b>261,195</b>	<b>263,622</b>	<b>22,324</b>	<b>9.3%</b>
Bass River Township	1,556	1,572	1,566	1,556	1,558	1,571	1,544	-12	-0.8%
Beverly City	400	417	446	472	485	493	519	119	29.8%
Bordentown City	1,437	1,452	1,447	1,439	1,441	1,451	1,428	-9	-0.6%
Bordentown Township	5,424	5,530	5,624	5,703	5,760	5,824	5,858	434	8.0%
Burlington City	5,162	5,229	5,237	5,231	5,251	5,298	5,242	80	1.5%
Burlington Township	17,266	17,584	17,772	17,879	17,949	18,054	18,013	747	4.3%
Chesterfield Township	1,770	1,800	1,819	1,833	1,846	1,865	1,863	93	5.3%
Cinnaminson Township	9,862	9,981	9,978	9,949	9,979	10,064	9,938	76	0.8%
Delanco Township	1,193	1,234	1,296	1,353	1,383	1,403	1,455	262	22.0%
Delran Township	7,181	7,263	7,249	7,217	7,234	7,295	7,190	9	0.1%
Eastampton Township	949	980	1,027	1,070	1,092	1,109	1,147	198	20.9%
Edgewater Park Township	2,738	2,795	2,849	2,896	2,928	2,961	2,985	247	9.0%
Evesham Township	27,494	27,914	28,117	28,240	28,412	28,688	28,559	1,065	3.9%
Fieldsboro Borough	87	88	89	91	91	92	92	5	5.7%
Florence Township	3,424	3,650	3,889	4,017	4,112	4,190	4,297	873	25.5%
Hainesport Township	3,128	3,287	3,567	3,834	3,962	4,037	4,299	1,171	37.4%
Lumberton Township	6,605	6,926	7,488	8,022	8,279	8,433	8,954	2,349	35.6%
Mansfield Township	2,794	2,935	3,186	3,422	3,537	3,604	3,838	1,044	37.4%
Maple Shade Township	6,792	6,875	6,877	6,860	6,881	6,942	6,858	66	1.0%
Medford Lakes Borough	800	808	805	800	800	807	793	-7	-0.9%
Medford Township	11,762	11,938	12,189	12,416	12,559	12,653	12,855	1,093	9.3%
Moorestown Township	30,721	31,403	32,129	32,756	33,157	33,552	33,945	3,224	10.5%
Mount Holly Township	7,793	7,890	7,894	7,877	7,904	7,972	7,879	86	1.1%
Mount Laurel Township	37,270	38,050	38,815	39,464	39,903	40,362	40,714	3,444	9.2%
New Hanover Township	4,627	4,707	4,791	4,874	4,957	5,040	5,127	500	10.8%
North Hanover Township	1,451	1,455	1,437	1,429	1,422	1,416	1,401	-50	-3.4%
Palmyra Borough	2,008	2,021	1,994	1,963	1,957	1,971	1,916	-92	-4.6%

County / Municipality	2015		2020		2025		2030		2035		2040		2045		Absolute Change, 2015-2045	Percentage Change, 2015-2045
	Employment Estimate	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast			
Pemberton Borough	541	547	544	541	541	546	541	546	541	546	546	546	537	-4	-0.7%	
Pemberton Township	7,035	7,204	7,420	7,616	7,616	7,816	7,725	7,816	7,725	7,816	7,816	7,816	7,970	935	13.3%	
Riverside Township	1,726	1,759	1,787	1,811	1,811	1,847	1,827	1,847	1,827	1,847	1,847	1,847	1,856	130	7.5%	
Riverton Borough	836	844	839	832	832	840	832	840	832	840	840	840	823	-13	-1.6%	
Shamong Township	1,695	1,713	1,705	1,693	1,693	1,709	1,696	1,709	1,696	1,709	1,709	1,709	1,680	-15	-0.9%	
Southampton Township	3,705	3,744	3,729	3,704	3,704	3,739	3,709	3,739	3,709	3,739	3,739	3,739	3,677	-28	-0.8%	
Springfield Township	1,513	1,543	1,593	1,640	1,640	1,681	1,666	1,681	1,666	1,681	1,681	1,681	1,726	213	14.1%	
Tabernacle Township	2,042	2,063	2,054	2,041	2,041	2,061	2,044	2,061	2,044	2,061	2,061	2,061	2,026	-16	-0.8%	
Washington Township	245	247	247	245	245	247	246	247	246	247	247	247	243	-2	-0.8%	
Westampton Township	7,379	7,776	8,490	9,169	9,169	9,682	9,495	9,682	9,495	9,682	9,682	9,682	10,357	2,978	40.4%	
Willingboro Township	8,184	8,388	8,632	8,850	8,850	9,093	8,979	9,093	8,979	9,093	9,093	9,093	9,253	1,069	13.1%	
Woodland Township	1,893	1,911	1,899	1,882	1,882	1,897	1,883	1,897	1,883	1,897	1,897	1,897	1,860	-33	-1.7%	
Wrightstown Borough	2,810	2,828	2,852	2,875	2,875	2,890	2,881	2,890	2,881	2,890	2,890	2,890	2,905	95	3.4%	
<b>Camden County</b>	<b>263,582</b>	<b>265,169</b>	<b>266,753</b>	<b>268,359</b>	<b>268,359</b>	<b>270,892</b>	<b>269,750</b>	<b>270,892</b>	<b>269,750</b>	<b>270,892</b>	<b>270,892</b>	<b>270,892</b>	<b>271,869</b>	<b>8,287</b>	<b>3.1%</b>	
Audubon Borough	2,882	2,878	2,858	2,840	2,840	2,839	2,834	2,839	2,834	2,839	2,839	2,839	2,809	-73	-2.5%	
Audubon Park Borough	122	122	121	120	120	120	120	120	120	120	120	120	119	-3	-2.5%	
Barrington Borough	2,919	2,916	2,900	2,885	2,885	2,886	2,881	2,886	2,881	2,886	2,886	2,886	2,860	-59	-2.0%	
Bellmawr Borough	4,855	4,861	4,856	4,853	4,853	4,867	4,855	4,867	4,855	4,867	4,867	4,867	4,848	-7	-0.1%	
Berlin Borough	4,889	4,908	4,936	4,965	4,965	4,998	4,981	4,998	4,981	4,998	4,998	4,998	5,012	123	2.5%	
Berlin Township	6,474	6,492	6,514	6,537	6,537	6,572	6,551	6,572	6,551	6,572	6,572	6,572	6,574	100	1.5%	
Brooklawn Borough	979	980	979	978	978	981	978	981	978	981	981	981	976	-3	-0.3%	
Camden City	41,786	42,644	43,370	44,057	44,057	45,205	44,850	45,205	44,850	45,205	45,205	45,205	45,992	4,206	10.1%	
Cherry Hill Township	66,799	66,845	66,734	66,641	66,641	66,808	66,648	66,808	66,648	66,808	66,808	66,808	66,479	-320	-0.5%	
Chesilhurst Borough	268	267	264	262	262	261	261	261	261	261	261	261	257	-11	-4.1%	
Clementon Borough	1,391	1,391	1,388	1,385	1,385	1,388	1,384	1,388	1,384	1,388	1,388	1,388	1,379	-12	-0.9%	
Collingswood Borough	4,307	4,308	4,296	4,285	4,285	4,292	4,283	4,292	4,283	4,292	4,292	4,266	-41	-1.0%		
Gibbsboro Borough	1,885	1,884	1,875	1,866	1,866	1,867	1,864	1,867	1,864	1,867	1,867	1,852	-33	-1.8%		
Gloucester City	4,709	4,888	5,290	5,692	5,692	5,942	5,866	5,942	5,866	5,942	5,942	6,345	1,636	34.7%		
Gloucester Township	19,959	19,964	19,911	19,863	19,863	19,901	19,857	19,901	19,857	19,901	19,901	19,782	-177	-0.9%		
Haddon Township	4,577	4,590	4,606	4,624	4,624	4,649	4,634	4,649	4,634	4,649	4,649	4,651	74	1.6%		
Haddonfield Borough	6,525	6,526	6,508	6,491	6,491	6,503	6,488	6,503	6,488	6,503	6,503	6,463	-62	-1.0%		
Haddon Heights Borough	3,220	3,227	3,234	3,242	3,242	3,257	3,248	3,257	3,248	3,257	3,257	3,254	34	1.1%		

County / Municipality	2015		2020		2025		2030		2035		2040		2045		Absolute Change, 2015-2045	Percentage Change, 2015-2045
	Employment Estimate	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast		
Hi-Nella Borough	201	201	201	201	201	201	201	201	201	201	201	201	201	201	0	0.0%
Laurel Springs Borough	468	468	465	463	465	463	463	463	463	463	463	464	460	-8	-1.7%	
Lawnside Borough	1,916	1,911	1,894	1,877	1,894	1,877	1,877	1,877	1,872	1,872	1,874	1,874	1,850	-66	-3.4%	
Lindenwold Borough	3,140	3,147	3,152	3,158	3,152	3,158	3,158	3,158	3,163	3,163	3,172	3,172	3,168	28	0.9%	
Magnolia Borough	1,064	1,063	1,058	1,052	1,058	1,052	1,052	1,052	1,051	1,051	1,053	1,053	1,043	-21	-2.0%	
Merchantville Borough	1,408	1,409	1,406	1,404	1,406	1,404	1,404	1,404	1,404	1,404	1,407	1,407	1,400	-8	-0.6%	
Mount Ephraim Borough	1,137	1,137	1,133	1,129	1,133	1,129	1,129	1,129	1,128	1,128	1,131	1,131	1,123	-14	-1.2%	
Oaklyn Borough	991	990	986	981	986	981	981	981	980	980	982	982	974	-17	-1.7%	
Pennsauken Township	25,712	25,798	25,799	25,816	25,799	25,816	25,816	25,816	25,889	25,889	26,018	26,018	25,945	233	0.9%	
Pine Hill Borough	1,618	1,625	1,627	1,629	1,627	1,629	1,629	1,629	1,634	1,634	1,643	1,643	1,640	22	1.4%	
Pine Valley Borough	185	185	185	184	185	184	184	184	184	184	184	184	183	-2	-1.1%	
Runnemede Borough	3,101	3,099	3,084	3,070	3,084	3,070	3,070	3,070	3,066	3,066	3,072	3,072	3,047	-54	-1.7%	
Somerdale Borough	2,376	2,377	2,375	2,372	2,375	2,372	2,372	2,372	2,373	2,373	2,378	2,378	2,367	-9	-0.4%	
Stratford Borough	6,353	6,354	6,335	6,318	6,335	6,318	6,318	6,318	6,315	6,315	6,329	6,329	6,289	-64	-1.0%	
Tavistock Borough	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0.0%	
Voorhees Township	20,328	20,474	20,749	21,028	20,749	21,028	21,028	21,028	21,161	21,161	21,258	21,258	21,479	1,151	5.7%	
Waterford Township	3,606	3,637	3,698	3,760	3,698	3,760	3,760	3,760	3,789	3,789	3,808	3,808	3,860	254	7.0%	
Winslow Township	10,976	11,147	11,510	11,875	11,510	11,875	11,875	11,875	12,038	12,038	12,124	12,124	12,466	1,490	13.6%	
Woodlyne Borough	406	406	406	406	406	406	406	406	406	406	407	407	406	0	0.0%	
<b>Gloucester County</b>	<b>121,382</b>	<b>128,161</b>	<b>134,902</b>	<b>141,752</b>	<b>141,752</b>	<b>141,752</b>	<b>141,752</b>	<b>141,752</b>	<b>147,682</b>	<b>147,682</b>	<b>152,554</b>	<b>152,554</b>	<b>156,686</b>	<b>35,304</b>	<b>29.1%</b>	
Clayton Borough	2,236	2,380	2,549	2,718	2,549	2,718	2,718	2,718	2,847	2,847	2,947	2,947	3,076	840	37.6%	
Deptford Township	14,845	15,536	16,047	16,583	16,047	16,583	16,583	16,583	17,165	17,165	17,692	17,692	17,824	2,979	20.1%	
East Greenwich Township	2,593	2,718	2,817	2,920	2,817	2,920	2,920	2,920	3,027	3,027	3,121	3,121	3,155	562	21.7%	
Elk Township	1,106	1,240	1,465	1,684	1,465	1,684	1,684	1,684	1,813	1,813	1,894	1,894	2,126	1,020	92.2%	
Franklin Township	4,372	4,642	4,944	5,247	4,944	5,247	5,247	5,247	5,488	5,488	5,676	5,676	5,895	1,523	34.8%	
Glassboro Borough	7,359	7,860	8,475	9,089	8,475	9,089	9,089	9,089	9,543	9,543	9,883	9,883	10,380	3,021	41.1%	
Greenwich Township	2,436	2,516	2,524	2,539	2,524	2,539	2,539	2,539	2,600	2,600	2,670	2,670	2,601	165	6.8%	
Harrison Township	3,492	3,812	4,291	4,762	4,291	4,762	4,762	4,762	5,063	5,063	5,266	5,266	5,724	2,232	63.9%	
Logan Township	9,726	10,183	10,529	10,892	10,529	10,892	10,892	10,892	11,277	11,277	11,624	11,624	11,726	2,000	20.6%	
Mantua Township	5,333	5,786	6,436	7,078	6,436	7,078	7,078	7,078	7,501	7,501	7,792	7,792	8,396	3,063	57.4%	

County / Municipality	2015		2020		2025		2030		2035		2040		2045		Absolute Change, 2015-2045	Percentage Change 2015-2045
	Employment Estimate	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast	Employment Forecast			
Monroe Township	11,219	12,024	13,054	14,078	14,812	15,352	16,218	4,999	44.6%							
National Park Borough	430	445	448	453	464	477	467	37	8.6%							
Newfield Borough	441	456	457	460	471	484	472	31	7.0%							
Paulsboro Borough	1,707	1,760	1,760	1,765	1,804	1,852	1,796	89	5.2%							
Pitman Borough	2,481	2,590	2,659	2,733	2,823	2,908	2,911	430	17.3%							
South Harrison Township	1,000	1,066	1,143	1,221	1,280	1,324	1,385	385	38.5%							
Swedesboro Borough	1,618	1,681	1,708	1,740	1,790	1,841	1,822	204	12.6%							
Washington Township	19,175	19,988	20,465	20,982	21,650	22,291	22,242	3,067	16.0%							
Wenonah Borough	520	541	553	565	582	599	596	76	14.6%							
West Deptford Township	13,690	14,441	15,169	15,910	16,564	17,107	17,534	3,844	28.1%							
Westville Borough	1,784	1,860	1,904	1,953	2,015	2,075	2,070	286	16.0%							
Woodbury City	9,289	9,538	9,440	9,372	9,545	9,783	9,366	77	0.8%							
Woodbury Heights Borough	1,887	1,940	1,925	1,915	1,953	2,002	1,923	36	1.9%							
Woolwich Township	2,643	3,158	4,140	5,093	5,605	5,894	6,981	4,338	164.1%							
<b>Mercer County</b>	<b>286,295</b>	<b>290,864</b>	<b>295,408</b>	<b>300,025</b>	<b>304,021</b>	<b>307,302</b>	<b>310,084</b>	<b>23,789</b>	<b>8.3%</b>							
East Windsor Township	17,414	17,737	18,170	18,607	18,858	19,015	19,359	1,945	11.2%							
Ewing Township	22,150	22,877	23,322	23,772	24,047	24,230	24,680	2,530	11.4%							
Hamilton Township	49,812	50,303	50,848	51,406	51,824	52,157	52,345	2,533	5.1%							
Hightstown Borough	2,775	2,796	2,812	2,828	2,846	2,862	2,857	82	3.0%							
Hopewell Borough	982	990	987	984	986	990	980	-2	-0.2%							
Hopewell Township	14,696	14,797	15,282	15,771	17,012	18,290	18,408	3,712	25.3%							
Lawrence Township	28,005	28,973	29,178	29,392	29,586	29,760	30,015	2,010	7.2%							
Pennington Borough	2,412	2,449	2,502	2,555	2,587	2,608	2,646	234	9.7%							
Princeton	26,211	27,014	27,617	28,227	28,585	28,815	29,399	3,188	12.2%							
Robbinsville	6,542	6,815	7,186	7,558	7,743	7,836	8,212	1,670	25.5%							
Trenton City	78,922	79,280	79,783	80,307	80,812	81,280	81,096	2,174	2.8%							
West Windsor Township	36,374	36,833	37,721	38,618	39,135	39,459	40,087	3,713	10.2%							

**Source:** Delaware Valley Regional Planning Commission, September 2016. Base employment data from the National Establishments Time Series (NETS) database, 2010 and 2013.

**Report Title: Analytical Data Report # 023: County- and Municipal-Level Employment Forecasts, 2015–2045**

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**Geographic Area Covered:** DVRPC's nine-county region, including Burlington, Camden, Gloucester, and Mercer counties in New Jersey, and Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania.

**Key Words:** employment, employment forecasts, National Establishments Time Series database, NETS, Connections 2045, long-range plan

**ABSTRACT:** This report presents the Delaware Valley Regional Planning Commission's (DVRPC's) adopted 2045 county- and municipal-level employment forecasts and describes the method used to develop them. Population and employment forecasts are a critical component of long-range land use and transportation planning. As a part of DVRPC's long-range planning activities, the Commission is required to maintain forecasts with at least a 20-year horizon, or to the horizon year of the long-range plan.

DVRPC last adopted employment forecasts through the year 2040 in September 2012. In March 2016, DVRPC acquired a National Establishments Time Series (NETS) database that included 2013 employment data and revised 2010 data. The 2010 and 2013 employment data was reviewed and revised by DVRPC staff, utilizing resources that included CoStar, on-line business directories, company web sites, and, when appropriate, direct telephone calls. The revised data was then sent to the county planning staffs for additional revision. Additionally, during the summer of 2016, DVRPC acquired improved geocoding resources that allowed staff to further correct the spatial locations of employers.

Based on changes in the NETS employment between 2010 and 2013, and changes in employment in each county between 2010 and 2015, as reported by the U.S. Bureau of Labor Statistics, 2015 employment was estimated by county and municipality. Studies have shown that there is a direct relationship between the number of workers living in an area and the number of jobs. County-level employment was forecasted in five-year increments through 2045, by estimating a future ratio of population to employment in each county and applying it to DVRPC's adopted population forecasts. Together with the 2045 population forecasts adopted by the DVRPC Board in July 2016, these employment forecasts, adopted by the Board in October 2016, will serve as the basis for DVRPC's planning and modeling activities, and support the region's 2045 long-range plan, scheduled for adoption in July 2017.

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	2014	2015	2016	2017	2018	2019	2020
GROSS Property, plant and equipment	-	-	-	-	16,916,212	16,916,212	17,203,787
Accumulated Depreciation	-	-	-	-	7,664,762	7,775,849	8,058,979
NET PPE	-	-	-	-	9,251,450	9,140,364	9,144,808
Total Debt	-	-	-	649,415	649,415	-	-
Net Equity	-	-	-	3,405,723	3,405,723	-	-
Investor Provided Capital	-	-	-	4,055,138	4,055,138	3,944,052	-

	#DIV/0!	#DIV/0!	#DIV/0!	1.50%	1.50%	1.96%
Depreciation / GROSS PPE						
				Muni CAPX	50,000	0
				0%		100%
				CAPX/Prior Yr. GROSS PPE		
				CAPX	50,000	0
				Dep rate	1.50%	1.96%
				Half yr. Dep	0.75%	0.98%
				Dep on CAPX	375	-
				Rate of retirement	15.0%	15.0%
				Retired property	7,500	50,749
				Dep on Retired property	113	995
				Dep on Prior yr. GROSS	110,824	111,087
				Total Dep	111,087	111,087
Depreciation Expense	-	116,707	115,632	111,087	111,087	
				NET PPE		PURTA
				Rev		Reg Assessment Fee
						0.001527765
						0.005652534

	WORKING NOTES						
	2021	2022	2023	2024	2025	2026	2027
GROSS Property, plant and equipment	17,496,252	17,793,688	18,096,181	18,403,816	18,716,681	19,034,865	19,358,457
Accumulated Depreciation	8,346,922	8,639,760	8,937,577	9,240,456	9,548,485	9,861,749	10,180,339
NET PPE	9,149,330	9,153,928	9,158,604	9,163,360	9,168,196	9,173,116	9,178,118

Total Debt							
Net Equity							
Investor Provided Capital							

Depreciation / GROSS PPE	0	0	0	0	0	0	0
	100%	100%	100%	100%	100%	100%	100%
	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	344,076	349,925	355,874	361,924	368,076	374,334	380,697
	1.96%	1.96%	1.96%	1.96%	1.96%	1.96%	1.96%
	0.98%	0.98%	0.98%	0.98%	0.98%	0.98%	0.98%
	3,372	3,429	3,488	3,547	3,607	3,668	3,731
	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
	51,611	52,489	53,381	54,289	55,211	56,150	57,105
	1,012	1,029	1,046	1,064	1,082	1,101	1,119
	337,194	342,927	348,756	354,685	360,715	366,847	373,083
	339,555	345,327	351,198	357,168	363,240	369,414	375,695

Depreciation Expense



	2028	2029	2030	2031	2032
GROSS Property, plant and equipment	19,687,551	20,022,239	20,362,617	20,708,781	21,060,831
Accumulated Depreciation	10,504,346	10,833,860	11,168,976	11,509,789	11,856,396
NET PPE	9,183,205	9,188,379	9,193,641	9,198,992	9,204,435

Total Debt					
Net Equity					
Investor Provided Capital					

Depreciation / GROSS PPE

	0	0			
	100%	100%			
	2.00%	2.00%	2.00%	2.00%	2.00%
	387,169	393,751	400,445	407,252	414,176
	1.96%	1.96%	1.96%	1.96%	1.96%
	0.98%	0.98%	0.98%	0.98%	0.98%
	3,794	3,859	3,924	3,991	4,059
	15.0%	15.0%	15.0%	15.0%	15.0%
	58,075	59,063	60,067	61,088	62,126
	1,138	1,158	1,177	1,197	1,218
	379,426	385,876	392,436	399,107	405,892
	382,081	388,577	395,183	401,901	408,733

Depreciation Expense



		WORKING NOTES							
		2021	2022	2023	2024	2025	2026	2027	
		<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	
		2021	2022	2023	2024	2025	2026	2027	
		-	-	-	-	-	-	-	
		<u>191</u>	<u>71</u>	<u>72</u>	<u>56</u>				
		118,750.00	118,750.00	118,750.00	23,750.00	23,750.00	23,750.00	23,750.00	
		2,303,450	2,314,950	2,326,450					
		5020	5045	5070	5075	5080	5085	5090	
		25	25	25	5	5	5	5	
		5007.5	5032.5	5057.5					
		\$ 460.00	\$ 460.00	\$ 460.00					
		72	56	0	0.10%	0.10%	0.10%	0.10%	
		13	13	13	13	13	13	13	
		5,300	5,356	5,356	5,361	5,366	5,372	5,377	
		3,365,838	3,406,729	3,647,219	3,649,043	3,784,189	3,787,973	3,947,223	
				107.06%			100.00%		
		635.10	636.10	681.00	680.66	705.16	705.16	734.07	
		0	0	0	0	0	0	0	
		670.49	675.27	719.37	719.02	744.92	744.93	775.49	
		0	0	0	0	0	0	0	
		3,365,838	3,383,606	3,406,729	3,649,043	3,650,868	3,786,081	3,789,867	
		2021	2022	2023	2024	2025	2026	2027	
				3rd					
			6.5%		3.6%		4.1%		

	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>
	<u>9</u>	<u>10</u>			
	-	-			
	23,750.00	23,750.00	23,750.00	23,750.00	23,750.00
Sewer Rental Charges					
EDUs	5095	5100	5105	5110	5115
	5	5	5	5	5
	0.10%	0.10%	0.10%	0.10%	0.10%
	13	13	13	13	13
	5,383	5,388	5,393	5,399	5,404
Tc	3,951,170	4,117,281	4,121,399	4,298,792	4,303,091
	734.07	764.17	764.17	796.27	796.27
	0	0	0	0	0
	775.50	807.31	807.33	841.25	841.27
	0	0	0	0	0
	3,949,197	3,953,146	4,119,340	4,123,460	4,300,941
	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>
	4.1%		4.2%		4.2%

WORKING NOTES							
	2014	2015	2016	2017	2018	2019	2020
					\$ 668.55	\$ 643.80	\$ 639.44
						63,795	22,837
						3,383,795	3,342,837
						-	-
Prior yr							
NET PURTA			0.1432%				13,089
REV Reg Assessment			0.5690%				18,891
							31,980

East Norriton Township Wastewater System Assets

Investor Provided	4,055,138
Gross PP&E	16,916,212
Net PP&E	9,251,450
Revenues	3,320,000
EBITDA	612,827
EBIT	612,827
Customers	4,966
Population	14,296

		WORKING NOTES						
		2021	2022	2023	2024	2025	2026	2027
\$	639.44	\$ 681.00	\$ 681.00	\$ 681.00	\$ 705.52	\$ 705.52	\$ 734.44	\$ 734.44
\$	-	\$ 41.56	-	-	24.52	-	28.93	-
	23,001	3,628,167	-	-	1,824	1,825	1,892	1,894
	3,365,838	3,406,729	3,647,219	3,649,043	3,784,189	3,787,973	3,947,223	-
	-	221,437	-	131,366	-	-	155,307	-
	13,095	13,102	13,108	13,115	13,122	13,129	13,136	13,136
	19,021	19,152	20,644	20,753	21,511	21,532	22,437	22,437
	32,116	32,254	33,752	33,868	34,633	34,661	35,573	35,573

	2028	2029	2030	2031	2032
\$	764.55	764.55	796.66	796.66	830.12
\$	30.11	-	32.11	-	33.46
	1,974	1,976	2,059	2,061	2,149
	3,951,170	4,117,281	4,121,399	4,298,792	4,303,091
	161,998	-	173,099	-	180,730
	13,143	13,150	13,158	13,165	13,173
	22,460	23,404	23,427	24,436	24,460
	35,603	36,554	36,585	37,601	37,633

WORKING NOTES											
	2014	2015	2016	2017	2018	2019	2020				
E.Norr - SEWER											
LESS: EOS - Wages & Benefits	0	0	0	0	300,427	300,427	300,427				
LESS: EOS - Professional Services	0	0	0	0	110,000	110,000	110,000				
LESS: EOS - Electric & Power	0	0	0	0	150,000	150,000	150,000				
E.Norr - SEWER											
Wages					300,427	300,427	300,427				
Professional Services					110,000	110,000	110,000				
Electric & Power					150,000	150,000	150,000				
E.Norr - SEWER											
Reported CAPX - from the budget	0	41,847	17,500	44,830	50,000	50,000	0				
GROSS Property, plant and equipment	-	-	-	-	16,916,212	16,916,212					
Accumulated Depreciation	-	-	-	-	7,664,762	9,251,450					
NET PPE	-	-	-	-	9,251,450	9,251,450					
Total Debt	-	-	-	13,328,868	13,328,868	13,328,868					
Net Equity	-	-	-	33,343,662	-	-					
Investor Provided Capital	-	-	-	46,672,530	13,328,868	13,328,868					
Depreciation Rate	0.00%	0.00%	0.00%	#DIV/0!	1.96%	1.96%					
Depreciation Expense	119,596	116,707	115,632	110,824	331,368.00	331,368.00					



	2021	2022	2023	2024	2025	2026	2027
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WORKING NOTES

E.Norr - SEWER  
 LESS: EOS - Wages & Benefits  
 LESS: EOS - Professional Services  
 LESS: EOS - Electric & Power

0.15  
 0.5

LESS: EOS - Wages & Benefits  
 LESS: EOS - Professional Services  
 LESS: EOS - Electric Transfers

15% savings  
 50% savings  
 10% savings

E.Norr - SEWER  
 Wages  
 Professional Services  
 Electric & Power

E.Norr - SEWER  
 Reported CAPX - from the budget

	OC Study	Per Books	Difference
GROSS Property, plant and equipment	16,916,212	-	
Accumulated Depreciation	7,664,762	-	
NET PPE	9,251,450	-	9,251,450
Total Debt	331,368		
Net Equity			
Investor Provided Capital			
Depreciation Rate			
Depreciation Expense			

	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>
E.Norr - SEWER					
LESS: EOS - Wages & Benefits	15%	0.15			
LESS: EOS - Professional Services	50%	0.5			
LESS: EOS - Electric & Power	10%	0.1			
E.Norr - SEWER					
Wages					
Professional Services					
Electric & Power					
E.Norr - SEWER					
Reported CAPX - from the budget					
GROSS Property, plant and equipment					
Accumulated Depreciation					
NET PPE					
Total Debt					
Net Equity					
Investor Provided Capital					
Depreciation Rate					
Depreciation Expense					

WORKING NOTES							
	2014	2015	2016	2017	2018	2019	2020
GROSS Property, plant and equipment	-	-	-	-	16,916,212	16,916,212	17,203,787
Accumulated Depreciation	-	-	-	-	7,664,762	7,775,849	8,058,979
NET PPE	-	-	-	-	9,251,450	9,140,364	9,144,808
Total Debt	-	-	-	649,415	649,415	-	-
Net Equity	-	-	-	3,405,723	3,405,723	-	-
Investor Provided Capital	-	-	-	4,055,138	4,055,138	3,944,052	-

	#DIV/0!	#DIV/0!	#DIV/0!	1.50%	1.50%	1.96%
Depreciation / GROSS PPE	-	116,707	115,632	111,087	111,087	111,087
Depreciation Expense	-	116,707	115,632	111,087	111,087	111,087

	Muni CAPX	0	100%
CAPX/Prior Yr. GROSS PPE	50,000	0	0
CAPX	50,000	0	2.00%
Dep rate	1.50%	1.96%	1.96%
Half yr. Dep	0.75%	0.98%	0.98%
Dep on CAPX	375	-	3,316
Rate of retirement	15.0%	15.0%	15.0%
Retired property	7,500	-	50,749
Dep on Retired property	113	-	995
Dep on Prior yr. GROSS	110,824	111,087	331,558
Total Dep	111,087	111,087	333,879

NET PPE  
Rev

PURTA 0.001527765  
Reg Assessment Fee 0.005652534

	WORKING NOTES						
	2021	2022	2023	2024	2025	2026	2027
GROSS Property, plant and equipment	17,496,252	17,793,688	18,096,181	18,403,816	18,716,681	19,034,865	19,358,457
Accumulated Depreciation	8,346,922	8,639,760	8,937,577	9,240,456	9,548,485	9,861,749	10,180,339
NET PPE	9,149,330	9,153,928	9,158,604	9,163,360	9,168,196	9,173,116	9,178,118

Total Debt							
Net Equity							
Investor Provided Capital							

Depreciation / GROSS PPE	0	0	0	0	0	0	0
	100%	100%	100%	100%	100%	100%	100%
	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	344,076	349,925	355,874	361,924	368,076	374,334	380,697
	1.96%	1.96%	1.96%	1.96%	1.96%	1.96%	1.96%
	0.98%	0.98%	0.98%	0.98%	0.98%	0.98%	0.98%
	3,372	3,429	3,488	3,547	3,607	3,668	3,731
	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
	51,611	52,489	53,381	54,289	55,211	56,150	57,105
	1,012	1,029	1,046	1,064	1,082	1,101	1,119
	337,194	342,927	348,756	354,685	360,715	366,847	373,083
	339,555	345,327	351,198	357,168	363,240	369,414	375,695

Depreciation Expense

	2028	2029	2030	2031	2032
GROSS Property, plant and equipment	19,687,551	20,022,239	20,362,617	20,708,781	21,060,831
Accumulated Depreciation	10,504,346	10,833,860	11,168,976	11,509,789	11,856,396
NET PPE	9,183,205	9,188,379	9,193,641	9,198,992	9,204,435

Total Debt					
Net Equity					
Investor Provided Capital					

Depreciation / GROSS PPE

	0	0			
	100%	100%			
	2.00%	2.00%	2.00%	2.00%	2.00%
	387,169	393,751	400,445	407,252	414,176
	1.96%	1.96%	1.96%	1.96%	1.96%
	0.98%	0.98%	0.98%	0.98%	0.98%
	3,794	3,859	3,924	3,991	4,059
	15.0%	15.0%	15.0%	15.0%	15.0%
	58,075	59,063	60,067	61,088	62,126
	1,138	1,158	1,177	1,197	1,218
	379,426	385,876	392,436	399,107	405,892
	382,081	388,577	395,183	401,901	408,733

Depreciation Expense

WORKING NOTES

2014                      2015                      2016                      2017                      2018                      2019                      2020

1  
2020

E.Norr - SEWER

2019  
*budget*

2018  
*budget*

CIP

FIX CIP

0                      0                      -

2018                      2019  
118,750.00                      -

Sewer Rental Charges  
EDUs

0	2,920,612	3,254,705	3,206,187	3,320,000	3,320,000	3,342,837
0	0	0	0	4970	4970	4995
	0	0	0	0	0	25
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	2485	4970	4982.5
	#DIV/0!	#DIV/0!	#DIV/0!	668.0080483		
	#DIV/0!	#DIV/0!	#DIV/0!	1336.016097	\$ 460.00	460.00

Customer Growth  
Delivered to Customer

71

191

12

12.08

-

1742000

13

5,228

3,342,837

639.44

0

Customers

13

5,157

4,966

4,966

4,966

4,970

5,228

3,342,837

639.44

0

Total Revenue (Less TAP, Abg, Jenk)

3,342,837

3,320,000

3,320,000

3,206,187

3,254,705

3,206,187

3,342,837

639.44

0

avg CUST rev

639.44

643.80

668.55

645.63

655.40

643.80

639.44

0

avg CUST flow

0

0

0

0

-

0

0

0

avg EDU rev

669.24

668.01

668.01

#DIV/0!

#DIV/0!

#DIV/0!

669.24

0

avg EDU flow

0

0

0

#DIV/0!

#DIV/0!

#DIV/0!

0

0

Rev Calculated

3,342,837

3,447,590

3,447,590

3,447,590

3,447,590

3,447,590

3,447,590

3,447,590

2020

2019

Change

	WORKING NOTES							
	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	
	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	
	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	
	-	-	-	-	-	-	-	
	<u>191</u>	<u>71</u>	<u>72</u>	<u>56</u>				
	118,750.00	118,750.00	118,750.00	23,750.00	23,750.00	23,750.00	23,750.00	
Sewer Rental Charges	2,303,450	2,314,950	2,326,450					
EDUs	5020	5045	5070	5075	5080	5085	5090	
	25	25	25	5	5	5	5	
	5007.5	5032.5	5057.5					
\$	460.00	\$ 460.00	\$ 460.00					
	72	56	0	0.10%	0.10%	0.10%	0.10%	
	13	13	13	13	13	13	13	
	5,300	5,356	5,356	5,361	5,366	5,372	5,377	
Tot	3,365,838	3,406,729	4,054,749	4,056,776	4,198,901	4,203,100	4,362,974	
			119.02%			100.00%		
	635.10	636.10	757.09	756.71	782.44	782.44	811.39	
	0	0	0	0	0	0	0	
	670.49	675.27	799.75	799.36	826.56	826.57	857.17	
	0	0	0	0	0	0	0	
	3,365,838	3,383,606	3,406,729	4,056,776	4,058,804	4,201,000	4,205,202	
	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	
		18.4%		3.4%		3.7%		
			3rd					

	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>
	<u>9</u>	<u>10</u>			
	-	-			
	23,750.00	23,750.00	23,750.00	23,750.00	23,750.00
Sewer Rental Charges	5095	5100	5105	5110	5115
EDUs	5	5	5	5	5
	0.10%	0.10%	0.10%	0.10%	0.10%
	13	13	13	13	13
	5,383	5,388	5,393	5,399	5,404
Totals	4,367,337	4,533,457	4,537,990	4,715,144	4,719,860
	811.39	841.41	841.41	873.39	873.39
	0	0	0	0	0
	857.18	888.91	888.93	922.73	922.75
	0	0	0	0	0
	4,365,155	4,369,521	4,535,724	4,540,259	4,717,502
	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>
	3.7%		3.8%		3.9%



WORKING NOTES							
	2014	2015	2016	2017	2018	2019	2020
					\$ 668.55	\$ 643.80	\$ 639.44
						63,795	22,837
						3,383,795	3,342,837
						-	-
Prior yr							
NET PURTA			0.1432%				13,089
REV Reg Assessment			0.5690%				18,891
							31,980

East Norriton Township Wastewater System Assets

Investor Provided	4,055,138
Gross PP&E	16,916,212
Net PP&E	9,251,450
Revenues	3,320,000
EBITDA	612,827
EBIT	612,827
Customers	4,966
Population	14,296

WORKING NOTES									
	2021	2022	2023	2024	2025	2026	2027		
\$	639.44	\$ 757.09	\$ 757.09	\$ 782.83	\$ 782.83	\$ 811.80	\$ 811.80	\$	
\$	-	\$ 117.66	-	\$ 25.74	-	\$ 28.96	-	\$	
	23,001	4,033,567	-	2,027	2,028	2,099	2,102		
	3,365,838	3,406,729	4,054,749	4,056,776	4,198,901	4,203,100	4,362,974		
	-	626,838	-	137,930	-	155,515	-		
	13,095	13,102	13,108	13,115	13,122	13,129	13,136		
	19,021	19,152	22,951	23,072	23,868	23,892	24,801		
	32,116	32,254	36,059	36,187	36,990	37,021	37,937		

	2028	2029	2030	2031	2032
\$	841.83	841.83	873.82	873.82	907.90
\$	30.04	-	31.99	-	34.08
	2,181	2,184	2,267	2,269	2,358
	4,367,337	4,533,457	4,537,990	4,715,144	4,719,860
	161,591	-	172,444	-	184,075
	13,143	13,150	13,158	13,165	13,173
	24,825	25,770	25,795	26,802	26,829
	37,968	38,920	38,953	39,967	40,002

WORKING NOTES											
	2014	2015	2016	2017	2018	2019	2020				
E.Norr - SEWER											
LESS: EOS - Wages & Benefits											
LESS: EOS - Professional Services											
LESS: EOS - Electric & Power											
E.Norr - SEWER											
Wages											
Professional Services											
Electric & Power											
E.Norr - SEWER											
Reported CAPX - from the budget											
GROSS Property, plant and equipment											
Accumulated Depreciation											
NET PPE											
Total Debt											
Net Equity											
Investor Provided Capital											
Depreciation Rate											
Depreciation Expense											

	2021	2022	2023	2024	2025	2026	2027
WORKING NOTES							
E.Norr - SEWER							
LESS: EOS - Wages & Benefits		0.15			LESS: EOS - Wages & Benefits		15% savings
LESS: EOS - Professional Services		0.5			LESS: EOS - Professional Services		50% savings
LESS: EOS - Electric & Power					LESS: EOS - Electric Transfers		10% savings
E.Norr - SEWER							
Wages							
Professional Services							
Electric & Power							
E.Norr - SEWER							
Reported CAPX - from the budget							
GROSS Property, plant and equipment							
Accumulated Depreciation							
NET PPE							
Total Debt							
Net Equity							
Investor Provided Capital							
Depreciation Rate							
Depreciation Expense							

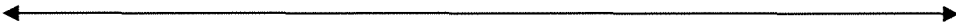
	OC Study	Per Books	Difference
	16,916,212	-	
	7,664,762	-	
	9,251,450	-	9,251,450
	331,368		

	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>
E.Norr - SEWER					
LESS: EOS - Wages & Benefits	15%	0.15			
LESS: EOS - Professional Services	50%	0.5			
LESS: EOS - Electric & Power	10%	0.1			
E.Norr - SEWER					
Wages					
Professional Services					
Electric & Power					
E.Norr - SEWER					
Reported CAPX - from the budget					
GROSS Property, plant and equipment					
Accumulated Depreciation					
NET PPE					
Total Debt					
Net Equity					
Investor Provided Capital					
Depreciation Rate					
Depreciation Expense					

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

# TRENDS OF PUBLIC UTILITY CONSTRUCTION COSTS

## GEOGRAPHIC REGIONS









Series Id: PCU2381MR2381MR

Series Title: PPI industry data for  
Nonresidential building maintenance &  
repair, not seasonally adjusted

Industry: Nonresidential building  
maintenance & repair

Product: Nonresidential building  
maintenance & repair  
Base Date: 2009Q4

1978  
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Series Id: PCU2381MR2381MR

Series Title: PPI industry data for  
Nonresidential building maintenance &  
repair, not seasonally adjusted

Industry: Nonresidential building  
maintenance & repair

Product: Nonresidential building  
maintenance & repair  
Base Date: 2009Q4

2003	100.7111
2004	100.7111
2005	100.7111
2006	100.7111
2007	100.7111
2008	100.7111
2009	100.711111
2010	102.19167
2011	103.45833
2012	104.99167
2013	106.85
2014	109.15833
2015	111.3
2016	112.94167
2017	115.4
2018	117.45
SPOT	119.3

Legal Company Name	Enterprise Value	Sales-Net 12MM	EBITDA 12MM	EBIT 12MM	Total Gross-Qty	PP&E-Qty	PP&E-Total Net Qty	Invested Capital-w/ST debt Qty	Enterprise value to Gross PPE	Enterprise value to Net PPE	Enterprise value to Inv Cap	Enterprise value to Sales x	Enterprise value to EBITDA x	Enterprise value to EBIT x	Current Period Monthly	Enterprise value to Population	Enterprise value to Customers	Population Customers	AVG INV CAP	EBIT 2	TAX RATE 12MM
American S	3005.088621	436.81598	139.78697	100.14597	1819.259	21882	1296.3101	945.49089	1.6518201	2.3181866	3.1783369	6.87953	21.49763	30.007084	Feb19	3005.0886	10610.327	1000000	283223	10.858721	22.002011
American W	26821.01758	3440	1684	1139	1819.259	21882	1296.3101	945.49089	1.2257114	1.6672479	1.85292	7.7968074	15.92697	23.547864	Feb19	1788.0678	7999.1105	15000000	3353000	8.1919609	27.954257
Aqua Amer	8807.495338	838.09099	543.17299	397.14101	7447.2383	5930.3242	4407.8281	4407.8281	1.1826525	1.4851625	1.9981485	10.508897	16.214899	22.17725	Feb19	2935.8318	8960.2777	30000000	982949	9.2342512	-7.6653479
Artesian Re	490.7005938	81.255966	35.403	25.249002	616.27197	491.00098	279.29788	0.7962403	0.9993882	1.7569077	6.0389485	13.860424	19.434455	28.443812	Feb19	1692.071	5672.8392	2900000	86500	9.3409093	27.237976
California V	3327.47113	685.853	198.79398	116.98401	3169.7261	2185.7419	1606.256	1.0497661	1.5223531	2.0715696	4.8515807	16.73829	28.443812	Feb19	1663.7356	6469.903	2000000	514300	7.7585093	23.332398	
Middlesex V	1161.114269	136.26497	53.238991	38.459992	753.62402	599.104	444.49692	1.5407076	1.9380846	2.6121987	8.5210034	21.809472	30.190185	Feb19	2818.2385	10103.674	412000	114920	9.2663038	10.254915	
SIW Group	1849.581543	397.69899	146.65097	92.04997	1979.9199	1372.8298	1420.7358	0.9341699	1.3472766	1.3018476	4.6507072	12.612133	20.093234	Feb19	1681.1321	7576.1226	1100200	244133	9.1231776	20.611462	
York Water	562.6994008	48.721	29.766999	22.827001	375.57983	297.02783	215.60201	1.4982152	1.8944332	2.6098987	11.549422	18.903464	24.650606	Feb19	2841.9162	8084.2969	198000	69604	10.782018	19.373333	
	2427.335082	417.25748	143.21897	96.09797	1899.5895	1334.5699	1183.1134	1.204182	1.5948005	2.0348591	7.3381687	16.476594	24.099235		2303.1532	8041.7037	1050100	263678	9.2502775	21.306736	

	DELCORA		BCWSA	
	<u>2014</u>	<u>2015</u>	<u>2014</u>	<u>2016</u>
NET Property, plant and equipment	163,200,336	182,422,188	391,815,659	443,437,532
Operating Income	7,235,196	9,093,800	22,919,169	23,341,549
ROR/N PPE	4.43%	4.99%	5.85%	5.26%
3-Year Average		5.29%	5.14%	5.4%

Series Id: PCU3342--3342--

Series Title: PPI industry group data for Communications equipment mfg, not seasonally adjusted

Industry: Communications equipment mfg

Product: Communications equipment mfg

Base Date: 198512

Download:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1985												100
1986	100.7	100.7	101.1	101.1	101.3	101.3	102.5	102.2	102.8	102.9	102.9	102.9
1987	103.6	103.4	103.4	103.4	103.4	103	103.6	103.6	103.4	103.6	103.7	103.8
1988	104.3	104.3	103.3	103.5	103.7	103.2	103.8	103.8	103.9	104.1	104.3	104.3
1989	105	105	104.9	105.2	105.3	105.5	106.5	106.3	106.3	106.4	106.4	106.5
1990	107.6	107.2	107.1	107.2	107.2	107.3	107.6	107.5	107.6	107.7	107.8	107.9
1991	108	108	108.2	108.4	108.4	108.4	108.7	108.7	108.7	108.7	108.9	108.9
1992	109.4	109.5	109.7	109.7	109.7	109.8	109.6	109.8	109.8	109.9	109.9	110.1
1993	111	111.3	111.4	111.1	111.1	111.2	111.6	112	112	112.6	112.3	112.6
1994	113.3	113.5	113.8	113.7	113.7	113.4	113.4	113.2	113.2	113	112.9	112.8
1995	114	114	114.1	114.3	114.3	113.8	113.7	113.8	113.8	113.8	113.7	113.6
1996	114.6	114.7	114.7	114.8	114.7	114.7	114.9	115.1	115.1	115.3	115.6	115.6
1997	115.7	115.8	115.4	115.5	115.7	115.7	116	115.7	115.8	115.8	115.7	115.7
1998	115.9	115.8	115.5	115.1	114.7	114.7	114.9	114.8	114.8	114.8	114.7	114.1
1999	114.5	113.8	113.8	113.5	113.4	113.1	113.2	113.2	111.9	112.1	111.9	111.3
2000	111.4	110.9	110.7	110.4	110.1	110.1	110.2	110.2	110.3	110.2	110.2	110.2
2001	110.4	110.4	110.4	108.5	108.6	108.5	108.1	107.6	107.8	107.8	107.7	107.7
2002	107.5	106.6	106.5	105.7	105.6	105.3	104.3	104.5	104.5	103.6	103.5	102.8
2003	102.7	101.9	102.8	102.7	102.6	102.1	101	101.1	101.4	100.5	100.9	100.9
2004	100.7	98.6	98.6	98.5	98.6	98.2	97.9	98.3	97.9	97.3	97.9	97.8
2005	97.5	97.3	97.4	97.5	97.4	97.2	97.1	97	96.6	96.6	96.5	96.4
2006	95.7	96.1	95.9	96	96	96.1	95.8	96	96.1	95.8	95.8	95.3
2007	95.5	95.7	95.9	95.8	95.8	95.8	95.8	95.8	95.8	95.9	95.8	95.8
2008	96.2	96.9	96.8	96.9	97.2	97.1	97.3	97.3	97.3	97.2	97.4	97.4
2009	97.5	97.2	97.2	97.2	97.1	97.1	97.2	97.1	97.2	97.2	97.2	97.2
2010	97.2	97.1	97.1	96.9	96.8	96.7	97	96.9	96.8	96.8	96.9	96.9
2011	96.8	96.7	96.8	96.4	96.4	96.2	96.3	96.4	96.4	95.9	95.9	95.9
2012	96	96	96	96	96.1	96.1	96	95.9	95	94.8	94.8	94.8
2013	95	95.1	95.1	95.3	95.2	95.5	95.5	95.6	95.8	95.4	95.4	95.5
2014	95.5	95.7	95.7	95.7	95.6	95.7	95.7	95.4	95.6	95.7	95.5	95.7
2015	95.8	95.8	95.9	95.9	96.1	96.1	96	95.9	95.4	95.7	95.7	95.6
2016	95.5	95.7	95.6	95.7	95.6	95.4	95.3	95.4	95.2	94.5	94.7	93.9
2017	94.1	93.9	94.1	94	93.8	93.9	93.9	93.6	93.3	93.2	93.5	93.4
2018	93.3	93.4	93.2	93.1	93.1	93.1	93	93.1	92.9	92.9	92.9	93.1
2019	93.3(P)	93.0(P)	93.1									

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

93.1(P)

Series Id: PCU3342--3342--

Series Title: PPI industry group data for Communications equipment mfg, not seasonally adjusted

Industry: Communications equipment mfg

Product: Communications equipment mfg

Base Date: 198512

Download:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1985												100
1986	100.7	100.7	101.1	101.1	101.3	101.3	102.5	102.2	102.8	102.9	102.9	102.9
1987	103.6	103.4	103.4	103.4	103.4	103	103.6	103.6	103.4	103.6	103.7	103.8
1988	104.3	104.3	103.3	103.5	103.7	103.2	103.8	103.8	103.9	104.1	104.3	104.3
1989	105	105	104.9	105.2	105.3	105.5	106.5	106.3	106.3	106.4	106.4	106.5
1990	107.6	107.2	107.1	107.2	107.2	107.3	107.6	107.5	107.6	107.7	107.8	107.9
1991	108	108	108.2	108.4	108.4	108.4	108.7	108.7	108.7	108.7	108.9	108.9
1992	109.4	109.5	109.7	109.7	109.7	109.8	109.6	109.8	109.8	109.9	109.9	110.1
1993	111	111.3	111.4	111.1	111.1	111.2	111.6	112	112	112.6	112.3	112.6
1994	113.3	113.5	113.8	113.7	113.7	113.4	113.4	113.2	113.2	113	112.9	112.8
1995	114	114	114.1	114.3	114.3	113.8	113.7	113.8	113.8	113.8	113.7	113.6
1996	114.6	114.7	114.7	114.8	114.7	114.7	114.9	115.1	115.1	115.3	115.6	115.6
1997	115.7	115.8	115.4	115.5	115.7	115.7	116	115.7	115.8	115.8	115.7	115.7
1998	115.9	115.8	115.5	115.1	114.7	114.7	114.9	114.8	114.8	114.8	114.7	114.1
1999	114.5	113.8	113.8	113.5	113.4	113.1	113.2	113.2	111.9	112.1	111.9	111.3
2000	111.4	110.9	110.7	110.4	110.1	110.1	110.2	110.2	110.3	110.2	110.2	110.2
2001	110.4	110.4	110.4	108.5	108.6	108.5	108.1	107.6	107.8	107.8	107.7	107.7
2002	107.5	106.6	106.5	105.7	105.6	105.3	104.3	104.5	104.5	103.6	103.5	102.8
2003	102.7	101.9	102.8	102.7	102.6	102.1	101	101.1	101.4	100.5	100.9	100.9
2004	100.7	98.6	98.6	98.5	98.6	98.2	97.9	98.3	97.9	97.3	97.9	97.8
2005	97.5	97.3	97.4	97.5	97.4	97.2	97.1	97	96.6	96.6	96.5	96.4
2006	95.7	96.1	95.9	96	96	96.1	95.8	96	96.1	95.8	95.8	95.3
2007	95.5	95.7	95.9	95.8	95.8	95.8	95.8	95.8	95.8	95.9	95.8	95.8
2008	96.2	96.9	96.8	96.9	97.2	97.1	97.3	97.3	97.3	97.2	97.4	97.4
2009	97.5	97.2	97.2	97.2	97.1	97.1	97.2	97.1	97.2	97.2	97.2	97.2
2010	97.2	97.1	97.1	96.9	96.8	96.7	97	96.9	96.8	96.8	96.9	96.9
2011	96.8	96.7	96.8	96.4	96.4	96.2	96.3	96.4	96.4	95.9	95.9	95.9
2012	96	96	96	96	96.1	96.1	96	95.9	95	94.8	94.8	94.8
2013	95	95.1	95.1	95.3	95.2	95.5	95.5	95.6	95.8	95.4	95.4	95.5
2014	95.5	95.7	95.7	95.7	95.6	95.7	95.7	95.4	95.6	95.7	95.5	95.7
2015	95.8	95.8	95.9	95.9	96.1	96.1	96	95.9	95.4	95.7	95.7	95.6
2016	95.5	95.7	95.6	95.7	95.6	95.4	95.3	95.4	95.2	94.5	94.7	93.9
2017	94.1	93.9	94.1	94	93.8	93.9	93.9	93.6	93.3	93.2	93.5	93.4
2018	93.3	93.4	93.2	93.1	93.1	93.1	93	93.1	92.9	92.9	92.9	93.1
2019	93.3(P)	93.0(P)	93.1									

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

93.1(P)



Series Id: PCU336110336110

Series Title: PPI industry data for Automobile, light truck and utility vehicle mfg, not seasonally adjusted

Industry: Automobile, light truck and utility vehicle mfg

Product: Automobile, light truck and utility vehicle mfg

Base Date: 198206

Download:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1975												62.9
1976	63	62.9	63	63.1	62.9	63	63	63.3	63.4	66.9	66.9	66.9
1977	66.8	66.8	66.9	67.1	67.2	67.3	67.3	67.4	67.4	71.4	71.3	71.4
1978	71.4	71.4	71.4	71.4	72.5	72.7	72.5	72.5	72.5	75.4	75.4	75.6
1979	76.7	76.9	77	78.3	78.4	78.5	78.7	76.8	77	81.9	81.8	82
1980	83.5	82.8	82.9	85.2	84.6	84.6	86.3	86.7	82.7	90.9	91	90.6
1981	91.4	91.6	90.7	93.3	94.1	94.5	94.6	94.4	90.2	99.7	99.8	100.1
1982	100.5	97.5	97.5	97.4	98.8	100	100.1	100.4	94.9	102.5	102.5	102.7
1983	102.2	101.8	101.4	101.6	101.7	101.8	102	102.3	97.8	104.2	104.2	104.3
1984	104.5	104.5	104.6	104.9	104.6	104.4	104.7	104.4	101	106.1	106.3	105.5
1985	106.7	106.8	106.5	106.5	107	107.3	107.3	107.2	100.2	110.4	110.4	110.2
1986	109	109.3	108.7	110.3	110	110.2	110.3	109.7	105.6	116.9	116.7	115.4
1987	115.3	112.6	111.9	113.7	112.9	112.5	112.4	111.4	108.4	116.5	115.2	112.8
1988	113	113	112.5	112.6	113	113.1	113.2	113.3	110.2	119.5	118.1	117.9
1989	117.8	118.1	116.4	115.4	116.6	116.9	114.7	114.6	113.3	122.5	121.2	120.8
1990	118.4	118.5	118	117.8	117.3	119	119.2	118.2	117.2	125	124.8	124.8
1991	125.1	125.9	125.5	124.4	123.2	122.9	122.8	122.6	120.3	131	130.3	129.5
1992	129.2	129	129.3	129.2	128.9	128.3	128.4	127.5	123.5	132.1	132.1	131.8
1993	132.1	132.9	133	132.9	132.6	132.8	132.9	132.6	128	135.7	136.2	136.3
1994	137.3	137.5	137.4	137.4	138.3	138.1	138.2	138.2	133.9	140	139.3	139.8
1995	140.1	139.9	139.3	139.1	138.7	137.8	137.7	137.2	132.9	141.7	142.4	142.4
1996	141.2	141.1	141.1	140.5	140.6	140.7	139.5	139.2	135.6	142.2	141.9	141.6
1997	141.7	141.5	141.2	140.3	138.4	138	135.9	135.9	133.7	140.6	139.4	137.8
1998	137.8	138	137.8	137.2	135.4	134.3	134.8	133.9	132.7	140.6	140.4	139.2
1999	138.2	138.7	137.7	138	137.2	136	134.7	134.4	133.4	142.1	140.8	140.5
2000	139.9	139.4	139	138.9	138.9	137.4	136.8	135.8	135.5	141.2	141.3	141.1
2001	140.3	137.7	138.1	138.9	136.9	135.9	136.5	136	135.8	138.3	137.8	138.3
2002	136.8	137.7	136.4	136	134.9	134.4	131.3	130.3	130.4	139	136.5	135
2003	135.7	135.8	138.5	134	133.6	132	131.6	132	130.5	140.7	139	137.6
2004	137.4	136.8	137.1	135.9	136.2	136.2	132.8	132.4	131.5	142	139.9	139.5
2005	139.8	137.4	136.8	136.5	135.8	132.6	132.8	131.7	131.9	137.8	134.8	132.9
2006	133.7	133.7	133.4	132.3	132	130.6	123.7	125.7	126.5	129.4	135	133.8
2007	132.8	132.5	131.9	130.5	130.1	129.8	129.2	128.2	126.6	134.1	134.8	132.9
2008	133.6	133.5	132.1	133.1	132.2	129.5	128.2	129.1	128.7	139.4	137.7	137.6
2009	137	136.8	136	136.7	136.1	137.9	134.6	136.1	133.8	138.3	139.5	138.1
2010	139.3	139	137.8	137.2	137.3	135.4	134.8	135	134.5	137.7	137	136.4
2011	137	137	136.7	137.4	136.7	136.9	136.7	136.5	135.7	140.6	140.7	140.3
2012	141	140.4	140.3	140.6	139.7	140.1	140.9	140.8	139.6	143.9	144.1	143.6
2013	143.4	143.3	142.6	142.4	141.7	141.3	140.7	140.4	140.2	144.8	145.6	146.4
2014	146.8	146.6	145.5	145.2	144.4	143.8	143.6	143.4	142.6	148	147.8	146.3
2015	147.8	149.4	149.2	148.7	148.5	148.1	148.5	147.4	147.2	150.7	150.6	150.5
2016	149.9	150.2	149.8	149.6	149.7	149.8	148.5	147.7	147.6	152.7	152.4	153.4
2017	152.6	152.3	152.9	152.8	151.2	151.2	150.1	149.8	149.8	153.5	154.3	154.3
2018	153.3	152.9	152.9	152.5	152.5	152.7	152.2	152.1	152.4	155.3	155.2	155
2019	154.9(P)	154.6(P)	153.7									

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

			153.7(P)									
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**Series Id:** PCU3343--3343--

**Series Title:** PPI industry group data for Audio & video equipment mfg, not seasonally adjusted

**Industry:** Audio & video equipment mfg

**Product:** Audio & video equipment mfg

**Base Date:** 200312

Download

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003												100
2004	99.9	100.6	99.8	98.7	98.7	98.3	97.3	97.1	96.8	96.6	96.6	96.7
2005	96.8	96.8	96.4	96	96.2	96.2	96.1	96.2	94.1	94.1	94.2	94.2
2006	95.5	95.5	95.4	95.4	93.4	93.1	92.5	92.5	92.5	92.8	92.8	92.8
2007	92.8	92.6	92.6	92.6	92.6	92.6	91.6	88.5	88.5	88.6	88.6	88.6
2008	88.6	88.6	88.9	88.8	88.8	88.9	90.6	90.6	90.9	89.7	89.3	88.5
2009	88.7	88	87.4	86.3	85.3	84.3	84.2	84.2	84.3	84.3	84.3	84.3
2010	84.4	84.4	84.4	84.4	84.4	84.3	84.3	84.3	84.3	84.5	84.5	84.2
2011	83.2	83.7	84.1	83.5	83.5	83.5	83.9	84.7	84.7	85	85.1	85
2012	84.4	84.9	84.9	84.3	84.2	84.2	84.3	84.1	84.1	84.1	84.1	84.1
2013	84.7	82.3	82.4	82.4	82.2	82.4	82.5	82.5	82.4	82.4	82.4	82.4
2014	82.5	82.6	82.6	82.7	82.7	82.7	82.7	82.8	82.8	82.8	82.8	82.9
2015	82.9	83	83	82.9	82.9	82.9	82.9	83	82.8	82.8	82.8	82.8
2016	82.8	82.9	82.9	83	83	83.1	83.1	83.2	83.2	83.2	83.2	83.2
2017	83.2	83.2	83.1	83.2	83.3	83.2	83.1	82.9	83	83	82.9	82.9
2018	82.9	82.9	83.2	82.8	82.7	82.7	82.8	82.7	82.5	82.4	82.6	83
2019	82.9(P)	83.0(P)	83									

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

**Series Id:** PCU2381MR2381MR

**Series Title:** PPI industry data for Nonresidential building maintenance & repair, not seasonally adjusted

**Industry:** Nonresidential building maintenance & repair

**Product:** Nonresidential building maintenance & repair

**Base Date:** 200904

Download

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2009				100	100.2	100.6	100.6	100.6	100.9	101.2	101.1	101.2
2010	101.6	102	102	101.9	102.1	102.1	102.3	102.3	102.3	102.4	102.6	102.7
2011	102.7	102.9	103	102.8	103.3	103.5	103.6	103.8	103.9	104	104	104
2012	104.9	104.8	104.9	104.9	105	105	105	105	105.1	105.1	105.1	105.1
2013	106	106.4	106.8	106.8	106.8	106.8	106.8	106.9	107.2	107.2	107.3	107.2
2014	108.2	108.3	108.5	108.7	108.8	109	109.3	109.4	109.6	109.9	110.1	110.1
2015	110.4	110.4	110.6	110.8	111.2	111.5	111.6	111.6	111.7	111.8	112	112
2016	112	112.1	112.1	112.2	112.5	112.5	112.6	113.4	113.7	113.7	114	114.5
2017	114.7	114.8	115	115.1	115.3	115.4	115.5	115.6	115.7	115.9	115.9	115.9
2018	116.5	116.5	116.8	116.9	117.2	117.3	117.4	117.7	117.8	118.3	118.5	118.5
2019	118.9(P)	118.8(P)	119.3									

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

119.3(P)

# **2017** SBBI Yearbook

## Stocks, Bonds, Bills, and Inflation

U.S. Capital Markets Performance by Asset Class 1926–2016

Duff & Phelps

**WILEY**

appropriate price adjustments are made to account for stock splits and dividends. The return on a portfolio for one month is calculated as the weighted average of the returns for its individual stocks. Annual portfolio returns are calculated by compounding the monthly portfolio returns.<sup>77</sup>

### Size of the Deciles

Exhibit 7.1 provides an overview of the CRSP deciles and size groupings in terms of relative size (by aggregate market capitalization) and number of companies as of December 31, 2016.

Decile 1 has 191 companies in it, and accounts for nearly two-thirds of aggregate market cap (66.12%). Decile 10 has 790 companies in it, and accounts for less than 1% of aggregate market cap (0.40%).

**Exhibit 7.1:** Aggregate Market Capitalization and Company Counts of the CRSP (NYSE/NYSE MKT/ NASDAQ) Deciles and Size Groupings  
December 31, 2016

Decile	Historic Average Percentage of Total Capitalization	Recent Number of Companies	Recent Decile Market Capitalization (in \$thousands)	Recent Percentage of Total Capitalization
1-Largest	63.13%	191	15,290,475,300	66.12%
2	13.95%	200	3,010,671,018	13.02%
3	7.55%	202	1,609,575,618	6.96%
4	4.73%	221	1,010,851,810	4.37%
5	3.26%	227	677,120,067	2.93%
6	2.41%	259	541,037,999	2.34%
7	1.79%	283	384,129,198	1.66%
8	1.33%	361	297,164,943	1.28%
9	1.03%	487	212,609,644	0.92%
10-Smallest	0.82%	790	92,882,169	0.40%
Mid-Cap 3-5	15.54%	650	3,297,547,494	14.26%
Low-Cap 6-8	5.53%	903	1,222,332,139	5.29%
Micro-Cap 9-10	1.85%	1,277	305,491,813	1.32%

**Source of underlying data:** Calculated (or derived) based on data from CRSP ©2017 Center for Research in Security Prices (CRSP®), The University of Chicago Booth School of Business (2017). Calculations by Duff & Phelps, LLC.

<sup>77</sup> According to CRSP, in 2016 CRSP "performed a comprehensive check and found changes to index levels back to 1977. Almost all of the changes are due to CRSP adding factor[s] to adjust price values for distribution codes 5663 & 5773. These edits were made in the 201612 iteration. ". These edits are detailed in the CRSP document "STOCK & INDEX RELEASE NOTES, December 2016 Annual UPDATE" (available at: [http://www.crsp.com/files/images/release\\_notes/mdaz\\_201612\\_annual.pdf](http://www.crsp.com/files/images/release_notes/mdaz_201612_annual.pdf)). This review of the database caused small changes in the returns over the 1926–2015 period (calculated using the December 31, 2015 data cut) compared to the returns over the 1926–2015 period (calculated using the December 31, 2016 data cut). These changes were not material: the largest/smallest change to the geometric mean return of CRSP standard market-cap-weighted deciles 1–10 over this period was 0.0044%/–0.0146%; the average/median change was –0.0007%/0.0003%.

In Exhibit 7.2, the largest company in each of the CRSP (NYSE/NYSE MKT/NASDAQ) deciles and size groupings (by market capitalization) are listed as of September 30, 2016.

**Exhibit 7.2:** Largest Company (by market capitalization) in CRSP (NYSE/NYSE MKT/NASDAQ) Deciles and Size Groupings as of September 30, 2016

<u>Decile</u>	<u>Company Name</u>	<u>Recent Market Capitalization (in \$thousands)</u>
1-Largest	Apple Inc.	609,163,498
2	Apache Corp.	24,233,747
3	Textron Inc.	10,711,194
4	C F Industries Holdings Inc.	5,676,716
5	Ellie Mae Inc.	3,512,913
6	Generac Holdings Inc.	2,390,899
7	Flagstar Bancorp Inc.	1,569,984
8	SEACOR Holdings Inc.	1,030,426
9	Kadant Inc.	567,843
10-Smallest	Pioneer Energy Services Corp.	262,891

**Source of underlying data:** CRSP databases ©2017 Center for Research in Security Prices (CRSP<sup>®</sup>), The University of Chicago Booth School of Business (2017).

The CRSP deciles are re-constituted and rebalanced at the end of each calendar quarter (March, June, September, and December). These quarter-end portfolios are then followed for the subsequent three months. For example, the breakpoints in Exhibit 7.2 were a key input in defining the companies placed in each decile at the end of September 2016; these portfolio compositions were then used to calculate the October, November, and December 2016 returns associated with each decile.<sup>7,8</sup>

<sup>7,8</sup> According to the *2017 Valuation Handbook – U.S. Guide to Cost of Capital*, large-capitalization companies (those in CRSP deciles 1–2) have equity capitalizations greater than \$10,711.194 million; mid-capitalization companies (those in CRSP deciles 3–5) have equity capitalizations between \$2,392.689 million and \$10,711.194 million (inclusive), low-capitalization companies (those in CRSP deciles 6–8) have equity capitalizations between \$569.279 million and \$2,390.899 million (inclusive), and micro-capitalization companies (those in CRSP deciles 9–10) have equity capitalizations of equal to or less than \$567.843 million.

History tells us that small companies are riskier than large companies. Exhibit 7.6 shows the standard deviation (a measure of risk) for each decile of the NYSE/ NYSE AMEX/NASDAQ. As one moves from CRSP decile 1 (comprised of the largest companies) to CRSP decile 10 (comprised of the smallest companies), the standard deviation of return grows. Investors are compensated for taking on this additional risk by the higher returns provided by small companies.

The increased risk faced by investors in small stocks is quite real. It is important to note, however, that the risk/return profile is over the *long-term*. The long-term expected return for any asset class is quite different from short-term expected returns. Investors in small-cap stocks should expect losses and periods of underperformance relative to large-cap stocks, however, the longer small-cap companies are given to "race" against large-cap companies, the greater the chance that small-cap companies outpace their larger counterparts.

**Exhibit 7.6:** Summary Statistics of Annual Returns (CRSP NYSE/NYSE MKT/NASDAQ Deciles) (%) 1926–2016

<u>Decile</u>	<u>Geometric Mean</u>	<u>Arithmetic Mean</u>	<u>Standard Deviation</u>	<u>Serial Correlation</u>
1 - Largest	9.3	11.1	18.9	0.07
2	10.6	12.8	21.5	0.01
3	11.0	13.6	23.3	-0.03
4	10.8	13.8	25.6	-0.03
5	11.5	14.6	26.2	-0.03
6	11.4	14.8	27.1	0.01
7	11.6	15.4	29.0	0.01
8	11.6	16.1	33.0	0.00
9	11.6	17.0	37.2	0.06
10	13.3	20.3	42.5	0.14
Mid-Cap	11.1	13.8	24.4	-0.03
Low-Cap	11.5	15.3	28.7	0.01
Micro-Cap	12.1	18.0	38.8	0.08
The "Market" (Deciles 1-10)	9.8	11.8	20.0	0.01

**Source of underlying data:** Calculated (or derived) based on data from CRSP US Stock Database and CRSP US Indices Database ©2017 Center for Research in Security Prices (CRSP®), The University of Chicago Booth School of Business. Used with permission. All calculations performed by Duff & Phelps, LLC.

**Exhibit 7.8:** Size-Decile Portfolios of the NYSE/NYSE MKT/NASDAQ Long-Term Returns in Excess of CAPM  
1926–2016

<u>Size Grouping</u>	<u>OLS Beta</u>	<u>Arithmetic Mean</u>	<u>Return in Excess of Risk-free Rate (actual)</u>	<u>Return in Excess of Risk-free Rate (as predicted by CAPM)</u>	<u>Size Premium</u>
Mid-Cap (3–5)	1.12	13.82%	8.80%	7.79%	1.02%
Low-Cap (6–8)	1.22	15.26%	10.24%	8.49%	1.75%
Micro-Cap (9–10)	1.35	18.04%	13.02%	9.35%	3.67%
<u>Breakdown of Deciles 1–10</u>					
1-Largest	0.92	11.05%	6.04%	6.38%	-0.35%
2	1.04	12.82%	7.81%	7.19%	0.61%
3	1.11	13.57%	8.55%	7.66%	0.89%
4	1.13	13.80%	8.78%	7.80%	0.98%
5	1.17	14.62%	9.60%	8.09%	1.51%
6	1.17	14.81%	9.79%	8.14%	1.66%
7	1.25	15.41%	10.39%	8.67%	1.72%
8	1.30	16.14%	11.12%	9.04%	2.08%
9	1.34	16.97%	11.96%	9.28%	2.68%
10-Smallest	1.39	20.27%	15.25%	9.66%	5.59%

Betas are estimated from monthly returns in excess of the 30-day U.S. Treasury bill total return, January 1926–December 2016. Historical riskless rate measured by the 91-year arithmetic mean income return component of 20-year government bonds (5.02%). Calculated in the context of the CAPM by multiplying the equity risk premium by beta. The equity risk premium is estimated by the arithmetic mean total return of the S&P 500 (11.95%) minus the arithmetic mean income return component of 20-year government bonds (5.02%) from 1926–2016. Source: Morningstar Direct and CRSP. Calculated based on data from CRSP US Stock Database and CRSP US Indices Database ©2017 Center for Research. Used with permission. All calculations performed by Duff & Phelps, LLC.

**Pennsylvania Municipalities, Total Decennial Population, 2010 & 2000**

Prepared by The Pennsylvania State Data Center

Source: U.S. Census Bureau, Census 2000 & 2010 Redistricting Data (Public Law 94-171) Summary File.

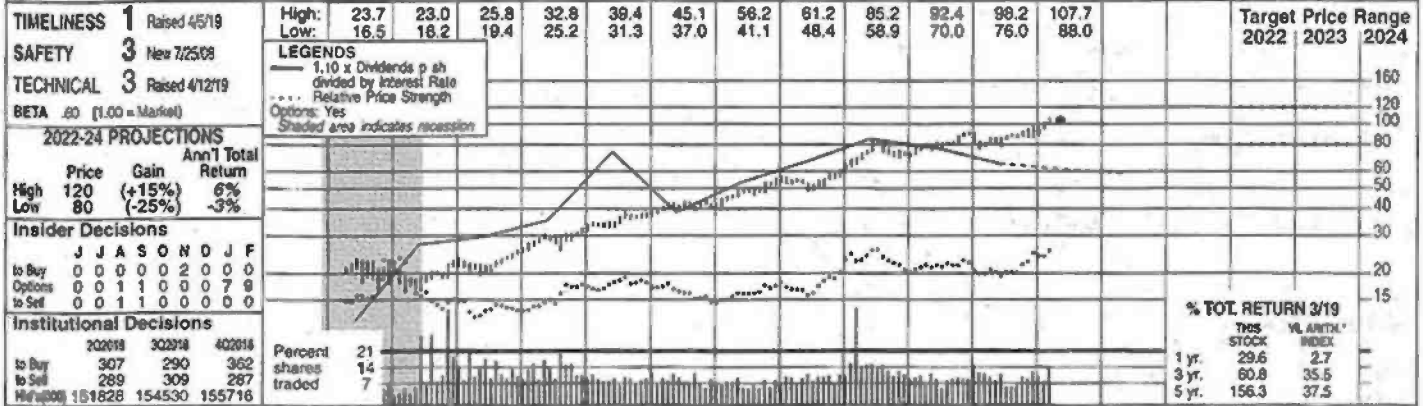
March 9, 2011

2010 State, County & Munic. FIPS Code	Geographic Area	Census: April 1, 2010			Census: April 1, 2000			Change: 2000 to 2010			
		Number	Percent Share of State Total	Munic. Pop. Rank	Number	Percent Share of State Total	Munic. Pop. Rank	Number	Munic. Rank	Percent	Munic. Rank
<b>4202900000</b>	<b>Chester County</b>	<b>498,886</b>	<b>3.9%</b>	<b>-</b>	<b>433,501</b>	<b>3.5%</b>	<b>-</b>	<b>65,385</b>	<b>-</b>	<b>15.1%</b>	<b>-</b>
4202903384	Atglen borough	1,406	0.0%	1,533	1,217	0.0%	1,650	189	555	15.5%	291
4202903656	Avondale borough	1,265	0.0%	1,614	1,108	0.0%	1,723	157	611	14.2%	321
4202906544	Birmingham township	4,208	0.0%	683	4,221	0.0%	664	-13	1421	-0.3%	1,316
4202910824	Caln township	13,817	0.1%	167	11,916	0.1%	183	1,901	105	16.0%	272
4202912744	Charlestown township	5,671	0.0%	496	4,051	0.0%	683	1,620	132	40.0%	60
4202914712	Coatesville city	13,100	0.1%	184	10,838	0.1%	212	2,262	79	20.9%	186
4202919752	Downingtown borough	7,891	0.1%	334	7,589	0.1%	327	302	427	4.0%	898
4202920824	East Bradford township	9,942	0.1%	255	9,405	0.1%	251	537	296	5.7%	743



AMER. STATES WATER NYSE-AWR		RECENT PRICE	70.31	P/E RATIO	37.6 (Trailing: 40.3 Median: 21.0)	RELATIVE P/E RATIO	2.16	DIV'D YLD	1.6%	VALUE LINE	1788					
<b>TIMELINESS</b> 1 Raised 4/12/19	<b>SAFETY</b> 2 Raised 7/20/12	<b>TECHNICAL</b> 2 Lowered 2/22/19	BETA .70 (1.00 = Market)	High: 21.0 Low: 13.5	19.4 14.9	19.8 15.6	18.2 15.3	24.1 17.0	33.1 24.0	38.7 27.0	44.1 35.8	47.2 37.3	58.4 41.1	69.6 50.1	72.5 63.3	Target Price Range 2022 2023 2024
<b>2022-24 PROJECTIONS</b> Price Gain Ann'l Total High 75 (-5%) 4% Low 55 (-20%) -3%																
<b>Insider Decisions</b> J J A S O N D J F to Buy 0 0 0 0 0 0 0 0 0 Options 0 2 0 4 0 2 3 1 2 1 to Sell 1 2 3 4 1 3 3 2 3																
<b>Institutional Decisions</b> 202018 302018 4Q2018 to Buy 105 107 140 to Sell 95 109 102 Net Buy 10 2 31 27202 26103 26276 Percent shares traded 24 18 8																
<b>2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020</b>																
<b>VALUE LINE PUB. LLC 22-24</b> Revenues per sh 15.75 "Cash Flow" per sh 4.00 Earnings per sh A 2.75 Div'd Decl'd per sh B 1.70 Cap'l Spending per sh 3.25 Book Value per sh D 19.35 Common Shs Outs'g C 37.50 Avg Ann'l P/E Ratio 23.5 Relative P/E Ratio 1.30 Avg Ann'l Div'd Yield 2.6%																
<b>CAPITAL STRUCTURE as of 12/31/18</b> Total Debt \$416.9 mill. Due in 5 Yrs \$100.7 mill. LT Debt \$376.6 mill. LT Interest \$21.5 mill. (40% of Cap'l) Leases, Uncapitalized: Annual rentals \$2.6 mill. Pension Assets-12/18 \$162.5 mill. Oblig. \$196.1 mill. Pfd Stock None Common Stock 36,774,205 shs. as of 2/12/19 MARKET CAP: \$2.6 billion (Mid Cap)																
<b>CURRENT POSITION 2016 2017 12/31/18 (\$ MILL.)</b> Cash Assets 4 2 7.1 Accts Receivable 20.0 26.1 23.4 Other 146.5 129.2 101.0 Current Assets 166.9 155.5 131.5 Accts Payable 43.7 51.0 59.5 Debt Due 90.3 59.3 40.3 Other 43.9 46.4 46.8 Current Liab. 177.9 156.7 146.6																
<b>ANNUAL RATES Past 10 Yrs. Past 5 Yrs. Est'd '16-'18 of change (per sh)</b> Revenues 3.5% -- 4.5% "Cash Flow" 8.0% 3.0% 6.0% Earnings 9.0% 4.5% 8.0% Dividends 7.5% 8.0% 8.5% Book Value 5.0% 4.0% 5.0%																
<b>QUARTERLY REVENUES (\$ mill.)</b> Cal-ender Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2016 93.5 112.0 123.8 108.8 438.1 2017 98.8 113.2 124.4 104.2 440.8 2018 94.7 108.9 124.2 111.0 438.8 2019 97.0 115 130 108 446 2020 100 118 132 115 465																
<b>EARNINGS PER SHARE A</b> Cal-ender Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2016 .28 .45 .59 .30 1.62 2017 .34 .62 .57 .35 1.88 2018 .29 .44 .62 .37 1.72 2019 .30 .55 .65 .40 1.90 2020 .33 .61 .69 .42 2.05																
<b>QUARTERLY DIVIDENDS PAID B</b> Cal-ender Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2015 .213 .213 .224 .224 .87 2016 .224 .224 .224 .242 .91 2017 .242 .242 .255 .255 .99 2018 .255 .255 .275 .275 1.06 2019 .275																
<b>BUSINESS:</b> American States Water Co. operates as a holding company. Through its principal subsidiary, Golden State Water Co., it supplies water to 259,919 customers in 70 cities in 10 counties. Service areas include the metropolitan areas of Los Angeles and Orange Counties. The company also provides electricity to 24,353 customers in Big Bear Lake and San Bernardino Cnty. Provides water & wastewater services to U.S. military bases through its ASUS sub. Sold Chaparral City Wtr. of AZ. (6/11). Employs 817. BlackRock, Inc. owns 11.7% of out. shares; Vanguard, 9.5%; off. & dir. 1.5%. (4/18 Proxy). Chairman: Lloyd Ross. Pres. & CEO: Robert Sprowls. Inc. CA. Addr.: 630 East Foothill Blvd., San Dimas, CA 91773. Tel: 909-394-3600. Internet: www.aswater.com.																
<b>American States Water recorded solid results in the fourth quarter.</b> Share earnings were \$0.37, or 6% higher than the previous year's figure. This comparison was accomplished even though profits dipped slightly in the company's core water utility business. The ASUS unit, which provides water services to American army bases, contributed \$0.18 to share earnings, versus \$0.11 in the year-earlier period. Most of the gains were due to the commencement of operations at Fort Riley, increases in earnings from the Elgin Air Force base, and higher activity at Fort Bragg. The armed services are in the process of privatizing water services to many compounds via 50-year contracts. We expect ASUS to win a fair share of the remaining facilities that will eventually seek market bids. American States can augment its earning growth in this segment because it generates a higher return on its investment here as regulators do not set the allowed return on equity. A major rate case is still pending. In California, water utilities file for rate relief triennially. For the 2018-2021 period, authorities tentatively agreed to a settlement with the Golden State subsidiary last year, but the agreement hasn't been approved by the California Public Utility Commission. When the deal is finalized, the utility will be allowed to recoup certain expenses incurred in 2018. Earnings momentum should continue through next year. With the utility being able to implement higher rates sometime in 2019, American States' earnings per share may well rise 10% to \$1.90. In 2020, we think the bottom line will have another good showing, and earnings per share could reach \$2.05. These timely shares are only for short-term investors. American States Water is a well-run company, but its stock price is expensive by most key financial metrics. For starters, this income equity now has a yield that is lower than the Value Line median. Moreover, three-to-five-year total return potential is well-below average. Conservative investors may find the stock's low volatility and well-defined prospects appealing. However, we think these positives are already factored into the price of the stock. James A. Flood April 12, 2019																
<b>(A)</b> Primary earnings. Excludes nonrecurring gains/(losses): '04, 7c; '05, 13c; '06, 3c; '08, (14c); '10, (23c); '11, 10c. Next earnings report due mid-May. <b>(B)</b> Dividends historically paid in early March, June, September, and December. <b>(C)</b> In millions, adjusted for split. <b>(D)</b> Includes intangibles. As of 12/31/18, \$1.1 million/\$0.03 a share.																
<b>Company's Financial Strength</b> Stock's Price Stability 85 Price Growth Persistence 80 Earnings Predictability 85																

**AMERICAN WATER** NYSE-AWK **RECENT PRICE 103.71** **P/E RATIO 32.7** (Trailing: 32.9 Median: 19.0) **RELATIVE P/E RATIO 1.88** **DIYD YLD 1.9%** **VALUE LINE 1789**



2003	2004	2005	2006	2007*	2008*	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	VALUE LINE PUB. LLC	22-24
..	..	..	13.08	13.84	14.61	13.98	15.49	15.18	16.25	16.28	16.78	17.72	18.54	18.81	19.04	19.95	20.95	Revenues per sh	23.80
..	..	..	.85	d.47	2.89	2.89	3.56	3.73	4.27	4.36	4.75	5.13	5.26	5.14	6.15	6.75	7.05	"Cash Flow" per sh	8.30
..	..	..	d.97	d2.14	1.10	1.25	1.53	1.72	2.11	2.06	2.39	2.64	2.62	2.38	3.15	3.60	3.85	Earnings per sh <sup>A</sup>	4.70
..	..	..	..	..	.40	.82	.86	.90	1.21	.84	1.21	1.33	1.47	1.62	1.78	1.94	2.10	Div'd Dec'd per sh <sup>B</sup>	2.75
..	..	..	4.31	4.74	6.31	4.50	4.38	5.27	5.25	5.50	5.33	6.51	7.36	8.04	8.78	9.15	9.15	Cap'l Spending per sh	9.00
..	..	..	23.86	28.39	25.64	22.91	23.59	24.11	25.11	26.52	27.39	28.25	29.24	30.13	32.42	34.55	36.55	Book Value per sh <sup>D</sup>	41.25
..	..	..	160.00	160.00	160.00	174.63	175.00	175.66	176.99	178.25	179.46	178.28	178.10	178.44	180.68	181.00	182.00	Common Shs Outst'g <sup>C</sup>	189.00
..	..	..	..	18.9	15.8	14.6	16.8	16.7	19.9	20.0	20.5	27.7	33.8	27.3	Bold figures are Value Line estimates			Avg Ann'l P/E Ratio	21.5
..	..	..	..	1.14	1.04	.93	1.05	1.06	1.12	1.05	1.03	1.45	1.70	1.47				Relative P/E Ratio	1.20
..	..	..	..	1.9%	4.2%	3.8%	3.1%	3.4%	2.0%	2.5%	2.5%	2.0%	2.0%	2.1%				Avg Ann'l Div'd Yield	2.8%

CAPITAL STRUCTURE as of 12/31/18		2003	2004	2005	2006	2007*	2008*	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	REVENUES (\$MILL)	22-24
Total Debt \$8604.0 mil. Due in 5 Yrs \$1555.0 mil.		2440.7	2710.7	2666.2	2876.9	2901.9	3011.3	3159.0	3302.0	3367.0	3440.0	3615	3815	Revenues (\$mill)	4500						
LT Debt \$7569.0 mil. LT Interest \$328.0 mil. (56% of Cap'l)		209.9	267.8	304.9	374.3	369.3	429.8	476.0	468.0	426.0	567.0	650	700	Net Profit (\$mill)	890						
Leases, Uncapitalized: Annual rentals \$17.0 mil.		37.9%	40.4%	39.5%	40.7%	39.1%	39.4%	39.1%	39.2%	33.3%	28.2%	21.0%	21.0%	Income Tax Rate	21.0%						
Pension Assets 12/18 \$1499.0 mil.		..	..	..	6.2%	5.1%	..	..	..	5.1%	4.0%	5.0%	5.0%	AFUDC % to Net Profit	5.0%						
Pld Stock \$7.0 mil. Oblig. \$1892.0 mil. Pld Div'd \$4 mil		56.9%	56.8%	55.7%	53.9%	52.4%	52.4%	53.7%	52.4%	54.7%	56.3%	57.0%	58.0%	Long-Term Debt Ratio	59.0%						
Common Stock 180,751,697 shs. as of 2/14/19		43.1%	43.2%	44.2%	46.1%	47.6%	47.4%	46.2%	47.5%	46.3%	43.6%	43.0%	42.0%	Common Equity Ratio	41.0%						
MARKET CAP: \$18.7 billion (Large Cap)		9289.0	9561.3	9580.3	9635.5	9940.7	10364	10911	10967	11875	13433	14600	15700	Total Capital (\$mill)	18800						
CURRENT POSITION 2016 2017 12/31/18 (\$MILL.)		10524	11059	11021	11739	12391	12900	13933	14992	16246	17409	18500	19500	Net Plant (\$mill)	22500						
Cash Assets 75.0 82.0 158.0		3.8%	4.4%	4.8%	5.4%	5.1%	5.5%	5.7%	5.6%	4.9%	5.4%	5.5%	5.5%	Return on Total Cap'l	6.0%						
Accs Receivable 269.0 272.0 301.0		5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	7.9%	9.7%	10.5%	10.5%	Return on Shr. Equity	11.5%						
Other 440.0 366.0 322.0		5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	7.9%	9.7%	10.5%	10.5%	Return on Com Equity	11.5%						
Current Assets 784.0 720.0 781.0		1.8%	2.8%	3.5%	3.6%	4.7%	4.3%	4.7%	4.0%	2.5%	4.2%	5.0%	5.0%	Retained to Com Eq	5.0%						
Accs Payable 154.0 195.0 175.0		65%	56%	52%	57%	40%	50%	50%	56%	68%	56%	54%	55%	All Div'ds to Net Prof	59%						
Debt Due 1423.0 1227.0 1035.0		<p><b>BUSINESS:</b> American Water Works Company, Inc. is the largest investor-owned water and wastewater utility in the U.S., providing services to more than 14 million people in 46 states and Ontario, Canada. Nonregulated business assists municipalities and military bases with the maintenance and upkeep as well. Regulated operations made up 87% of 2018 revenues. New Jersey is its largest market accounting for 24% of regulated revenues; Pennsylvania, 23%. Has 7,100 employees. The Vanguard Grp owns 11.0% of outstanding shares; BlackRock, Inc., 7.9%; officers &amp; directors, less than 1.0%. (3/19 Proxy). President &amp; CEO: Susan N. Story, Chairman: George MacKenzie. Address: 1025 Laurel Oak Road, Voorhees, NJ 08043. Tel.: 856-346-8200. Internet: www.amwater.com.</p>																			
Other 815.0 903.0 884.0		<p><b>Shares of American Water Works continue to turn in an impressive showing.</b> When the stock market slumped double digits in last year's fourth quarter, the equity managed to post positive returns. In the recent March period, the S&amp;P 500 rose about 13%, or about 100 basis points less than AWK. Despite being considered a defensive stock, over the past one-, three-, and five-year periods, AWK has easily outperformed the market indices. <b>Has the equity peaked? Not according to our ranking system, which believes AWK will do better than the market in the year ahead.</b> Using other financial metrics, however, and a solid case can be made against AWK. Even assuming a healthy dividend increase in May of 7%-10%, the stock's yield is still below 2%. This compares unfavorably to both the Value Line median and short-term Treasury notes. Indeed, an investor can get almost a 2.4% yield on a three-month note, without almost no risk. Moreover, AWK has well-below-average total return prospects through 2022-2024, as the current quote is well within our projected Target Price Range.</p>																			
Current Liab. 2392.0 2325.0 2094.0		<p><b>Much of the company's success is due to its acquisition and cost control strategy.</b> The utility has managed to grow by purchasing many local municipally-owned water districts. (The domestic market consists of over 50,000 separate water districts, with most them small and undercapitalized.) This industry has proven that cost synergies are inherent in most consolidations, so we look for this trend to continue. <b>Prospects are bright.</b> We think that the company's earnings and dividends can grow 7%-10% over the next five years, a rate much higher than its peers. <b>Finances are adequate.</b> As part of the large program under way to replace aging pipelines, American Water will spend \$8 billion to \$8.6 billion on capital expenditures through 2023. This will require the need for external financing. The utility doesn't issue many new shares, so it will likely rely more on new debt. We expect the long-term debt-to-total capital ratio to increase from the current 54%, to 59% by early next decade. Still, not bad considering the size of the capital budget.</p>																			

ANNUAL RATES	Past 10 Yrs.	Past 5 Yrs.	Est'd '16-'18 to '22-'24
Revenues	3.0%	3.5%	4.0%
"Cash Flow"	18.5%	6.0%	7.0%
Earnings	..	6.5%	9.5%
Dividends	..	10.5%	9.0%
Book Value	1.5%	4.0%	5.0%

Quarterly Revenues (\$ mill.)	Full Year
2016	3302.0
2017	3357.0
2018	3440.0
2019	3615
2020	3815

Earnings per Share <sup>A</sup>	Full Year
2016	2.62
2017	2.38
2018	3.15
2019	3.60
2020	3.85

Quarterly Dividends Paid <sup>B</sup>	Full Year
2015	1.33
2016	1.47
2017	1.62
2018	1.78
2019	1.78

(A) Diluted earnings. Excludes nonrecurr. losses: '08, \$4.62; '08, \$2.83; '11, \$0.07. Disc. oper.: '08, (\$0.04); '11, (\$0.03); '12, (\$0.10); '13, (\$0.01). GAAP used as of 2014. Next earnings report due mid-May. Quarterly earnings do not sum in '16 due to rounding. (B) Dividends paid in March, June, September, and December. Div. reinvestment available. (C) In millions. (D) Includes intangibles. On 12/31/18: \$1.659 billion, \$9.18/share. (E) Pro forma numbers for '08 & '07. 148

Company's Financial Strength 8+  
Stock's Price Stability 100  
Price Growth Persistence 85  
Earnings Predictability 95

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AQUA AMERICA NYSE-WTR		RECENT PRICE	PIE RATIO	Trailing: 33.6 Median: 22.0	RELATIVE P/E RATIO	DIV'D YLD	VALUE LINE	1790											
TIMELINESS 3 Lowered 11/30/18	High: 17.6	17.2	18.4	19.0	21.5	28.1	28.2	31.1	35.8	39.6	39.4	37.6	Target Price Range	2022	2023	2024			
SAFETY 2 Raised 4/20/12	Low: 9.6	12.3	13.2	15.4	16.8	20.8	22.4	24.4	26.0	28.4	32.1	32.7							
TECHNICAL 2 Raised 4/12/19	<b>LEGENDS</b> - - - 1.60 x Dividends p sh divided by Interest Rate ..... Relative Price Strength 5-for-4 split 9/13 Options: Yes Shaded area indicates recession																		
BETA 70 (1.00 = Market)	<b>2022-24 PROJECTIONS</b> Ann'l Total Price Gain Return High 55 (+50%) 13% Low 40 (+10%) 6%																		
<b>Insider Decisions</b> J J A S O N D J F to Buy 0 0 0 0 0 4 0 0 0 0 to Sell 0 7 0 0 8 0 0 0 0 0 to Sell 0 0 0 0 0 0 0 0 0 0																			
<b>Institutional Decisions</b> 202018 202018 202018 to Buy 198 205 241 to Sell 174 180 213 % of Cap'l 96445 99521 101230 Percent shares traded 15 10 5																			
<b>% TOT. RETURN 3/19</b> THIS STOCK VS. ARTH. INDEX 1 yr. 9.7 2.7 3 yr. 23.2 35.5 5 yr. 64.4 37.5																			
<b>2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020</b>																			
2.38	2.78	3.08	3.23	3.61	3.71	3.93	4.21	4.10	4.32	4.32	4.37	4.61	4.62	4.56	4.71	5.00	5.25	Revenues per sh	6.50
.77	.87	.97	1.01	1.10	1.14	1.29	1.42	1.45	1.51	1.82	1.89	1.87	2.07	2.12	1.90	2.35	2.50	"Cash Flow" per sh	3.10
.46	.51	.57	.56	.57	.56	.62	.72	.83	.87	1.16	1.20	1.14	1.32	1.35	1.08	1.50	1.60	Earnings per sh A	2.05
.28	.29	.32	.35	.36	.41	.44	.47	.50	.54	.58	.63	.69	.74	.79	.85	.91	.97	Div'd Decl'd per sh B=C	1.35
1.06	1.23	1.47	1.64	1.43	1.58	1.56	1.89	1.90	1.98	1.73	1.84	2.07	2.16	2.69	2.78	2.80	2.80	Cap'l Spending per sh	2.25
4.27	4.71	5.04	5.57	5.85	6.26	6.50	6.81	7.21	7.90	8.63	9.27	9.78	10.43	11.02	11.28	12.20	12.85	Book Value per sh	15.55
154.31	158.97	161.21	165.41	166.75	169.21	170.61	172.46	173.60	175.43	177.93	178.59	178.54	177.39	177.71	178.09	178.50	179.00	Common Shs Outs't'g C	182.00
24.5	25.1	31.8	34.7	32.0	24.9	29.1	21.1	21.3	21.9	21.2	20.8	23.5	23.9	24.7	32.6	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	24.0
1.40	1.33	1.89	1.87	1.70	1.50	1.54	1.34	1.34	1.39	1.18	1.09	1.18	1.25	1.24	1.76			Relative P/E Ratio	1.35
2.5%	2.3%	1.8%	1.8%	2.1%	2.8%	3.1%	3.1%	2.8%	2.8%	2.4%	2.5%	2.6%	2.3%	2.4%	2.4%			Avg Ann'l Div'd Yield	2.3%
<b>CAPITAL STRUCTURE as of 12/31/18</b> Total Debt \$2558.4 mill. Due in 5 Yrs \$698.8 mill. LT Debt \$2398.4 mill. LT Interest \$96.0 mill. (54% of Cap'l)																			
<b>Pension Assets-12/18 \$239.0 mill.</b> Oblig. \$282.0 mill.																			
<b>Pfd Stock None</b> Common Stock 178,145,692 shares as of 2/12/19																			
<b>MARKET CAP: \$6.5 billion (Large Cap)</b>																			
<b>CURRENT POSITION (\$MILL.)</b>																			
	2016	2017	12/31/18																
Cash Assets	3.7	4.2	3.6																
Receivables	97.4	98.6	101.2																
Inventory (AvgCst)	13.0	14.4	15.8																
Other	14.6	14.0	26.6																
Current Assets	128.7	131.2	147.2																
Accts Payable	59.9	59.2	77.3																
Debt Due	157.2	117.4	160.0																
Other	84.4	107.9	161.7																
Current Liab.	301.5	284.5	399.0																
<b>ANNUAL RATES of change (per sh)</b>																			
	Past 10 Yrs.	Past 5 Yrs.	Est'd '16-'18 to '22-'24																
Revenues	3.0%	1.5%	6.0%																
"Cash Flow"	6.5%	5.0%	7.5%																
Earnings	8.0%	5.5%	8.5%																
Dividends	7.5%	8.0%	9.5%																
Book Value	6.5%	6.5%	6.0%																
<b>QUARTERLY REVENUES (\$ MILL.)</b>																			
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year														
2016	192.6	203.9	226.6	196.8	819.9														
2017	187.8	203.4	215.0	203.3	809.5														
2018	194.3	211.9	226.2	205.7	838.1														
2019	205	225	235	230	895														
2020	215	235	250	240	940														
<b>EARNINGS PER SHARE A</b>																			
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year														
2016	.29	.34	.41	.28	1.32														
2017	.28	.34	.43	.30	1.35														
2018	.29	.37	.44	d.02	1.08														
2019	.31	.38	.48	.33	1.50														
2020	.33	.41	.51	.35	1.60														
<b>QUARTERLY DIVIDENDS PAID B=C</b>																			
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year														
2016	.165	.165	.178	.178	.69														
2017	.178	.178	.1913	.1913	.74														
2018	.1913	.1913	.2047	.2047	.79														
2019	.2047	.2047	.219	.219	.85														
2020	.219																		
<b>BUSINESS:</b> Aqua America, Inc. is the holding company for water and wastewater utilities that serve approximately three million residents in Pennsylvania (responsible for 53% of 2018 revenues), Ohio, Texas, Illinois, North Carolina, New Jersey, Indiana, and Virginia. Has 1,570 employees. Acquired AquaSource, 7/13; North Maine Utilities, 7/15; and others. Water supply revenues 2018: residential, 58%; commercial, 16%; Industrial, wastewater & other, 26%. Off. & dir. own less than 1% of the common stock; Vanguard Group, 10.7%; Blackrock, Inc. 9.5%; State Street Capital, 4.9% (3/19 Proxy). President & Chief Executive Officer: Christopher Franklin, Inc. PA Addr.: 762 West Lancaster Avenue, Bryn Mawr, PA 19010. Tel.: 610-525-1400. Internet: www.aquaamerica.com.																			
<b>Aqua America is awaiting final approvals of a major acquisition.</b> Last October, the water utility announced that it would pay \$4.275 billion, as well as assume \$1.3 billion in debt, to buy Peoples Natural Gas Company in an all-cash transaction. Aqua's size would increase meaningfully as the combined entity would have a rate base of \$10.8 billion, and 1.74 million connections serving five million people. Three different state authorities have to sign off on the deal, so it is not expected to be completed until the middle of this year.																			
<b>A major new investor has been brought on board.</b> On March 29th, it was announced that the Canadian Pension Plan (CPPIB) would pay \$750 million for 21.7 million newly issued shares. This would increase the number of shares outstanding by about 12%. The funds will be used to help finance the purchase of Peoples' Gas and is contingent upon the closing of the deal. (Please note: As per Value Line convention, we will not include the proposed acquisition in our earnings presentation until the Peoples' transaction is official.)																			
<b>The new entity will have a changed risk profile.</b> While Aqua has experience operating a regulated entity, the gas sector is different than the water business. Mainly, citizens realize that old rusty water pipes have to be replaced. There is more community push back when it comes to transporting natural gas. Since Aqua already has a good relationship with Pennsylvania regulators, where most of the business will be centered, we don't anticipate any major changes. Still, we expect state authorities to be more challenging on the natural gas side. In addition, the company's balance sheet will undergo a large transformation. In addition to the new shares sold to CPPIB, more equity and bonds will have to be issued. We estimate that another 60 million new shares may be required, along with perhaps over \$2 billion of debt obligations.																			
<b>Investors are probably better off waiting on the sidelines.</b> The proposed merger has left the company's near-term prospects very ill-defined, making WTR much riskier than most of its peers in this group.																			
James A. Flood April 12, 2019																			

(A) Diluted eps. Excl. nonrec. gains: '03, 3¢; '12, 18¢. Excl. gain from disc. operations: '12, 7¢; '13, 9¢; '14, 11¢. May not sum due to rounding. Next earnings report early May.  
 (B) Dividends historically paid in early March, June, Sept. & Dec. = Div'd. reinvestment plan available (5% discount).  
 (C) In millions, adjusted for stock splits.  
 (D) Includes intangibles: 12/31/18, \$52.7 mill./\$0.30 a share.  
 Company's Financial Strength A  
 Stock's Price Stability 95  
 Price Growth Persistence 65  
 Earnings Predictability 90  
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CALIFORNIA WATER NYSE-CWT		RECENT PRICE	P/E RATIO	(Trailing: 41.6; Median: 20.0)	RELATIVE P/E RATIO	DIV'D YLD	VALUE LINE									
		52.41	32.8		1.89	1.5%	1791									
<b>TIMELINESS</b> 1	Raised 3/8/19	High: 23.3	24.1	19.8	19.4	19.3	23.4	26.4	26.0	36.8	46.2	49.1	55.0	Target Price Range		
<b>SAFETY</b> 3	Lowered 7/27/07	Low: 13.8	16.7	16.9	16.7	16.8	18.4	20.3	19.5	22.5	32.4	35.3	44.6	2022	2023	2024
<b>TECHNICAL</b> 2	Raised 4/12/19	<b>LEGENDS</b> 1.33 x Dividends p sh divided by Interest Rate Relative Price Strength 2-for-1 split 8/11 Options: Yes Shaded area indicates recession														
<b>BETA</b> .70	(1.00 = Market)	<b>2022-24 PROJECTIONS</b> High Price 55 (+5%) Low Price 35 (-35%) Ann'l Total Gain 3% Return -7%														
<b>Insider Decisions</b>		<b>Insider Decisions</b> J A S O N D J F to Buy 0 0 0 0 0 0 0 0 to Sell 0 0 1 0 0 0 0 0 Options 0 0 1 0 1 0 0 0														
<b>Institutional Decisions</b>		<b>Institutional Decisions</b> 202018 302018 402018 to Buy 87 104 128 to Sell 91 77 78 Mid/1000 35009 35103 35160 Percent shares traded 18 12 6														
		<b>% TOT. RETURN 3/19</b> THIS STOCK VS. S&P 500 INDEX 1 yr. 48.3 2.7 3 yr. 115.4 35.5 5 yr. 154.8 37.5														
		<b>© VALUE LINE PUB. LLC 22-24</b> Revenues per sh 15.50 "Cash Flow" per sh 3.60 Earnings per sh A 2.00 Div'd Decl'd per sh B 1.05 Cap'l Spending per sh 3.85 Book Value per sh C 17.00 Common Shs Outst'g D 50.00 Avg Ann'l P/E Ratio 23.0 Relative P/E Ratio 1.25 Avg Ann'l Div'd Yield 2.5%														
		<b>CAPITAL STRUCTURE as of 12/31/18</b> Total Debt \$880.0 mill. Due in 5 Yrs \$430.1 mill. LT Debt \$710.0 mill. LT Interest \$40.0 mill. (49% of Cap'l) Pension Assets-12/18 \$469.7 mill. Oblig. \$639.9 mill. Pfd Stock None Common Stock 48,065,000 shs.														
		<b>MARKET CAP: \$2.5 billion (Mid Cap)</b> <b>CURRENT POSITION (\$MILL.)</b> Cash Assets 25.5 94.8 47.2 Other 116.6 133.1 141.5 Current Assets 142.1 227.9 188.7 Acc'ts Payable 77.8 94.0 95.6 Debt Due 123.3 291.0 170.0 Other 49.1 106.0 55.6 Current Liab. 250.2 491.0 321.2														
		<b>ANNUAL RATES Past Past Est'd '15-'17 of change (per sh) 10 Yrs. 5 Yrs. to '22-'24</b> Revenues 4.0% 1.5% 2.5% "Cash Flow" 5.5% 3.5% 5.0% Earnings 4.5% 4.0% 8.5% Dividends 2.0% 2.5% 6.0% Book Value 4.5% 5.0% 3.0%														
		<b>QUARTERLY REVENUES (\$ MIL.)</b> Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2016 121.7 152.4 184.3 151.0 609.4 2017 122.1 171.1 211.7 162.0 666.9 2018 132.2 172.8 219.0 187.4 691.2 2019 135 180 225 170 710 2020 140 185 230 175 730														
		<b>EARNINGS PER SHARE A</b> Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2016 d.02 .24 .48 .31 1.01 2017 .02 .39 .70 .29 1.40 2018 d.05 .27 .72 .32 1.26 2019 .71 .40 .77 .37 1.85 2020 .13 .42 .80 .40 1.75														
		<b>QUARTERLY DIVIDENDS PAID B</b> Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2015 .1675 .1675 .1675 .1675 .67 2016 .1725 .1725 .1725 .1725 .69 2017 .18 .18 .18 .18 .72 2018 .1875 .1875 .1875 .1875 .75 2019 .1975														
		<b>BUSINESS:</b> California Water Service Group provides regulated and nonregulated water service to 486,900 customers in 100 communities in the state of California. Accounts for over 94% of total customers. Also operates in Washington, New Mexico, and Hawaii. Main service areas: San Francisco Bay area, Sacramento Valley, Salinas Valley, San Joaquin Valley & parts of Los Angeles. Acquired: Pao Grande Corp; West Hawaii Utilities (9/08). Revenue breakdown: 38: residential, 67%: business, 19%: industrial, 5%: public authorities, 5%: other 4%. Off. and dir. own 1% of common stock (4/18 proxy). Has 1,184 employees. Pres. and CEO: Martin A. Kropelnick, Inc.: DE. Addr.: 1720 North First St., San Jose, CA 95112-4598. Tel.: 408-367-8200. Internet: www.calwatergroup.com.														
		<b>California Water Service Group stock is trading at an all-time high price.</b> Shares are up almost 15% in value since our January review, which comes off the heels of a 10% rise three months prior. There is clear market support for CWT shares at present, partly owing to improving top-line results, quarter over quarter. Moreover, California's unsuccessful pursuit of SJW Group is now in the rearview mirror, which should allow the company to refocus its resources and energy on operational improvements. The company boosted its quarterly dividend payment 5%, to about \$0.20 a share. Indeed, the raise is a good sign, and suggests the company is fundamentally sound. Too, we think additional payout increases are in the cards further out. That said, at current levels, the yield significantly lags both its peer group and the broader market, leaving income-seeking accounts little to get excited about. Capital investments and rate hikes are apt to be the norm going forward. The majority of CWT's aging infrastructure is still in need of replacement, even after the company spent more than \$270 million on upgrades in 2018 (the bulk of which focused on trichloropropane treatment in order to meet new California standards). Over the next several years, through its previously mapped-out investment program, CWT aims to spend upward of \$800 million on new water pipes and treatment plant upgrades. Because of this, periodic base-rate hikes are likely to ensue. For example, the company's subsidiary, Hawaii Water Service, recently filed for a rate revision with their Public Utilities Commission, given the magnitude of upgrades over the past few years. Too, CWT has its own proposal in the works. Shares of California Water garner our Highest rank (1) for Timeliness. The issue is pegged to outperform the broader market averages over the coming six to 12 months and, thus, will appeal to investors with a shorter investment horizon. However, we do not recommend this equity for accounts with a holding period out to 2022-2024. Shares of CWT are currently trading above the upper boundary of our Target Price Range due to its multiyear price ascent.														
		<b>Nicholas P. Patrikis April 12, 2019</b>														

(A) Basic EPS. Excl. nonrecurring gain (loss); 11, 4c. Next earnings report due late May.  
 (B) Dividends historically paid in late Feb., May, Aug., and Nov. = Div'd reinvestment plan available.  
 (C) Incl. intangible assets. In '18: \$24.7 mill., \$0.51/sh.  
 (D) In millions, adjusted for splits.  
 (E) Excludes non-reg. rev.  
 Company's Financial Strength B++  
 Stock's Price Stability 80  
 Price Growth Persistence 45  
 Earnings Predictability 65  
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MIDDLESEX WATER		NDQ-MSEX	RECENT PRICE	54.37	P/E RATIO	26.8	(Trailing: 27.7 Median: 21.0)	RELATIVE P/E RATIO	1.54	DIV'D YLD	1.8%	VALUE LINE	1794																																																																																																																																																																																																																																																							
<b>TIMELINESS</b>	3	Covered 1/4/19	High: 19.8	17.9	19.3	19.4	19.6	22.5	23.7	28.0	44.5	46.7	60.3	60.5	Target Price Range	2022	2023	2024																																																																																																																																																																																																																																																		
<b>SAFETY</b>	2	New 10/27/11	Low: 12.0	11.6	14.7	16.5	17.5	18.6	19.1	21.2	25.0	32.2	34.0	51.0																																																																																																																																																																																																																																																						
<b>TECHNICAL</b>	1	Raised 4/12/18	<b>LEGENDS</b> 1.20 x Dividends p sh divided by Interest Rate Relative Price Strength Options: Yes Shaded area indicates recession																																																																																																																																																																																																																																																																	
<b>BETA</b>	.75	(1.00 = Market)	<b>2022-24 PROJECTIONS</b> Price Gain Ann'l Total High 55 (-25%) 3% Low 40 (-5%) -5%																																																																																																																																																																																																																																																																	
<b>Insider Decisions</b>			<table border="1"> <tr> <td></td> <td>J</td> <td>J</td> <td>A</td> <td>S</td> <td>O</td> <td>N</td> <td>D</td> <td>J</td> <td>F</td> </tr> <tr> <td>To Buy</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Options</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>To Sell</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table>																	J	J	A	S	O	N	D	J	F	To Buy	0	0	0	0	0	0	0	0	0	Options	0	0	0	0	0	0	0	0	0	To Sell	1	1	1	1	0	1	0	0	0																																																																																																																																																																																																										
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To Buy	0	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																											
Options	0	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																											
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<b>MARKET CAP: \$900 million (Small Cap)</b>			<table border="1"> <tr> <td></td> <td>2003</td> <td>2004</td> <td>2005</td> <td>2006</td> <td>2007</td> <td>2008</td> <td>2009</td> <td>2010</td> <td>2011</td> <td>2012</td> <td>2013</td> <td>2014</td> <td>2015</td> <td>2016</td> <td>2017</td> <td>2018</td> <td>2019</td> <td>2020</td> <td>% TOT. RETURN 3/19</td> <td>THIS STOCK</td> <td>VL ARITHM' INDEX</td> </tr> <tr> <td>Price</td> <td>6.12</td> <td>6.25</td> <td>6.44</td> <td>6.16</td> <td>6.50</td> <td>6.79</td> <td>6.75</td> <td>6.60</td> <td>6.50</td> <td>6.98</td> <td>7.19</td> <td>7.26</td> <td>7.77</td> <td>8.16</td> <td>8.00</td> <td>8.42</td> <td>8.65</td> <td>8.85</td> <td>1 yr.</td> <td>55.6</td> <td>2.7</td> </tr> <tr> <td>Gain</td> <td>1.15</td> <td>1.28</td> <td>1.33</td> <td>1.33</td> <td>1.49</td> <td>1.53</td> <td>1.40</td> <td>1.55</td> <td>1.46</td> <td>1.58</td> <td>1.72</td> <td>1.84</td> <td>1.97</td> <td>2.17</td> <td>2.24</td> <td>2.89</td> <td>2.95</td> <td>3.05</td> <td>3 yr.</td> <td>93.6</td> <td>35.5</td> </tr> <tr> <td>Ann'l Total</td> <td>.61</td> <td>.73</td> <td>.71</td> <td>.82</td> <td>.87</td> <td>.89</td> <td>.72</td> <td>.98</td> <td>.84</td> <td>.90</td> <td>1.03</td> <td>1.13</td> <td>1.22</td> <td>1.38</td> <td>1.38</td> <td>1.96</td> <td>2.05</td> <td>2.15</td> <td>5 yr.</td> <td>192.9</td> <td>37.5</td> </tr> <tr> <td>Options</td> <td>.65</td> <td>.66</td> <td>.67</td> <td>.68</td> <td>.69</td> <td>.70</td> <td>.71</td> <td>.72</td> <td>.73</td> <td>.74</td> <td>.75</td> <td>.76</td> <td>.78</td> <td>.81</td> <td>.86</td> <td>.91</td> <td>.97</td> <td>1.00</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Div'd Decl'd</td> <td>1.87</td> <td>2.54</td> <td>2.18</td> <td>2.31</td> <td>1.66</td> <td>2.12</td> <td>1.49</td> <td>1.90</td> <td>1.50</td> <td>1.36</td> <td>1.28</td> <td>1.40</td> <td>1.59</td> <td>2.91</td> <td>3.08</td> <td>4.40</td> <td>3.50</td> <td>3.50</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Spending</td> <td>7.60</td> <td>8.02</td> <td>8.26</td> <td>9.52</td> <td>10.05</td> <td>10.03</td> <td>10.33</td> <td>11.13</td> <td>11.27</td> <td>11.48</td> <td>11.82</td> <td>12.24</td> <td>12.74</td> <td>13.40</td> <td>14.02</td> <td>15.17</td> <td>15.75</td> <td>16.10</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Book Value</td> <td>10.48</td> <td>11.36</td> <td>11.58</td> <td>13.17</td> <td>13.25</td> <td>13.40</td> <td>13.52</td> <td>15.57</td> <td>15.70</td> <td>15.82</td> <td>15.96</td> <td>16.12</td> <td>16.23</td> <td>16.30</td> <td>16.35</td> <td>16.40</td> <td>16.50</td> <td>16.75</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Common Shs</td> <td>30.0</td> <td>26.4</td> <td>27.4</td> <td>22.7</td> <td>21.6</td> <td>19.8</td> <td>21.0</td> <td>17.8</td> <td>21.7</td> <td>20.8</td> <td>19.7</td> <td>18.5</td> <td>19.1</td> <td>25.6</td> <td>28.4</td> <td>22.2</td> <td>22.2</td> <td>22.2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>P/E Ratio</td> <td>1.71</td> <td>1.39</td> <td>1.46</td> <td>1.23</td> <td>1.15</td> <td>1.19</td> <td>1.40</td> <td>1.13</td> <td>1.36</td> <td>1.32</td> <td>1.11</td> <td>.97</td> <td>.96</td> <td>1.34</td> <td>1.43</td> <td>1.20</td> <td>1.20</td> <td>1.20</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Div'd Yield</td> <td>3.5%</td> <td>3.4%</td> <td>3.5%</td> <td>3.7%</td> <td>3.7%</td> <td>4.0%</td> <td>4.7%</td> <td>4.2%</td> <td>4.0%</td> <td>4.0%</td> <td>3.7%</td> <td>3.7%</td> <td>3.3%</td> <td>2.3%</td> <td>2.2%</td> <td>2.1%</td> <td>2.1%</td> <td>2.1%</td> <td></td> <td></td> <td></td> </tr> </table>																	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	% TOT. RETURN 3/19	THIS STOCK	VL ARITHM' INDEX	Price	6.12	6.25	6.44	6.16	6.50	6.79	6.75	6.60	6.50	6.98	7.19	7.26	7.77	8.16	8.00	8.42	8.65	8.85	1 yr.	55.6	2.7	Gain	1.15	1.28	1.33	1.33	1.49	1.53	1.40	1.55	1.46	1.58	1.72	1.84	1.97	2.17	2.24	2.89	2.95	3.05	3 yr.	93.6	35.5	Ann'l Total	.61	.73	.71	.82	.87	.89	.72	.98	.84	.90	1.03	1.13	1.22	1.38	1.38	1.96	2.05	2.15	5 yr.	192.9	37.5	Options	.65	.66	.67	.68	.69	.70	.71	.72	.73	.74	.75	.76	.78	.81	.86	.91	.97	1.00				Div'd Decl'd	1.87	2.54	2.18	2.31	1.66	2.12	1.49	1.90	1.50	1.36	1.28	1.40	1.59	2.91	3.08	4.40	3.50	3.50				Spending	7.60	8.02	8.26	9.52	10.05	10.03	10.33	11.13	11.27	11.48	11.82	12.24	12.74	13.40	14.02	15.17	15.75	16.10				Book Value	10.48	11.36	11.58	13.17	13.25	13.40	13.52	15.57	15.70	15.82	15.96	16.12	16.23	16.30	16.35	16.40	16.50	16.75				Common Shs	30.0	26.4	27.4	22.7	21.6	19.8	21.0	17.8	21.7	20.8	19.7	18.5	19.1	25.6	28.4	22.2	22.2	22.2				P/E Ratio	1.71	1.39	1.46	1.23	1.15	1.19	1.40	1.13	1.36	1.32	1.11	.97	.96	1.34	1.43	1.20	1.20	1.20				Div'd Yield	3.5%	3.4%	3.5%	3.7%	3.7%	4.0%	4.7%	4.2%	4.0%	4.0%	3.7%	3.7%	3.3%	2.3%	2.2%	2.1%	2.1%	2.1%			
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<b>CAPITAL STRUCTURE as of 12/31/18</b>			<table border="1"> <tr> <td>Total Debt</td> <td>\$208.7 mill.</td> <td>Due In 5 Yrs</td> <td>\$55.8 mill.</td> </tr> <tr> <td>LT Debt</td> <td>\$152.9 mill.</td> <td>LT Interest</td> <td>\$6.8 mill.</td> </tr> <tr> <td colspan="4">(Total interest coverage: 7.8x)</td> </tr> <tr> <td colspan="4">(38% of Cap'l)</td> </tr> <tr> <td colspan="4"><b>Pension Assets-12/18 \$66.8 mill.</b></td> </tr> <tr> <td colspan="4">Oblig. \$83.9 mill.</td> </tr> <tr> <td colspan="4"><b>Pfd Stock \$2.4 mill. Pfd Div'd: \$ 1 mill.</b></td> </tr> <tr> <td colspan="4"><b>Common Stock 16,403,000 shs.</b></td> </tr> </table>																Total Debt	\$208.7 mill.	Due In 5 Yrs	\$55.8 mill.	LT Debt	\$152.9 mill.	LT Interest	\$6.8 mill.	(Total interest coverage: 7.8x)				(38% of Cap'l)				<b>Pension Assets-12/18 \$66.8 mill.</b>				Oblig. \$83.9 mill.				<b>Pfd Stock \$2.4 mill. Pfd Div'd: \$ 1 mill.</b>				<b>Common Stock 16,403,000 shs.</b>																																																																																																																																																																																																																					
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"Cash Flow"	5.5%	9.0%	6.0%																																																																																																																																																																																																																																																																	
Earnings	6.0%	11.0%	7.5%																																																																																																																																																																																																																																																																	
Dividends	2.0%	3.0%	5.0%																																																																																																																																																																																																																																																																	
Book Value	3.5%	4.5%	3.5%																																																																																																																																																																																																																																																																	
<b>QUARTERLY REVENUES (\$ MILL)</b>			<table border="1"> <tr> <td></td> <td>Cal-ender</td> <td>Mar.31</td> <td>Jun.30</td> <td>Sep.30</td> <td>Dec.31</td> <td>Full Year</td> </tr> <tr> <td>2016</td> <td></td> <td>30.6</td> <td>32.7</td> <td>37.8</td> <td>31.8</td> <td>132.9</td> </tr> <tr> <td>2017</td> <td></td> <td>30.1</td> <td>33.0</td> <td>36.2</td> <td>31.5</td> <td>130.8</td> </tr> <tr> <td>2018</td> <td></td> <td>31.2</td> <td>34.9</td> <td>38.7</td> <td>33.3</td> <td>138.1</td> </tr> <tr> <td>2019</td> <td></td> <td>33.0</td> <td>36.0</td> <td>40.0</td> <td>34.0</td> <td>143</td> </tr> <tr> <td>2020</td> <td></td> <td>34.0</td> <td>37.0</td> <td>42.0</td> <td>35.0</td> <td>148</td> </tr> </table>																	Cal-ender	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	2016		30.6	32.7	37.8	31.8	132.9	2017		30.1	33.0	36.2	31.5	130.8	2018		31.2	34.9	38.7	33.3	138.1	2019		33.0	36.0	40.0	34.0	143	2020		34.0	37.0	42.0	35.0	148																																																																																																																																																																																																								
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<b>EARNINGS PER SHARE</b>			<table border="1"> <tr> <td></td> <td>Cal-ender</td> <td>Mar.31</td> <td>Jun.30</td> <td>Sep.30</td> <td>Dec.31</td> <td>Full Year</td> </tr> <tr> <td>2016</td> <td></td> <td>.29</td> <td>.36</td> <td>.54</td> <td>.19</td> <td>1.38</td> </tr> <tr> <td>2017</td> <td></td> <td>.27</td> <td>.33</td> <td>.46</td> <td>.32</td> <td>1.38</td> </tr> <tr> <td>2018</td> <td></td> <td>.27</td> <td>.52</td> <td>.74</td> <td>.43</td> <td>1.96</td> </tr> <tr> <td>2019</td> <td></td> <td>.32</td> <td>.53</td> <td>.75</td> <td>.45</td> <td>2.05</td> </tr> <tr> <td>2020</td> <td></td> <td>.35</td> <td>.55</td> <td>.77</td> <td>.48</td> <td>2.15</td> </tr> </table>																	Cal-ender	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	2016		.29	.36	.54	.19	1.38	2017		.27	.33	.46	.32	1.38	2018		.27	.52	.74	.43	1.96	2019		.32	.53	.75	.45	2.05	2020		.35	.55	.77	.48	2.15																																																																																																																																																																																																								
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<b>BUSINESS:</b>			<p>Middlesex Water Company engages in the ownership and operation of regulated water utility systems in New Jersey, Delaware, and Pennsylvania. It also operates water and wastewater systems under contract on behalf of municipal and private clients in NJ and DE. Its Middlesex System provides water services to 61,000 retail customers, primarily in Middlesex County, New Jersey. In 2018, the Middlesex System accounted for 59% of operating revenues. At 12/31/18, the company had 330 employees. Incorporated: NJ. President, CEO, and Chairman: Dennis W. Doll. Officers &amp; directors own 3.5% of the common stock; BlackRock Institutional Trust Co., 6.4% (4/18 proxy). Add.: 1500 Ronson Road, Iselin, NJ 08830. Tel.: 732-634-1500. Internet: www.middlesexwater.com.</p>																																																																																																																																																																																																																																																																	
<b>Middlesex Water delivered solid financial results to round out 2018.</b>			<p>The New Jersey-based regulated water and wastewater provider generated revenues of \$33.3 million in the December period, or 6% better than its previous-year haul. The improvement was underpinned by higher water demand from contract customers; strong growth from its Delaware subsidiary, Tidewater Utilities; as well as recently increased base rates across New Jersey operations. Likewise, earnings of \$0.43 a share came in \$0.06 ahead of our estimate, thanks largely to a lower effective tax rate and the aforementioned top-line gains. Notably, Middlesex continues to post impressive bottom-line results, even amidst a challenging cost environment (rising water production and labor expenses, higher employee healthcare premiums, and increased regulatory costs).</p>																																																																																																																																																																																																																																																																	
<b>Tomorrow program, roughly \$150 million of investable capital has been earmarked through 2020 for major infrastructure upgrades and more-efficient water delivery systems.</b>			<p>It is probable, in our view, that these advancements will help lower operating expenses. The current yield leaves much to be desired. Traditionally, water utilities are considered somewhat of a safe haven for conservative investors looking to generate above-average annual income. However, in recent years, MSEX shares have been significantly bid up; thus limiting their appeal as a pure-play income option at the moment. Nonetheless, we think annual payout hikes are likely to support modest yield expansion over the pull to next decade.</p>																																																																																																																																																																																																																																																																	
<b>This issue is ranked to move in line with the year-ahead broader market averages.</b>			<p>In addition to a subpar yield, most of the gains we envision over the 2022-2024 timeframe appear to already be baked into the share price. Overall, Middlesex stock is not presently on our recommendation list.</p>																																																																																																																																																																																																																																																																	
<b>Share-net growth three to five years out ought to be supported by capital spending initiatives.</b>			<p>Via its Water For</p>																																																																																																																																																																																																																																																																	
<b>Nicholas P. Patrikis</b>			<p>April 12, 2019</p>																																																																																																																																																																																																																																																																	

(A) Diluted earnings. Next earnings report due early May.

(B) Dividends historically paid in mid-Feb., May, Aug., and November. Div'd reinvestment plan available.

(C) In millions.

Company's Financial Strength	B++
Stock's Price Stability	65
Price Growth Persistence	45
Earnings Predictability	85

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SJW GROUP NYSE-SJW		RECENT PRICE	60.79	P/E RATIO	28.5 (Trailing: 33.4 Median: 21.0)	RELATIVE P/E RATIO	1.64	DIV'D YLD	2.0%	VALUE LINE	1795																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
TIMELINESS	Suspended 5/4/18	High: 35.1	30.4	28.2	26.8	26.9	30.1	33.7	35.7	56.9	69.3	68.4	64.2	63.9	Target Price Range	2022	2023	2024																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
SAFETY	3 New 4/22/11	Low: 20.0	18.2	21.6	20.9	22.6	24.5	25.5	27.5	28.8	45.4	51.3	53.9		120																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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BETA	.65 (1.00 = Market)	<b>2022-24 PROJECTIONS</b> High Price 90 Gain (+50%) 12% Ann'l Total Return 2% Low Price 60 (Nil) 2%														64																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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CAPITAL STRUCTURE as of 12/31/18		<table border="1"> <tr> <th></th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> <th>2008</th> <th>2009</th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>2020</th> <th>Revenues per sh</th> <th>16.50</th> </tr> <tr> <td>Total Debt \$431.4 mill. Due in 5 Yrs \$14.3 mill. LT Debt \$431.4 mill. LT Interest \$20.0 mill. (LT Interest Coverage: 4.2x) (33% of Cap'l)</td> <td>216.1</td> <td>215.6</td> <td>239.0</td> <td>261.5</td> <td>276.9</td> <td>319.7</td> <td>305.1</td> <td>330.7</td> <td>389.2</td> <td>397.7</td> <td>410</td> <td>430</td> <td>495</td> <td>105</td> <td></td> <td></td> <td></td> <td></td> <td>Net Profit (\$mill)</td> <td>495</td> </tr> <tr> <td>Leases, Uncapitalized: Annual rentals \$4.4 mill.</td> <td>15.2</td> <td>15.8</td> <td>20.9</td> <td>22.3</td> <td>23.5</td> <td>51.8</td> <td>37.9</td> <td>52.8</td> <td>59.2</td> <td>36.8</td> <td>65.5</td> <td>73.5</td> <td>105</td> <td></td> <td></td> <td></td> <td></td> <td>Income Tax Rate</td> <td>21.0%</td> </tr> <tr> <td>Pension Assets-12/18 \$127.6 mill. Oblig. \$167.9 mill.</td> <td>40.4%</td> <td>38.8%</td> <td>41.1%</td> <td>41.1%</td> <td>38.7%</td> <td>32.5%</td> <td>38.1%</td> <td>38.8%</td> <td>38.7%</td> <td>20.6%</td> <td>21.0%</td> <td>21.0%</td> <td>21.0%</td> <td></td> <td></td> <td></td> <td></td> <td>AFUDC % to Net Profit</td> <td>1.5%</td> </tr> <tr> <td>Pfd Stock None. 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Due in 5 Yrs \$14.3 mill. LT Debt \$431.4 mill. LT Interest \$20.0 mill. (LT Interest Coverage: 4.2x) (33% of Cap'l)	216.1	215.6	239.0	261.5	276.9	319.7	305.1	330.7	389.2	397.7	410	430	495	105					Net Profit (\$mill)	495	Leases, Uncapitalized: Annual rentals \$4.4 mill.	15.2	15.8	20.9	22.3	23.5	51.8	37.9	52.8	59.2	36.8	65.5	73.5	105					Income Tax Rate	21.0%	Pension Assets-12/18 \$127.6 mill. Oblig. \$167.9 mill.	40.4%	38.8%	41.1%	41.1%	38.7%	32.5%	38.1%	38.8%	38.7%	20.6%	21.0%	21.0%	21.0%					AFUDC % to Net Profit	1.5%	Pfd Stock None. Common Stock 28,404,000 shs.	49.4%	53.7%	56.6%	55.0%	51.1%	51.6%	49.8%	50.7%	48.2%	32.7%	34.5%	34.5%	32.5%					Long-Term Debt Ratio	32.5%	MARKET CAP: \$1.7 billion (Mid Cap)	50.6%	46.3%	43.4%	45.0%	48.9%	48.4%	50.2%	49.3%	51.8%	67.3%	65.5%	65.5%	67.5%					Common Equity Ratio	67.5%	CURRENT POSITION (\$MILL.)	499.6	550.7	607.9	610.2	658.2	744.5	784.6	855.0	894.3	1320.7	1375	1450	1625					Total Capital (\$mill)	1625	Cash Assets	25.3	7.8	420.7															Net Plant (\$mill)	1490	Accs Receivable	16.4	17.3	19.2															Return on Total Cap'l	7.0%	Other	57.9	41.8	62.8															Return on Sh. Equity	9.3%	Current Assets	99.6	66.9	502.7															Relative to Com Equity	2.5%	Accs Payable	18.7	23.0	24.9															Retained to Com Eq	5.5%	Debt Due	14.3	-	-															All Divs to Net Prof	43%	Other	30.6	62.1	139.1																	Current Liab.	63.6	85.1	164.0																	ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	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Current Assets	99.6	66.9	502.7															Relative to Com Equity	2.5%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Accs Payable	18.7	23.0	24.9															Retained to Com Eq	5.5%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Debt Due	14.3	-	-															All Divs to Net Prof	43%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Other	30.6	62.1	139.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Current Liab.	63.6	85.1	164.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '16-'18 to '22-'24	<b>BUSINESS:</b> SJW Group engages in the production, purchase, storage, purification, distribution, and retail sale of water. It provides water service to approximately 231,000 connections with a total population of roughly one million people in the San Jose area and 16,000 connections that reach about 49,000 residents in the region between San Antonio and Austin, Texas. The company also offers nonregulated water-related services and owns and operates commercial real estate investments. Has about 416 employees. Officers and directors (including Nancy D. Moss) own 8.2% of outstanding shares (3/19 proxy). Chairman & CEO: Richard Roth. Incorporated: California. Address: 110 West Taylor Street, San Jose, CA 95110. Telephone: (408) 279-7800. Internet: www.sjwater.com.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Revenues	5.0%	5.5%	NMF	<b>SJW Group's stock price has risen considerably since our January review.</b> Shares are up more than 10% in value over the past three months. We suspect that the majority of the gains were fueled by the investment community's confidence that the merger with Connecticut Water Service will soon be wrapped up. That said, the acquisition may take a bit longer to finalize than originally expected. The deal was projected to close by the end of the March quarter but, at this time, no official news or updates have been released. In our view, it is possible that a minor hiccup with the Connecticut Public Utilities Authority may have surfaced, as supplemental information was requested by the regulatory body that clearly outlines the merger's benefits to the public. Still, we are optimistic that the deal will eventually go through. To revisit some particulars, the transaction was changed from an all-stock deal to all-cash in which SJW will purchase CTWS for \$70 per share. Both boards of directors and shareholders have approved the purchase, and SJW has successfully raised additional funds via a common stock offering.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
"Cash Flow"	7.0%	11.0%	2.5%	<b>We think the marriage will bear fruit, long term.</b> The combined entity ought to generate annual revenues upward of \$500 million, with an operational footprint across multiples states such as California, Connecticut, Maine, and Texas. Moreover, the new company is apt to benefit nicely from cost synergies and improved customer service.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Earnings	8.0%	18.5%	6.0%	<b>Fourth-quarter financial results were mixed.</b> The regulated water utility posted December-period revenues of \$99 million, a nearly 6% improvement, year over year. Cumulative rate hikes and increased customer usage offset rate decreases stemming from the requirement of passing tax-related savings onto its customers. On the earnings front, share net of \$0.38 appears disappointing at first glance, but lofty merger-related expenses (included in our presentation) are being largely overlooked by the market.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Dividends	4.5%	5.0%	7.0%	<b>We continue to suggest that interested investors employ a wait-and-see approach.</b> The stock's Timeliness rank remains suspended due to the pending merger.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Book Value	5.5%	8.0%	6.5%	<b>Nicholas P. Patrick</b> April 18, 2019																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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2016	61.1	86.9	112.3	79.4	339.7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2017	69.0	102.1	124.6	93.5	389.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2018	75.0	99.1	124.9	98.7	397.7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2019	78.0	105	130	97.0	410																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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2016	.16	.82	.92	.87	2.57																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2017	.18	.90	.94	.84	2.86																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2018	.06	.62	.76	.38	1.82																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2019	.15	.75	.85	.50	2.25																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2020	.20	.75	.90	.65	2.50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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2015	.1950	.1950	.1950	.1950	.78																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2016	.2025	.2025	.2025	.2025	.81																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2017	.2175	.2175	.2175	.3875	1.04																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2018	.28	.28	.28	.28	1.12																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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(A) Diluted earnings. Excludes nonrecurring losses: '03, \$1.97; '04, \$3.78; '05, \$1.09; '06, \$16.36; '08, \$1.22; '10, \$0.46. GAAP accounting as of 2013. Next earnings report due late May. Quarterly earnings may not add due to rounding. (B) Dividends historically paid in early March, June, September, and December. Div'd reinvestment plan available. (C) In millions, adjusted for stock splits. (D) Paid special dividend of \$0.17 per share on 11/17.

Company's Financial Strength B+  
 Stock's Price Stability 70  
 Price Growth Potential 45  
 Earnings Predictability 45

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YORK WATER NDQ-YORW		RECENT PRICE	P/E RATIO	(Trailing: 32.4 Median: 25.0)	RELATIVE P/E RATIO	DIV'D YLD	VALUE LINE	1796																							
TIMELINESS 3	Rated 1/25/19	High: 16.5	18.0	18.0	18.1	18.5	22.0	24.3	26.7	39.8	39.9	36.1	36.5	36.5	30.3	Target Price Range	2022	2023	2024												
SAFETY 3	Lowered 7/17/15	Low: 6.2	9.7	12.6	15.8	16.8	17.6	18.6	19.7	23.8	31.7	27.5	30.3	30.3		64															
TECHNICAL 1	Raised 4/12/19	LEGENDS 1.10 x Dividends p sh divided by Interest Rate Relative Price Strength 3-Mo-2 split 9/06 Options: Yes Shaded area indicates recession														48															
BETA .75	(1.00 = Market)	2022-24 PROJECTIONS														40															
2022-24 PROJECTIONS		Price	Gain	Ann'l Total Return															32												
High	Low	45	(+35%)	9%															24												
		30	(-10%)	N/A															20												
Insider Decisions																12															
Institutional Decisions																8															
CAPITAL STRUCTURE as of 12/31/18																6															
Total Debt \$94.3 mill. Due in 5 Yrs \$42.5 mill.																% TOT. RETURN 3/19															
LT Debt \$93.3 mill. LT Interest \$5.5 mill.																THIS STOCK	VL ARITH <sup>®</sup>														
Pension Assets 12/18 \$40.6 mill. (42% of Cap'l)																1 yr.	13.0	2.7													
Oblig. \$41.5 mill.																3 yr.	19.3	35.5													
Pfd Stock None																5 yr.	67.9	37.5													
Common Stock 12,943,536 shs.																© VALUE LINE PUB. LLC 22-24															
MARKET CAP: \$425 million (Small Cap)		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Revenues per sh	5.10										
CURRENT POSITION (SMILL.)		2.17	2.18	2.58	2.56	2.79	2.89	2.95	3.07	3.18	3.21	3.27	3.58	3.68	3.70	3.77	3.74	3.85	3.95	"Cash Flow" per sh	2.50										
Cash Assets		.65	.65	.79	.77	.86	.88	.95	1.07	1.09	1.12	1.19	1.36	1.46	1.42	1.53	1.58	1.75	1.85	Earnings per sh <sup>A</sup>	1.70										
Accounts Receivable		.47	.49	.56	.58	.57	.57	.64	.71	.71	.72	.75	.88	.97	.82	1.01	1.04	1.15	1.25	Div'd Decl'd per sh <sup>B</sup>	.95										
Inventory (Avg. Cost)		.37	.39	.42	.45	.48	.49	.51	.52	.53	.54	.55	.57	.60	.63	.65	.67	.70	.73	Cap'l Spending per sh	1.85										
Other		1.07	2.50	1.69	1.85	1.89	2.17	1.18	.83	.74	.94	.76	1.10	1.11	1.03	1.95	1.95	2.00	2.00	Book Value per sh	12.10										
Current Assets		4.06	4.65	4.85	5.84	5.97	6.14	6.92	7.19	7.45	7.73	7.98	8.15	8.51	8.88	9.28	9.75	10.75	11.25	Common Shs Outst'g <sup>C</sup>	12.00										
Accts Payable		9.63	10.33	10.40	11.20	11.27	11.37	12.58	12.69	12.79	12.92	12.98	12.83	12.81	12.85	12.87	12.94	13.00	12.90	Avg Ann'l P/E Ratio	22.5										
Debt Due		24.5	25.7	26.3	31.2	30.3	24.6	21.9	20.7	23.9	24.4	26.3	23.1	23.5	32.8	34.6	30.3	30.3	30.3	Relative P/E Ratio	1.25										
Other		1.40	1.38	1.40	1.88	1.81	1.48	1.46	1.32	1.50	1.55	1.48	1.22	1.18	1.72	1.74	1.63	1.63	1.63	Avg Ann'l Div'd Yield	2.5%										
Current Liab.		3.2%	3.1%	2.9%	2.5%	2.8%	3.5%	3.6%	3.5%	3.1%	3.1%	2.8%	2.8%	2.6%	2.1%	1.9%	2.1%	2.1%	2.1%	Revenues (\$mill)	66.0										
ANNUAL RATES																37.0	39.0	40.6	41.4	42.4	45.9	47.1	47.6	48.8	48.4	50.0	51.0	Net Profit (\$mill)	21.5		
of change (per sh)																7.5	8.9	9.1	9.3	9.7	11.5	12.5	11.8	13.0	13.4	15.0	16.0	Income Tax Rate	21.0%		
Revenues																37.9%	38.5%	35.3%	37.6%	37.6%	29.8%	27.5%	31.3%	25.9%	15.7%	21.0%	21.0%	1.5%	1.5%	AFUDC % to Net Profit	1.5%
"Cash Flow"																--	1.2%	1.1%	1.1%	8%	1.8%	1.6%	1.9%	6.7%	1.7%	2.0%	1.5%	1.5%	Long-Term Debt Ratio	34.0%	
Earnings																45.7%	48.3%	47.1%	46.0%	45.1%	44.8%	44.4%	42.6%	43.0%	42.5%	36.5%	35.0%	63.5%	63.0%	Common Equity Ratio	68.0%
Dividends																54.3%	51.7%	52.9%	54.0%	54.9%	55.2%	55.6%	57.4%	57.0%	57.5%	63.5%	63.0%	63.5%	63.0%	Total Capital (\$mill)	235
Book Value																160.1	176.4	180.2	184.8	188.4	188.4	196.3	198.7	209.5	219.5	220	220	315	315	Net Plant (\$mill)	325
BUSINESS:																222.0	228.4	233.0	240.3	244.2	253.2	261.4	270.9	288.8	299.2	305	315	315	315	Return on Total Cap'l	10.5%
The York Water Company is the oldest investor-owned regulated water utility in the United States. It has operated continuously since 1816. As of December 31, 2018, the company's average daily availability was 35.4 million gallons and its service territory had an estimated population of 199,000. Has more than 69,000 customers. Residential customers accounted for 65% of 2018 revenues; commercial and industrial (28%); other (7%). It also provides sewer billing services. Incorporated: PA. York had 109 full-time employees at 12/31/18. President/CEO: Jeffrey R. Hines. Officers/directors own 1.1% of the common stock (3/18 proxy). Address: 130 East Market Street, York, Pennsylvania 17401. Telephone: (717) 845-3601. Internet: www.yorkwater.com.																8.0%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	10.9%	10.6%	10.5%	11.0%	11.0%	Return on Shr. Equity	14.0%	
York Water Company posted a surprise bottom-line beat to conclude 2018. Fourth-quarter earnings of \$0.29 a share came in \$0.04 above our expectation. Lower income taxes from a greater volume of eligible asset improvements were the primary contributor to the out-performance. Nevertheless, on a full-year basis, profitability jumped roughly 3% versus our previous call for a modest year-over-year contraction, while revenues of \$48.4 million registered a slight dip. The latter was adversely impacted by a ruling from the Pennsylvania Public Utility Commission, which passes some tax reduction benefits along to the consumer in the form of lower rates. Earnings growth ought to outpace revenue expansion this year and next. Further tax benefits for York should continue to be reflected in customer water rates, thus keeping the lid on revenue growth. Despite this, we think share net is poised to rise 10% in 2019, followed by an 8% advance in 2020. A plethora of improvements and upgrades are on the horizon. This means that, as expected, York's capital spending budget is likely to remain elevated. In 2018, the company laid out \$16.9 million on capital projects, including the completion of an additional untreated water pumping station and numerous infrastructure upgrades. Meanwhile, York anticipates that 2019 and 2020 will be a bit more capital intensive, as initial spending projections clock in at \$21.5 million and \$21.2 million, respectively. Specifically, management's plan includes spillway improvements, water storage tank replacements, wastewater treatment plant expansion, and service line and pipe upgrades, to name a few. Shares of York Water are up one spot on our Timeliness Ranking Scale, but are only ranked 3 (Average) and do not make an overly compelling case for near-term oriented subscribers. Similarly, buy-and-hold accounts should note that, at recent levels, capital appreciation potential is limited over the pull to 2022-2024. Finally, the dividend yield, which is hovering around 2.0%, is about 20 basis points shy of The Value Line Investment Survey median.																8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	10.9%	10.6%	10.5%	11.0%	11.0%	Return on Com Equity	14.0%	
Shares of York Water are up one spot on our Timeliness Ranking Scale, but are only ranked 3 (Average) and do not make an overly compelling case for near-term oriented subscribers. Similarly, buy-and-hold accounts should note that, at recent levels, capital appreciation potential is limited over the pull to 2022-2024. Finally, the dividend yield, which is hovering around 2.0%, is about 20 basis points shy of The Value Line Investment Survey median.																1.9%	2.7%	2.5%	2.4%	2.4%	3.9%	4.4%	3.4%	4.0%	3.6%	4.0%	4.5%	4.5%	4.5%	Retained to Com Eq	6.0%
Nicholas P. Patrikis																78%	72%	73%	74%	74%	64%	62%	67%	63%	64%	61%	56%	56%	56%	All Div'ds to Net Prof	56%
April 12, 2019																BUSINESS:															
The York Water Company is the oldest investor-owned regulated water utility in the United States. It has operated continuously since 1816. As of December 31, 2018, the company's average daily availability was 35.4 million gallons and its service territory had an estimated population of 199,000. Has more than 69,000 customers. Residential customers accounted for 65% of 2018 revenues; commercial and industrial (28%); other (7%). It also provides sewer billing services. Incorporated: PA. York had 109 full-time employees at 12/31/18. President/CEO: Jeffrey R. Hines. Officers/directors own 1.1% of the common stock (3/18 proxy). Address: 130 East Market Street, York, Pennsylvania 17401. Telephone: (717) 845-3601. Internet: www.yorkwater.com.																York Water Company posted a surprise bottom-line beat to conclude 2018. Fourth-quarter earnings of \$0.29 a share came in \$0.04 above our expectation. Lower income taxes from a greater volume of eligible asset improvements were the primary contributor to the out-performance. Nevertheless, on a full-year basis, profitability jumped roughly 3% versus our previous call for a modest year-over-year contraction, while revenues of \$48.4 million registered a slight dip. The latter was adversely impacted by a ruling from the Pennsylvania Public Utility Commission, which passes some tax reduction benefits along to the consumer in the form of lower rates. Earnings growth ought to outpace revenue expansion this year and next. Further tax benefits for York should continue to be reflected in customer water rates, thus keeping the lid on revenue growth. Despite this, we think share net is poised to rise 10% in 2019, followed by an 8% advance in 2020. A plethora of improvements and upgrades are on the horizon. This means that, as expected, York's capital spending budget is likely to remain elevated. In 2018, the company laid out \$16.9 million on capital projects, including the completion of an additional untreated water pumping station and numerous infrastructure upgrades. Meanwhile, York anticipates that 2019 and 2020 will be a bit more capital intensive, as initial spending projections clock in at \$21.5 million and \$21.2 million, respectively. Specifically, management's plan includes spillway improvements, water storage tank replacements, wastewater treatment plant expansion, and service line and pipe upgrades, to name a few. Shares of York Water are up one spot on our Timeliness Ranking Scale, but are only ranked 3 (Average) and do not make an overly compelling case for near-term oriented subscribers. Similarly, buy-and-hold accounts should note that, at recent levels, capital appreciation potential is limited over the pull to 2022-2024. Finally, the dividend yield, which is hovering around 2.0%, is about 20 basis points shy of The Value Line Investment Survey median.															
Nicholas P. Patrikis																Earnings per share															
April 12, 2019																Dividend yield															

(A) Diluted earnings. Next earnings report due late May. (B) Dividends historically paid in late February, June, September, and December. (C) In millions, adjusted for split.

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**East Norriton Township Wastewater System Assets**

Total Debt	649415	873698	1272050
Purchase of Capital Assets	44830	17500	41847

	2016	2015	2014
Income (Loss) Before Transfers	594146	870988	675411
Interest paid	26479	35940	51205
Depreciation	110824	115632	116707
Total Source	<u>\$731,449</u>	<u>\$1,022,560</u>	<u>\$843,323</u>
Income tax	0	0	0
Principal	224283	398353	381615
Interest paid	26479	35940	51205
Total Use	<u>\$250,762</u>	<u>\$434,293</u>	<u>\$432,820</u>

**W/Out Trans**

Debt Service Coverage	2.90	2.40	1.90
Pre-Tax Interest Coverage - Including AFC(3)(x)	23.40	25.20	14.20
Post-Tax Interest Coverage - Including AFC(3)(x)	23.40	25.20	14.20
GCF / Interest Coverage(4)(x)	27.60	28.50	16.50
GCF / Tot. Debt(7)(%)	108.60	112.90	62.30
GCF / Construction(6)(%)	1572.50	5637.80	1892.90

**Comparable Group**

Debt Service Coverage - As Reported							
	2017	2016	2015		2017	2016	2015
<b>Comparable Group</b>							
AMERICAN STATES WATER CO	5.7	5.4	5.6				
AMERICAN WATER WORKS CO INC	1.0	2.7	2.8				
AQUA AMERICA INC	1.0	1.0	0.8				
ARTESIAN RESOURCES -CL A	4.0	3.6	3.3				
CALIFORNIA WATER SERVICE GP	2.9	3.6	3.7				
MIDDLESEX WATER CO	3.6	3.6	3.2				
SIW GROUP	4.7	3.0	4.2				
YORK WATER CO	1.1	4.4	1.4				
Median	3.3	3.6	3.3				
	2017	2016	2015		2017	2016	2015
Company Name	DEPRECIATIO N	DEPRECIATIO N	DEPRECIATIO N	TOTAL INTERST EXPENSE	TOTAL INTERST EXPENSE	TOTAL INTERST EXPENSE	
AMERICAN STATES WATER CO	39.031	38.850	42.033	22.582	22.093	21.782	
AMERICAN WATER WORKS CO INC	492.000	470.000	440.000	350.000	331.000	316.000	
AQUA AMERICA INC	136.302	130.987	125.290	88.543	80.811	76.808	
ARTESIAN RESOURCES -CL A	9.555	9.188	8.837	6.177	6.644	6.998	
CALIFORNIA WATER SERVICE GP	76.783	63.599	61.381	36.288	33.466	29.185	
MIDDLESEX WATER CO	13.922	12.796	12.051	5.506	5.293	5.554	
SIW GROUP	48.292	44.625	40.740	25.736	24.026	23.374	
YORK WATER CO	6.769	6.422	6.151	5.348	5.265	5.053	
	2017	2016	2015	2017	2016	2015	
Company Name	INCOME TO PREF+COMM	INCOME TO PREF+COMM	INCOME TO PREF+COMM	REPAY LT DEBT DEBT	REPAY LT DEBT DEBT	REPAY LT DEBT DEBT	
AMERICAN STATES WATER CO	69.367	59.743	60.484	0.329	0.313	0.237	
AMERICAN WATER WORKS CO INC	426.000	468.000	476.000	896.000	144.000	130.000	
AQUA AMERICA INC	239.738	234.182	201.790	359.068	373.087	400.407	
ARTESIAN RESOURCES -CL A	13.983	12.954	11.305	1.218	1.289	1.263	
CALIFORNIA WATER SERVICE GP	67.181	48.675	45.017	26.829	6.996	7.003	
MIDDLESEX WATER CO	22.809	22.742	20.028	6.159	5.898	6.284	
SIW GROUP	59.204	52.839	37.882	2.717	16.599	0.633	
YORK WATER CO	12.974	11.846	12.489	17.533	0.053	11.886	



Company Name	Pretax Operating Income			Interest expense			Net Income		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
AMERICAN STATES WATER CO	130,923	116,571	119,997	22,582	22,093	21,782	69,367	59,743	60,484
AMERICAN WATER WORKS CO INC	1,262,000	1,101,000	1,098,000	350,000	331,000	316,000	426,000	468,000	476,000
AQUA AMERICA INC	345,195	335,971	293,560	88,543	80,811	76,808	239,738	234,182	201,790
ARTESIAN RESOURCES -CL A	27,455	27,929	26,087	6,177	6,644	6,998	13,983	12,954	11,305
CALIFORNIA WATER SERVICE GP	136,832	108,957	99,491	36,288	33,466	29,185	67,181	48,675	45,017
MIDDLESEX WATER CO	39,415	39,770	36,133	5,506	5,293	5,554	22,809	22,742	20,028
SJW CORP	122,229	110,407	84,528	25,736	24,026	23,374	59,204	52,839	37,882
YORK WATER CO	22,865	22,520	22,282	5,348	5,265	5,053	12,974	11,846	12,489

Company Name	Gross Cash Flow			Total debt			CAPX		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
AMERICAN STATES WATER CO	120,551	126,132	112,246	380,363	411,311	353,853	113,126	129,867	87,323
AMERICAN WATER WORKS CO INC	1,353,000	1,199,000	1,191,000	7,725,000	7,182,000	6,556,000	1,434,000	1,311,000	1,160,000
AQUA AMERICA INC	374,609	373,604	337,367	2,146,801	1,894,811	1,795,926	478,089	382,996	364,689
ARTESIAN RESOURCES -CL A	31,410	27,384	24,990	116,845	110,809	115,969	41,094	28,251	20,694
CALIFORNIA WATER SERVICE GP	162,691	136,127	128,876	806,813	655,053	552,502	259,194	228,938	176,833
MIDDLESEX WATER CO	43,973	38,472	47,452	173,910	152,697	144,986	50,301	47,375	25,773
SJW CORP	104,253	100,079	93,359	456,092	447,660	418,916	149,055	142,220	106,774
YORK WATER CO	21,363	19,686	20,704	91,142	84,653	87,305	24,602	13,158	13,844

Company Name	Pretax Interest Coverage			Posttax Interest Coverage			GCF Interest Coverage		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
AMERICAN STATES WATER CO	5.8	5.3	5.5	4.1	3.7	3.8	6.3	6.7	6.2
AMERICAN WATER WORKS CO INC	3.6	3.3	3.5	2.2	2.4	2.5	4.9	4.6	4.8
AQUA AMERICA INC	3.9	4.2	3.8	3.7	3.9	3.6	5.2	5.6	5.4
ARTESIAN RESOURCES -CL A	4.4	4.2	3.7	3.3	2.9	2.6	6.1	5.1	4.6
CALIFORNIA WATER SERVICE GP	3.8	3.3	3.4	2.9	2.5	2.5	5.5	5.1	5.4
MIDDLESEX WATER CO	7.2	7.5	6.5	5.1	5.3	4.6	9.0	8.3	9.5
SJW CORP	4.7	4.6	3.6	3.3	3.2	2.6	5.1	5.2	5.0
YORK WATER CO	4.3	4.3	4.4	3.4	3.2	3.5	5.0	4.7	5.1
Median	4.4	4.3	3.8	3.4	3.2	3.1	5.4	5.2	5.3

Company Name	GCF To Debt			GCF To CAPX		
	2017	2016	2015	2017	2016	2015
AMERICAN STATES WATER CO	31.7	30.7	31.7	106.6	97.1	128.5
AMERICAN WATER WORKS CO INC	17.5	16.7	18.2	94.4	91.5	102.7
AQUA AMERICA INC	17.4	19.7	18.8	78.4	97.5	92.5
ARTESIAN RESOURCES -CL A	26.9	24.7	21.5	76.4	96.9	120.8
CALIFORNIA WATER SERVICE GP	20.2	20.8	23.3	62.8	59.5	72.9
MIDDLESEX WATER CO	25.3	25.2	32.7	87.4	81.2	184.1
SJW CORP	22.9	22.4	22.3	69.9	70.4	87.4
YORK WATER CO	23.4	23.3	23.7	86.8	149.6	149.6
Median	23.2	22.9	22.8	82.6	94.2	111.8

	2017	2016	2015
Pre-Tax Interest Coverage - Including AFC(3)(x)	4.4	4.3	3.8
Post-Tax Interest Coverage - Including AFC(3)(x)	3.4	3.2	3.1
GCF / Interest Coverage(4)(x)	5.4	5.2	5.3
GCF / Tot. Debt(7)(%)	23.2	22.9	22.8
GCF / Construction(6)(%)	82.6	94.2	111.8

Company Name	AMERICAN S	AMERICAN V	AQUA	AMERI	ARTESIAN RE	CALIFORNIA	CONNECTICU	MIDDLESEX V	SIW	CORP	YORK WATER
2011 Sales-Net[c11]	419.274	2666.236	711.956	65.07	501.814	70.249	102.069	238.955	40.629		
2012 Sales-Net[c12]	466.908	2876.889	757.76	70.563	559.966	84.65	110.379	261.547	41.447		
2013 Sales-Net[c13]	472.077	2901.858	768.643	69.073	584.103	92.337	114.846	276.869	42.383		
2014 Sales-Net[c14]	465.791	3011.328	779.903	72.465	597.499	94.853	117.139	319.668	45.9		
2015 Sales-Net[c15]	458.641	3159	814.204	77.024	588.368	96.838	126.025	305.082	47.089		
2016 Sales-Net[c16]	436.087	3302	819.875	79.089	609.37	99.411	132.906	339.706	47.584		
2011 Cash & Short Term Investment	1.315	46.645	8.204	0.311	27.203	1.012	3.106	26.734	4.006		
2012 Cash & Short Term Investment	23.486	54.189	5.521	0.617	38.79	13.15	3.025	2.522	4.012		
2013 Cash & Short Term Investment	38.226	55.469	5.058	0.422	27.506	18.371	4.834	2.299	7.66		
2014 Cash & Short Term Investment	75.988	36.939	4.138	0.243	19.587	2.475	2.673	2.399	1.495		
2015 Cash & Short Term Investment	4.364	66	3.229	0.209	9.337	0.731	3.469	5.239	2.879		
2016 Cash & Short Term Investment	0.436	95	3.763	0.226	25.892	1.564	3.879	25.35	4.209		
2011 Current Assets-Total[c11]	165.601	1397.659	320.453	13.25	113.888	18.881	22.873	68.915	11.389		
2012 Current Assets-Total[c12]	184.093	499.447	260.894	13.48	146.564	36.362	24.613	42.911	11.645		
2013 Current Assets-Total[c13]	191.617	550.39	171.669	13.254	139.49	46.896	25.838	39.652	15.232		
2014 Current Assets-Total[c14]	209.451	661.369	152.522	16.648	154.124	36.168	22.864	68.093	11.233		
2015 Current Assets-Total[c15]	132.697	657	128.37	14.444	127.578	27.029	24.41	73.376	11.792		
2016 Current Assets-Total[c16]	166.875	784	128.65	14.635	142.069	29.364	26.716	99.611	12.62		
2011 Debt in Current Liabilities[c11]	2.291	543.908	188.2	13.823	53.673	21.372	28.819	0.838	0.042		
2012 Debt in Current Liabilities[c12]	3.328	385.904	125.421	12.578	136.258	2.964	39.08	20.692	0.042		
2013 Debt in Current Liabilities[c13]	6.298	644.481	123.028	12.21	54.723	4.121	33.836	22.954	0.043		
2014 Debt in Current Liabilities[c14]	0.292	511.091	77.013	19.877	85.722	4.448	24.91	13.784	0.043		
2015 Debt in Current Liabilities[c15]	28.312	682	52.314	12.322	40.215	18.927	8.739	38.091	0.044		
2016 Debt in Current Liabilities[c16]	90.33	1423	157.206	8.478	123.308	37.812	18.159	14.325	0.044		
2011 Current Liabilities-Total[c11]	104.37	1489.105	425.673	24.66	151.875	30.428	46.687	28.288	5.283		
2012 Current Liabilities-Total[c12]	93.697	994.832	274.164	24.939	243.067	15.877	55.932	49.107	5.474		
2013 Current Liabilities-Total[c13]	100.906	1235.533	266.91	25.563	166.584	22.729	52.678	59.195	7.843		
2014 Current Liabilities-Total[c14]	99.29	1240.998	225.335	30.192	217.706	23.622	43.872	44.694	5.93		
2015 Current Liabilities-Total[c15]	123.507	1533	193.199	23.218	148.455	36.939	28.319	79.623	6.197		
2016 Current Liabilities-Total[c16]	177.944	2392	301.536	19.328	250.23	55.125	47.056	63.573	8.184		
2011 noncash wkcap	62.207	405.8171	74.776	2.102	-11.517	8.813001	1.898999	14.731	2.142		
2012 noncash wkcap	70.17801	-163.67	106.63	0.502	0.964989	10.299	4.736003	11.974	2.201		
2013 noncash wkcap	58.783	-96.1309	22.729	-0.521	0.123005	9.916999	2.161996	1.112001	-0.228		
2014 noncash wkcap	34.465	-105.477	0.061997	6.090002	2.552999	14.519	1.228998	34.784	3.851		
2015 noncash wkcap	33.138	-260	-15.744	3.338999	10.001	8.286	1.361	26.605	2.76		
2016 noncash wkcap	78.825	-280	-19.443	3.559001	-10.745	10.487	-6.06	25.013	0.271		
2012 Change Non cashWrk Cap	7.971011	-569.487	31.85401	-1.6	12.48199	1.485999	2.837004	-2.757	0.059		
2013 Change Non cashWrk Cap	-11.395	67.53906	-83.901	-1.023	-0.84198	-0.382	-2.57401	-10.862	-2.429		
2014 Change Non cashWrk Cap	-24.318	-9.3461	-22.667	6.611002	2.429995	4.602	-0.933	33.672	4.078999		
2015 Change Non cashWrk Cap	-1.327	-154.523	-15.806	-2.751	7.448002	-6.233	0.132001	-8.179	-1.091		
2016 Change Non cashWrk Cap	45.687	-20	-3.69901	0.220001	-20.746	2.201	-7.421	-1.592	-2.489		
2012	0.017072	-0.19795	0.042037	-0.02267	0.022291	0.017555	0.025702	-0.01054	0.001424		
2013 WK cap/sale	-0.02414	0.023274	-0.10915	-0.01481	-0.00144	-0.00414	-0.02241	-0.03923	-0.05731		
2014 WK cap/sale	-0.05221	-0.0031	-0.02906	0.09123	0.004067	0.048517	-0.00796	0.105334	0.088867		
2015 WK cap/sale	-0.00289	-0.04892	-0.01941	-0.03572	0.012659	-0.06437	0.001047	-0.02681	-0.02317		
2016 WK cap/sale	0.104766	-0.00606	-0.00451	0.002782	-0.03404	0.02214	-0.05584	-0.00469	-0.05231		
Average	0.00852	-0.04655	-0.02402	0.004162	0.000706	0.003942	-0.01189	0.004813	-0.0085		
						Median			0.07%		