
EXHIBIT Q

**FAIR MARKET VALUE APPRAISAL
GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC**

**EAST BRADFORD TOWNSHIP
WASTEWATER SYSTEM ASSETS**

FAIR MARKET VALUE APPRAISAL

AT

DECEMBER 31, 2017

Prepared by:

GANNETT FLEMING
VALUATION AND RATE CONSULTANTS, LLC



Valley Forge, Pennsylvania



*Excellence Delivered **As Promised***

April 23, 2018

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 Bradford Township's sewage assets ("Wastewater System") as of December 31, 2017.

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 December 31, 2017 is \$8,050,000 (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 six methods under the Cost, Market and Income Approaches to valuation: Original Cost Method, Replacement Cost Method, Market Multiple Discounted Cash Flow Method, Capitalization Discounted Cash Flow Method, Market Multiples Method, and the Selected Transactions Method.

The attached narrative appraisal, present our findings and conclusions regarding the fair market value of the Wastewater System's assets of December 31, 2017. 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

April 23, 2018

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	\$9,183,993
Income Approach	5,877,580
Market Approach	9,086,635

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

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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 Bradford Township as of December 31, 2017. 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 Bradford Township is \$8.1 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 \$5.9 million to \$9.2 million. However, most of the appropriate indicated values approximated \$8.1 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 Bradford Township’s wastewater system assets (“Wastewater System”) as of December 31, 2017.

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.”¹

¹ 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 Wastewater Systems 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. We accepted all information and data provided by East Bradford Township and 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.

Site Inspection. We viewed or observed the Wastewater System's facilities on April 18, 2018. We also relied on the inventory and original cost study, "East Bradford Township Sewer System, Original Cost Study & Depreciated Original Cost at December 31, 2017" (dated March

2018) by AUS Consultants, and the independent engineer's letter report "East Bradford Township Sewer Conveyance System Engineer's Assessment of System Assets, East Bradford Township, Chester County, Pennsylvania" (dated March 29, 2018) by Mark J. Lucas, P.E. provided by East Bradford Township and Aqua to confirm the existence and condition of the Wastewater System's property and equipment.

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

East Bradford Township Sewer System, Original Cost Study & Depreciated Original Cost at December 31, 2017" (dated March 2018) by AUS Consultants;

Independent engineer's letter report "East Bradford Township Sewer Conveyance System Engineer's Assessment of System Assets, East Bradford Township, Chester County, Pennsylvania" (dated March 29, 2018) by Mark J. Lucas, P.E.;

AUS Consultants' original cost inventory files (PDF and Excel);

East Bradford Township provided electronic files (PDF and Excel);

Wastewater System's Customer data;

East Bradford Township's Audited Financials, for the years 2014 – 2017;

East Bradford Township's Annual Budget, for the years 2015 – 2018;

East Bradford Township's Chapter 94 Reports, 2016 - 2017;

Borough of West Chester's 94 Reports, 2016 - 2017;

East Bradford Township's Act 537 Plan;

Borough of West Chester's Act 537 Plans;

East Bradford Township's Comprehensive Plan;

East Bradford's Sewer Treatment Agreement with the Borough of West Chester;

East Bradford Sewer Ordinance;

The Delaware Valley Regional Planning Commission Analytical Data Reports;

Blue Chip Financial Forecasts;

US Census Bureau, various data files;

Value Line Investment Survey; and

S&P Research Insight.

Description of the East Bradford Township. East Bradford Township (“Township”) is in south central Chester County, Pennsylvania, approximately 25 miles west of Center City Philadelphia and immediately west of West Chester Borough. The Township consists of 15.4 square miles which are currently 40% developed (95% residential land and 5% percent commercial/industrial land). The developed land is primarily in the southeast corner of the Township. The Township has prioritized open space preservation, conserving 34% of its land base through fee simple acquisition and conservation easements. The Township has the 22 largest land mass of Chester County’s 73 municipalities and was the 17th most populous with 10,038 people (2015).

Chester County ranks as a major governmental employer, providing more than 2,000 jobs which are based in the Borough of West Chester and West Goshen Township, approximately five miles away from the Township. Large capital commitments by major corporations located in Chester County provide Township residents with job opportunities. The Township is traversed by two of Chester County’s major highways. Route 322 runs northwest to Downingtown Borough and Lancaster County and south and east to Chester City and New Jersey. Route 162 runs west and south to Unionville, in East Marlborough.

The Township is located downstream of more densely developed municipalities, such as West Chester Borough and Downingtown Borough. The Township is bordered by East Calin Township to the north, West Whiteland Township to the northeast, West Goshen Township and Chester Borough to the east, Westtown Township to the southeast, Birmingham Township to the south, Pocopson Township to the southwest, and West Bradford Township to the west.

The Township's currently has 3,481 housing units. The Township's Comprehensive Plan (2016) analyzed its future build-out. This analysis calculated a total development potential of 737 housing units. According to U.S. Census figures, Township population grew nearly 5.7% from 2000 to 2010, while population in Pennsylvania grew 3.4% and 15.1% in Chester County.

Description of the Wastewater System. The Township owns, operates and maintains the Wastewater System.##Currently, the Wastewater System only serves the more densely settled portions of the Township, most of which are close to the Borough of West Chester. The Wastewater System consists of approximately 18 miles of gravity mains, high pressure mains and three low pressure systems, five pump stations, treatment rights and related land and land rights.

The Wastewater System's wastewater is conveyed to the Borough of West Chester for treatment at two treatment plants: the Taylor Run treatment plant ("Taylor Run WWTP"), located in East Bradford; and the Goose Creek treatment plant ("Goose Creek WWTP"), located in West Goshen Township. Both treatment plants are owned by the Borough of West Chester. The Borough of West Chester treats the Wastewater System's sewage and bills the Township quarterly for that service. The Township then bills the residents who are served by the Wastewater System quarterly.

The Wastewater System's five pump stations include the Plum Run and Strode's Mill pumping stations, which flow to the Goose Creek WWTP, and the Hilldale Road, Kenmara and

Mercer's Mill pumping stations, which flow to the Taylor Run WWTP. The Wastewater System's pumping stations are maintained under contract to Aqua Wastewater Management and emergency generators are maintained under a contract with EMR Power Systems, Inc.

The Wastewater System has 1,248 customers and owns 424,947 GPD of paid capacity and may purchase 42,000 GPD of reserve capacity in the Borough of West Chester's two treatment plants. The Wastewater System's has connected 1,560 paid EDU's and 47 unassigned EDU's of wastewater capacity. Connection projections contained in the Wastewater System's Chapter 94 Reports project 402 of new EDU's over the next five years. There are no significant industries within the Wastewater System's service area.

The Township utilizes two funds, the Sewer Fund and the Capital Reserve Fund, to account for the Wastewater System's operations. The Sewer Fund provides for the day-to-day operations of the Wastewater System and the Capital Reserve Fund provides for the replacement and improvement of Township's fleet, equipment, and infrastructure, including the Wastewater System. The Township's audited financial statements reflect the use of the modified cash basis of accounting and provide limited information for the Wastewater System.

The modified cash basis of accounting uses elements of both the cash basis and accrual basis of accounting. The modified cash basis establishes a position part way between the cash and accrual methods. The modified cash basis is not allowed under Generally Accepted Accounting Principles (GAAP) or International Financial Reporting Standards (IFRS).

According to the Township's audited financial statements, for the year ended December 31, 2017 show (Exhibit 1, page 4) the Wastewater System had reported revenues of \$1.104 million and was capitalized with \$1.329 million of capital: including no long-term debt (including current maturities); and \$1.329 million of fund equity. At the same point in time, the Wastewater System

had total assets of \$1.329 million, including no total net utility plant. As stated, the Township's audited financial statements provide limited information for the Wastewater System.

The Township's annual budget reports provide more details on the Wastewater System's annual revenues and expenditures than the audited financial statements. Accordingly, we reviewed the Township's annual budget reports for the Wastewater System for the years 2014 through 2018 and show those details on pages 1 and 2 of Exhibit 1.² This information reveals the expenditures for the Wastewater System do not include salaries & benefits, nor interest charges nor depreciation charges.

The Wastewater System is exempt from Pennsylvania Public Utility Commission ("PUC") regulation as a municipal utility. Wastewater System's rate requirements are established by the needed funds to run the system (excluding salaries & benefits, interest charges and depreciation charges) and make fund transfers to the General Fund and the Capital Reserve Fund (renewals and replacements). 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,

² Years 2014-2017 are actual results and 2018 are budgeted.

construction expenditure, etc.) and “booked” at original cost by IOUs. For these reasons, we do not believe Wastewater System’s financial statements and budget reports should be fully relied upon without recognizing their limitations.

As shown on Exhibit 2, the Wastewater System provides service to 1,248 customers, has flows of 1.742 million gallons (2017) and services approximately 1,560 Equivalent Dwelling Units (“EDU”). EDUs are estimated to increase by 402 EDUs through 2022.

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 Page 1 of 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 time period, Chester County’s population grew 15.1% and the Township’s population grew 5.7% (Exhibit 3, Page 1, Table 3.2). The Township’s population growth was ranked 743 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 twice 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 upper 23 percent or 77th percentile of the 369 municipalities analyzed by DVRPC. Similarly, Page 2 of Exhibit 3, Table 3.4 shows Township's employment growth is projected to be about three times the growth rate projected for the Nine DVRPC Counties during each five year period from 2015 through 2045. The aforementioned projected large increases in Township's population and employment indicates a potential greater future demand for the Wastewater System's services.

In 2017, the Township's total population was 10,009 people (Exhibit 2). There were 3,481 household units in the Township and the ratio of people in households to households is 2.88 persons per household. Currently the Wastewater System is providing service to 1,213 residential units (accounts Residential and Apartments). The above-mentioned indicates the Wastewater System currently provides service to about 35% of Township's households ($1,213 \div 3,481$).

The Wastewater System's service area density is 8.0 people per customer based on an estimated population of 10,009 and 1,248 customers. The Wastewater System's service area density is twice the 3.6 per customer density of other water and wastewater systems (see Table 2 in this report). The combination of Township's higher than average projected population growth and the current low market penetration of the Wastewater System suggests appreciably higher future growth for the Wastewater System.

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 December 31, 2017. In particular, we focused on the forecasts and economic commentary presented in Blue Chip Financial Forecasts in the December 1, 2017 edition. Some of these economic forecasts are presented in Table 1.

<u>Economic Indicators</u>			
	<u>Latest Qtr</u>	<u>Consensus Forecasts</u>	
	<u>3Q 2017</u>	<u>1Q 2018</u>	<u>2Q 2018</u>
<u>Key Assumptions</u>			
Real GDP	3.0	2.7	2.4
GDP Price Index	2.2	2.2	2.0
Consumer Price Index	2.0	3.0	2.2
<u>Interest Rates</u>			
3-mo. Treasury Bills	1.05	1.4	1.6
10 Year Notes	2.26	2.6	2.7
30 Year Notes	2.82	3.1	3.3
Aaa Corporate Bond Yield	3.76	4.0	4.2
Baa Corporate Bond Yield	4.33	4.6	4.9
State & Local Bonds	3.34	3.7	3.9
Home Mortgage Rate	3.85	4.2	4.4

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 1,851 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 2008, there are approximately 15,000 such facilities in the nation, serving approximately 74% 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 8,722 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. (83% 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 (December 31, 2017), 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 requirements³

³ 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

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 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 Wastewater System. However, as a medium to small wastewater 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 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 December 31, 2017 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 December 31, 2017; and (5) with a Global Industry Classification Standard

pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands.

(“GICS”) of 55104010 (i.e., Water Utility). The nine companies (“Comparable Group”) that met the criteria for selection are listed in Table 2.

<u>Latest Size Statistics For the Year 2016</u>				
	<u>Revenues</u> (Mill. \$)	<u>Customers</u>	<u>Population</u>	<u>Customer Density</u>
East Bradford Township Wastewater System	<u>\$1.134</u>	<u>1,248</u>	<u>10,009</u>	<u>8.0</u>
<u>Comparable Group</u>				
American States Water Co	\$436.087	284,942	1,000,000	3.5
American Water Works Co Inc	3,302.000	3,312,000	12,200,000	3.7
Aqua America Inc	819.875	972,265	3,053,800	3.1
Artesian Resources -CL A	79.089	85,000	314,300	3.7
California Water Service Gp	609.370	511,500	2,000,000	3.9
Connecticut Water Svc Inc	99.411	124,968	400,000	3.2
Middlesex Water Co	132.906	109,300	400,000	3.7
SJW Corp	339.706	242,421	1,092,600	4.5
York Water Co	<u>47.584</u>	<u>67,052</u>	<u>196,000</u>	<u>2.9</u>
Median	<u>\$339.706</u>	<u>242,421</u>	<u>1,000,000</u>	<u>3.6</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 Wastewater System. The relative size difference between the group and 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 typically conduct a financial review that considers the financial and operating statistics for the Wastewater System and the Comparable Group for a three-year period, 2014 to 2016. 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. Further, the Wastewater System rates did not include salaries & benefits, nor interest charges nor depreciation charges. That is, the Wastewater System's rates would have been higher if they included a provision for taxes, salaries & benefits, interest charges and depreciation charges and their financial results would have been healthier if they were required to pay taxes and made provisions for taxes in their rates. Therefore, the results of the Wastewater System's historical financial performance, as measure by various ratios and coverages, are not meaningful due to the absence of several expense items.

Financial Benchmark Analysis. To gain insight into the risk differences between the Wastewater System and the Comparable Group, we typically review financial ratios and

coverages. Unfortunately, there is not sufficient information for the Wastewater System to do so due to the lack of salaries & benefits, interest charges and depreciation charges being recorded in their financials/budget. Therefore, a Financial Benchmark Analysis cannot be done.

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 4, Table 4.1, 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 December 31, 2017 ranged from \$354 million to \$16,320 million as shown on Table 4.2 of Exhibit 4. 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 considering the fact that 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 4 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 4 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 12, page 2). As shown on Exhibit 12, 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 with treatment rights. 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 5, Table 5.1) with 66% of their gross property, plant and equipment remaining undepreciated while 74% 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 Systems), 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 28% (100% - 72%) differences between the Comparable Group’s net property, plant and equipment and the Comparable Group’s investor provided capital on the valuation date (Exhibit 5, page 1, Table 5.2). 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. This is evidenced by the 28% difference in the Comparable Group’s net property, plant and equipment and the Comparable Group’s investor provided capital (Exhibit 5, page 1, Table 5.2).

We did not analyze the Wastewater System’s property, plant and equipment for customer contributions because customer contributions are 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 (2018-2021) 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 5, page 2, Table 5.3). During this same time, 2013-16, capital expenditures were not reported for the Wastewater System. Therefore, a comparison of capital expenditures cannot be done.

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 the Comparable Group's growth (Exhibit 5, page 4, Table 5.4) over the last three years. Growth rates were not able to be determined for Wastewater System due to the lack of appropriate financial information for the time period reviewed.

Prospectively, the Comparable Group may be able to enhance their growth rates through the continued acquisition of water and wastewater systems outside their existing service territory.

Profit Margin Analyses. Higher profit margins are an indication of less risk. We typically compare earnings before interest and taxes ("EBIT") to revenues to see how successful the Wastewater System's management was at generating income from the operation of the business. We also typically compare 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. Unfortunately, there is not sufficient information to do so for the Wastewater System due to the lack of salaries & benefits, interest charges and depreciation charges being recorded in their financials/budget. Therefore, a profit margins analyses cannot be done.

VALUATION

The purpose of this 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 Wastewater System's assets as of December 31, 2017 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 profit⁴ are applied to the inventory listing in order to determine the RCN and to determine the replacement cost new.

⁴ 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.

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 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 and Aqua provided us a copy of AUS Consultants' original cost study ("East Bradford Township Sewer System, Original Cost Study & Depreciated Original Cost at December 31, 2017", dated March 2018), prepared to study of the OCN of the fixed capital and the theoretical depreciation calculations of the Wastewater System assets as of December 31, 2017 ("OCNLD Study"). The OCNLD Study includes an original cost inventory of the Wastewater System's utility plant determined from a detailed analysis of the books and records of the Wastewater System and did not reflect the original source of funding for any of the Wastewater System's assets. A summary of the OCNLD Study is shown on Exhibit 6.

The results of the OCNLD Study established that the OCN of the Wastewater System's utility plant in service as of December 31, 2017 was not less than \$8.3 million (\$8,294,930 rounded). The OCNLD Study also determined a theoretical calculated accrued depreciation reserve of the utility plant in service of \$2.8 million (\$2,820,983 rounded) as of December 31, 2017. After factoring in the OCNLD Study's accrued depreciation reserve, the OCNLD of Wastewater System's utility plant in service as of December 31, 2017 was determined to be \$5.5 million ($\$8,294,930 - \$2,820,983 = \$5,473,947$ rounded).

The Reproduction Cost Method. We utilized the OCN to calculate the trended original cost measures, or the reproduction cost of the depreciable assets (RCN), by multiplying the OCN by specific cost indices. The result of this analysis is shown in the Reproduction Cost and Related Accrued Depreciation of the Wastewater System as of December 31, 2017 ("RCNLD Study") shown on Exhibit 7.

Page 1 of Exhibit 7 summarizes the reproduction cost new and related accrued depreciation by account for the Wastewater System as of December 31, 2017. The reproduction cost new was brought forward from page 2 of Exhibit 7 and the accrued depreciation from page 3 of Exhibit 7.

The reproduction cost new of the Wastewater System (see page 2 of Exhibit 7) 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 8.⁵

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 in the RCNLD 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 9.

The results of the RCNLD Study established that the RCN of the Wastewater System's utility plant in service as of December 31, 2017 was not less than \$14.8 million (\$14,758,761 rounded). The RCNLD Study also determined a theoretical calculated accrued depreciation reserve of the utility plant in service of \$5.6 million (\$5,574,768 rounded) as of December 31, 2017. After factoring in the RCNLD Study's accrued depreciation reserve, the RCNLD of Wastewater System's utility plant in service as of December 31, 2017 was determined to be \$9.2 million ($\$14,758,761 - \$5,574,768 = \$9,183,993$).

⁵ All land and land rights were valued at original cost.

The results of the OCNLD and RCNLD Cost Approaches show a range of value for the Wastewater System of \$5.5 million to \$9.2 million. The Wastewater System's RCNLD of \$9.2 million (\$9,183,993 rounded) is used as the Cost Approach as part of our fair market value determination for the Wastewater System for the reasons specified in the next section of this report.

Benchmark Metrics. Besides providing an indication of value based upon a cost method, the OCN and OCNLD also provides 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 1.50-times (Exhibit 12, page 2) their OCNLD or net property, plant and equipment. Similarly, the Comparable Group's Enterprise Value is currently 1.19-times (Exhibit 12, 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 the Comparable Group's property, plant and equipment includes assets that were originally financed with customer contributions. Subtracting customer contributions ("CIAC") from the Comparable Group's property, plant and equipment (Exhibit 12, page 3) results in CIAC adjusted multiples of 2.30-times OCNLD and 1.82-times OCN for the Comparable Group.

Multiplying the Wastewater System's OCN of \$8.3 million by the Comparable Group's 1.19-times OCN multiple or the 1.82-times contributions adjusted OCN multiple indicates a range of market value of \$9.9 million to \$15.1 million for the Wastewater System, similar to the RCNLD of \$9.2 million. Further, multiplying the Wastewater System's OCNLD of \$5.5 million by the Comparable Group's 1.50-times OCNLD multiple or the 2.30-times contributions adjusted

OCNLD multiple indicates a range of market value of \$8.3 million to \$12.6 million for the Wastewater System, similar to the RCNLD of \$9.2 million.

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 are meaningful metrics 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 \$5.5 million to be an outlier. Therefore, the results of the RCNLD method form the basis for our Cost Approach conclusion. As stated previously, the Wastewater System's RCNLD of \$9.2 million (\$9,183,993 rounded) 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 December 31, 2017 of 3.65%. The appropriate IOU discount rate is the current pre-tax overall cost of capital on December 31, 2017 and ranges from 6.80% to 8.17%. 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.

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 Exhibit 10.

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 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 financial statements and budget reports so it is more consistent with the Comparable Group and more practical for valuation purposes. The information on Exhibit 1 was used to develop Exhibit 10. As noted previously, the Wastewater System's rates and their financials/budgets did not include salaries & benefits, nor interest charges nor depreciation charges. Accordingly, on Exhibit 10 we adjusted the Wastewater System's post-2018 financial information for additional expenses 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 10) for a recent time period and assumes current ownership and operations. Due to the lack of complete financial information (missing salaries & benefits, interest charges, depreciation charges, and capital expenditures) current (2018) Debt Free Net Cash Flow could not be determined for the

Wastewater System under current operations and ownership and eliminated our use of the capitalization of earnings method.

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 10 and 11.

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 10 and IOU ownership shown on Exhibit 11.

Under the MUNI ownership the discount rate is the current 3.65% municipal revenue bond yield and under the IOU ownership the discount rate is the current pre-tax overall cost of capital, reflecting the upper and lower range of the pre-tax overall cost of capital for the Comparable Group of 6.80% to 8.17%. 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 0.25% (i.e., discount rate – 0.25% growth = capitalization rate) under IOU ownership based on changes in Debt Free Net Cash Flows.

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 15.1-times and 11.0-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 10 shows the results of the DCF method under the MUNI ownership scenario. The results of the Capitalization DCF shown on Exhibit 10 show a range of value for the Wastewater System of \$7.1 million to \$7.7 million. The results of the Market Multiple DCF shown on Exhibit 10 show a value of \$5.2 million. Collectively, the DCF method based on the MUNI ownership scenario indicates a value of \$6.4 million for the Wastewater System based on the 0.4% growth assumption.

Exhibit 11 shows the results of the DCF method under the IOU ownership scenario. The results of the Capitalization DCF shown on Exhibit 11 show a range of value for Wastewater System of \$4.2 million to \$5.2. The results of the Market Multiple DCF shown on Exhibit 11 show a range of value of \$5.4 million to \$6.2 million. Collectively, the DCF method based on the IOU ownership scenario and a 0.25% growth assumption indicates a value of \$5.3 million for the Wastewater System.

The DCF method based on the MUNI ownership scenario indicates a value of \$6.4 million and the DCF method based on the IOU ownership scenario indicates a value of \$5.3 million. Collectively, the DCF method indicates a value of \$5.9 million for the Wastewater System based on the Income Approach.

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

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 12. For the Comparable Group, the Market Multiples were calculated as of 12/31/17 based on the latest twelve months of financial data available at the appraisal date.

We used the Comparable Group’s Enterprise Value at December 31, 2017 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 abridged 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 abridged quantitative and qualitative analysis. This combined risk was assumed to result in the Wastewater System being 30% riskier than the Comparable Group and produces a 70% (100% - 30%) base risk adjustment to the Comparable Group's Market Multiples. We applied the 70% base risk adjustment to all financial multiples. For example, the Comparable Group's ICAP multiple was multiplied by 70% 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 12, 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 12, page 3) financed with contributions because customer contributions 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 (wastewater collection system with treatment rights).

The net risk adjustments to the Comparable Group's Market Multiples are shown on page 1 of Exhibit 12. The adjustments to the Comparable Group's Market Multiples are: 70% of ICAP (riskier), 107% of GPPE (riskier and contributions), 108% of NPPE (riskier and contributions), 70% of Revenue (riskier); 70% of EBIT and 70% EBITDA (riskier); and 90% of Customers and Population (wastewater collection system with treatment rights).

As shown on page 1 of Exhibit 12, the market multiples method indicated values based on Revenue, EBIT and EBITDA (collectivity called "Income Statement Items") are far below the Wastewater System's market multiples method indicated values based ICAP, GPPE and NPPE (collectivity called "Capital Items"), and those based on Customers and Population (collectivity called "Demographics Items"). We attribute this to the fact the Wastewater System's dollars of Revenue, EBIT and EBITDA do not reflect any provision for taxes while the multiples for the Comparable Group do.⁶ Consequently, we do not believe the results of the multiples of Revenue, EBIT and EBITDA are meaningful and should not be used.

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 12, page 1). The results of the market multiples method (Exhibit 12, page 1) show a range of value for the Wastewater System of \$8.4 million to \$9.8 million and collectively, indicate value of \$9.1 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

⁶ The revenues and expenditures for the Wastewater System also do not include salaries & benefits, nor interest charges nor depreciation charges.

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 (12/31/17). 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 12/31/17 valuation multiples so that the 12/31/17 valuation multiples have an index value of 100.

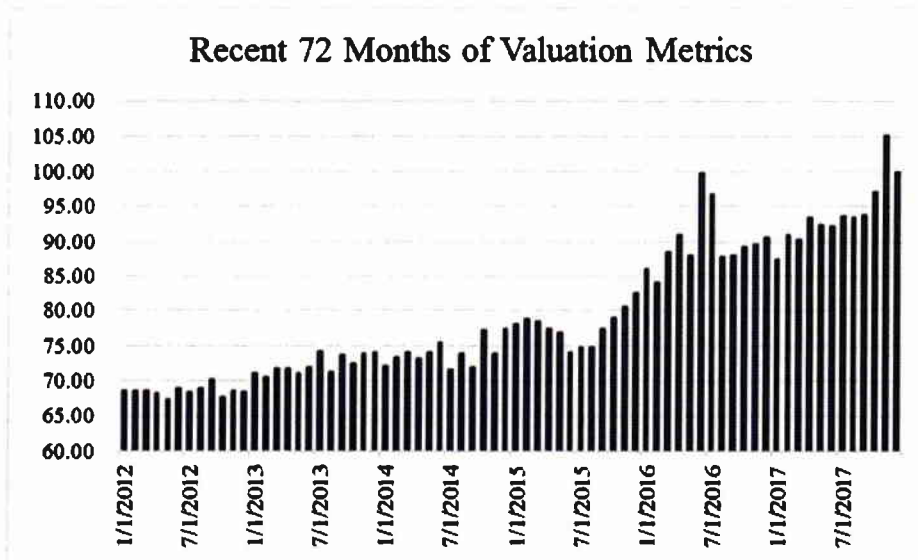


Figure 1

The Comparable Group’s appraisal date (12/31/17) valuation multiples are 13% higher than 2017’s lowest levels and 5% below 2017’s highest levels and 16% higher than 2016’s lowest levels and equal to the 2016’s highest levels. The Comparable Group’s 12/31/17 valuation multiples are 26% to 17% higher than 2015’s, are 28% to 23% higher than 2014’s, are 29% to 26% higher than 2013’s, and are 33% to 30% higher than 2012’s multiples.

Because of the recent rapid rise in valuation multiples over the last 24 months 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 customer contributions in the valuation. The selected transactions that met the stated selection criteria are shown on page 2 of Exhibit 13.

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 page 2 of Exhibit 13, the selected transactions method

indicated values based on the Income Statement Items are far below 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.⁷ 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 13, page 2). The results of the selected transactions method (Exhibit 13, page 1) show a range of value for the Wastewater System of \$13.7 million to \$22.5 million when all transactions are considered and a range of value of \$8.1 million to \$16.5 million when collection/distribution assets are solely considered. Collectively, the indicate value for the Wastewater System for the Wastewater System is of \$12.3 million based on the more comparable selected transactions multiples.

The results of the market multiples method shown on Exhibit 12 show a range of value for the Wastewater System of \$8.4 million to \$9.8 million and collectively, indicate value of \$9.1 million. The results of the selected transactions method shown on Exhibit 13 show a range of value of \$8.1 million to \$16.5 million and collectively, indicate value of \$12.3 million. Based on the aforesaid, the Market Approach to valuation indicates a value of \$9.1 million for the Wastewater System based predominantly on the results of the market multiples method.

⁷ Further, the revenues and expenditures for the Wastewater System also do not include salaries & benefits, nor interest charges nor depreciation charges.

Conclusion. We summarize our findings for the Wastewater System on Exhibit 14. Our findings for the Wastewater System is based on the Cost, Market and Income Approaches to valuation. We used six methods under the Cost, Market and Income Approaches to valuation: Original Cost Method, Reproduction Cost Method, Market Multiple Discounted Cash Flow Method, Capitalization Discounted Cash Flow Method, Market Multiples Method, and the Selected Transactions Method.

The results from the 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. Based on these facts, our conclusion regarding the fair market value is \$8.1 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 14. The results of our analyses, shown on Exhibit 14, indicate a range of value for the Wastewater System of \$5.9 million to \$9.2 million and collectively indicate a fair market value of \$8,050,000 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 Bradford Township Wastewater System's 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 Bradford 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 Bradford Township Wastewater System's assets include sewage collection and transmission assets, treatment rights and related land and land rights.

The East Bradford Township Wastewater System's wastewater is conveyed to the Borough of West Chester for treatment at two treatment plants: the Taylor Run treatment plant ("Taylor Run WWTP"), located in East Bradford; and the Goose Creek treatment plant ("Goose Creek WWTP"), located in West Goshen Township. Both treatment plants are owned by the Borough of West Chester. East Bradford Township Wastewater System owns 424,947 GPD of paid capacity and may purchase 42,000 GPD of reserve capacity in the Borough of West Chester's two treatment plants.

The Wastewater System consists of approximately 18 miles of gravity mains, high pressure mains and three low pressure systems, and five pump stations. The Wastewater System's five pump stations include the Plum Run and Strode's Mill pumping stations, which flow to the Goose Creek WWTP, and the Hilldale Road,

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Fulfillment of Requirements for a Personal Property Appraisal and Report

Kenmara and Mercer's Mill pumping stations, which flow to the Taylor Run WWTP.

The Wastewater System has 1,248 customers and owns 424,947 GPD of paid capacity and may purchase 42,000 GPD of reserve capacity in the Borough of West Chester's two treatment plants. There are no significant industries within the Wastewater System's service area.

The East Bradford Township Wastewater System's property is in reasonable condition for their age based on physical observations and reviews of operating and financial statements. The property is an operating wastewater system, the economics of which were analyzed from five years of financial statements and budget reports which were incorporated into the income approach to value in this appraisal.

The East Bradford Township Wastewater System's land and land rights include land used for the five pump stations (Plum Run, Strode's Mill, Hilldale Road, Kenmara and Mercer's Mill pumping stations) and the approximate 18 miles of gravity mains, high pressure mains and three low pressure systems 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 December 31, 2017 and the appraisal report date is April 2018.

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

Fulfillment of Requirements for a Personal Property Appraisal and Report

- **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 Bradford Township Wastewater System's 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.

We accepted all information and data provided by the East Bradford Township Wastewater System and Aqua Pennsylvania Wastewater, Inc. 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:

Cost Approach - 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 AUS Consultants from its original cost new method. 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 reproduction cost new. The calculated accrued depreciation was based on the assets' attained ages, and the service life of the assets determined by AUS Consultants. 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 discounted cash flow method. 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.

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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 calculate market multiples at the time of transaction (sale/purchase). The calculated market multiples determined by the market multiples method and the selected transaction method were then multiplied by the corresponding Wastewater System financial and operating statistic to produce an indicated value for the Wastewater System.

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.

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

Fulfillment of Requirements for a Personal Property Appraisal and Report

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

See scope of work above.

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

The East Bradford Township Wastewater System's land and land rights include land used for the five pump stations (Plum Run, Strode's Mill, Hilldale Road, Kenmara and Mercer's Mill pumping stations) and the approximate 18 miles of gravity mains, high pressure mains and three low pressure systems and multiple easements and rights-of-way necessary to operate the Wastewater System.

The Wastewater System's land and land rights were assumed to be used for the operation of the Wastewater System for the appraisal.

- **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 Bradford, Pennsylvania
East Bradford Township Wastewater System Assets
Fair Market Value Appraisal Report
As of December 31, 2017

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 Bradford 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 Bradford, Pennsylvania
East Bradford Township Wastewater System Assets
Fair Market Value Appraisal Report
As of December 31, 2017

- 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, Senior Vice President, and Joanna Lappin, Depreciation 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 21 states including: Arizona, California, Colorado, Connecticut, Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, Missouri, New Hampshire, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, Rhode Island, 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

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 Bradford Township Sewer Fund
Selected Financial Information From Budget

		Actual				Budget
		<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
<u>REVENUES</u>						
341	Interest Checking & PLGIT Merchant	155	255	1,239	2,788	2,000
341.5	Interest Capital Reserve	666	668	674	682	750
364.11	Sewer System Connection Fees	2,732	0	0	0	0
364.12	Sewer User Payments	1,110,112	1,076,961	1,062,631	1,112,143	1,070,000
364.25	Delinquent Account Collections / Payments	3,493	31,855	26,009	20,280	25,000
364.31	On-site Sewer Admin / Compliance	3,100	1,200	2,170	1,850	0
355	Other State Shared Revenue/Entitlements	0	0	0	0	0
380.1	Miscellaneous Revenue, incld grants	0	778	3,637	0	0
392.08	Transfer to Sewer Fund	0	0	0	0	0
	Township System Sub-Total	1,120,258	1,111,717	1,096,360	1,137,743	1,097,750
<u>EXPENDITURES</u>						
402.15	Bank Related - Services Charges	15	15	50	0	0
407.3	On-site System Mgt / Admin	0	0	0	0	0
429	Sewer Conveyance & Treatment	0	0	0	0	0
429.101	Sewer User Fees - Residential	655,167	659,867	658,727	659,146	658,727
429.102	Sewer User Fees - Commercial	204,415	200,104	196,449	207,682	200,000
429.21	Office Supplies	0	0	0	0	0
429.22	Postage	600	1,437	0	0	0
429.25	Sewer Payment Merchant Fees	3,143	3,754	112	98	100
429.3	Third Party Invoice/Collect- MuniBilling 2016	11,168	6,357	18,137	11,967	20,450
429.31	Township Engineering System Support					
429.31	Consulting Engineer	3,855	1,792	1,694	21,540	2,500
429.311	Admin Support (Reimburse Gen'l Fund)	0	0	0	0	0
429.315	Township Engineer	65	65	125	65	0
429.32	System annual inspect,test,video,grout,repair	3,521	7,520	20,736	27,234	32,500
429.33	Sewer Connections / Tapping Fees	2,332	0	0	0	0
	Sub-Total	884,281	880,911	896,030	927,732	914,277
429.34	Sewer Alarm / Communications	0	0	0	0	0
429.341	Windon	689	868	727	506	850
429.342	Plum Tree	1,175	727	1,386	756	800
429.343	Strode's	708	1,273	994	1,045	800
429.344	Kenmara	703	972	539	791	500
429.345	East Bradford Park	188	147	0	0	200
429.346	Mercer's Mill	415	418	374	378	400
	Sub-Total	3,878	4,405	4,020	3,476	3,550
429.35	Insurance	4,911	7,450	7,600	6,540	7,600
	Sub-Total	4,911	7,450	7,600	6,540	7,600
429.36	Electric - Pump Stations	0	0	0	0	0
429.361	Windon PECO 48241-00801	4,838	4,081	3,981	3,943	6,500
429.362	Plum Tree PECO 51338-01005	3,351	3,649	3,785	3,319	4,000
429.363	Strode's Mill PECO 75916-01004	4,761	3,940	3,941	4,089	4,500
429.364	Kenmara PECO 01652-00401	1,904	2,202	2,268	1,644	2,500
429.365	East Bradford Park	938	716	933	1,050	1,000
429.366	Mercer's Mill	1,592	1,468	1,447	1,328	2,500
	Sub-Total	17,384	16,056	16,355	15,373	21,000

East Bradford Township Sewer Fund
Selected Financial Information From Budget

		Actual				Budget
		2014	2015	2016	2017	2018
429.37	(PM) Maintenance - Pump Stations	0	0	0	0	0
429.371	Windon	8,187	5,961	5,908	6,287	6,500
429.372	Plum Tree	8,260	5,961	6,218	6,139	6,500
429.373	Strode's	8,268	5,961	5,908	6,286	6,500
429.374	Kenmara	8,045	6,181	5,908	6,132	6,500
429.375	East Bradford Park	7,379	5,961	5,908	6,132	6,500
429.376	Mercer's Mill	8,276	5,961	5,908	6,132	6,500
	Sub-Total	48,415	35,986	35,758	37,108	39,000
429.38	Repairs - Pump Stations	0	0	0	0	0
429.381	Windon	8,395	1,832	1,977	5,403	8,000
429.382	Plum Tree	6,321	3,096	2,210	3,567	7,500
429.383	Strode's	70,071	6,758	9,635	9,059	7,500
429.384	Kenmara	4,726	3,099	3,065	2,607	4,500
429.385	East Bradford Park	0	0	296	451	1,000
429.386	Mercer's Mill	4,492	5,417	3,181	2,510	6,000
429.389	Conveyance System Repairs/Maint	3,748	0	0	0	0
	Sub-Total	97,753	20,202	20,364	23,597	34,500
429.39	Water Charges	0	0	0	0	0
429.391	Windon	218	197	197	198	300
429.392	Plum Tree	386	351	304	370	400
429.393	Strode's	565	232	341	219	400
429.394	Kenmara	219	161	219	200	300
429.395	East Bradford Park	0	0	0	0	100
429.396	Mercer's Mill	210	194	184	210	300
	Sub-Total	1,598	1,135	1,245	1,197	1,800
	Other Sewer System Expenses					
429.4	open					
429.401	All Pump Stations (Propane)	186	450	450	249	2,000
429.45	Act 537 Plan Update	0	0	0	0	0
429.46	Other Sewer Related Study	0	5,189	68,497	0	0
429.5	Legal Services	853	0	0	37,744	1,000
429.55	Third Party Collection Services	812	0	949	678	2,000
429.61	Special Projects Installations	0	0	0	0	0
429.7	Capital Improvements	0	0	0	0	0
	Sub-Total	1,851	5,639	69,896	38,671	5,000
429.75	Capital Improve / Replace					
	Capital Reserve Funding	520	22,683	27,545	0	544,680
429.8	Other Sewer Expense					
429.801	Customer Refunds (Overpayments)	150	0	0		
	Sub-Total	0	0	1,755	158	0
492.01	Transfer to General Fund	15,000	22,000	15,000	20,000	20,000
	Township System Sub-Total	1,075,741	1,016,467	1,095,568	1,073,852	1,591,407

East Bradford Township Sewer Fund
Selected Financial Information From Budget

		Actual				Budget
		<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
REVENUES						
364.12	Sewer User Payments	1,110,112	1,076,961	1,062,631	1,112,143	1,070,000
364.11	Sewer System Connection Fees	2,732	0	0	0	0
364.25	Delinquent Account Collections / Payments	3,493	31,855	26,009	20,280	25,000
364.31	On-site Sewer Admin / Compliance	3,100	1,200	2,170	1,850	0
		6,593	33,055	28,179	22,130	25,000
341	Interest Checking & PLGIT Merchant	155	255	1,239	2,788	2,000
341.5	Interest Capital Reserve	666	668	674	682	750
355	Other State Shared Revenue/Entitlements	0	0	0	0	0
380.1	Miscellaneous Revenue, incld grants	0	778	3,637	0	0
392.08	Transfer to Sewer Fund	0	0	0	0	0
		821	1,701	5,550	3,470	2,750
EXPENDITURES						
429.361	Windon PECO 48241-00801	4,838	4,081	3,981	3,943	6,500
429.362	Plum Tree PECO 51338-01005	3,351	3,649	3,785	3,319	4,000
429.363	Strode's Mill PECO 75916-01004	4,761	3,940	3,941	4,089	4,500
429.364	Kenmara PECO 01652-00401	1,904	2,202	2,268	1,644	2,500
429.365	East Bradford Park	938	716	933	1,050	1,000
429.366	Mercer's Mill	1,592	1,468	1,447	1,328	2,500
429.401	All Pump Stations (Propane)	186	450	450	249	2,000
	Utilities	17,570	16,506	16,805	15,622	23,000
429.31	Consulting Engineer	3,855	1,792	1,694	21,540	2,500
429.315	Township Engineer	65	65	125	65	0
429.45	Act 537 Plan Update	0	0	0	0	0
429.46	Other Sewer Related Study	0	5,189	68,497	0	0
429.5	Legal Services	853	0	0	37,744	1,000
429.55	Third Party Collection Services	812	0	949	678	2,000
	Professional Services	5,585	7,046	71,265	60,027	5,500
CAPITAL RESERVE FUNDING		520	22,683	27,545	0	544,680
492.01	Transfer to General Fund	15,000	22,000	15,000	20,000	20,000
	Transfers	15,520	44,683	42,545	20,000	564,680
429.33	Sewer Connections / Tapping Fees	2,332	0	0	0	0
	Tapping Fees WWTP	2,332	0	0	0	0

Source of Information: Annual Budgets

East Bradford Township Sewer Fund
Selected Audited Financial Information

	<u>2017</u>
<u>Balance Sheet</u>	
Cash and Investments	<u>\$1,328,506</u>
Total Assets	<u><u>\$1,328,506</u></u>
Retained Earnings	<u>1,328,506</u>
Total Fund Equity	<u><u>1,328,506</u></u>
Total Liabilities and Fund Equity	<u><u>\$1,328,506</u></u>
 <u>Statement of Revenues and Expenditures</u>	
Total Revenues	\$1,103,731
Total Expenditures	<u>1,073,852</u>
Excess/Deficit of Revenues Over Expenditures	<u><u>\$29,879</u></u>

Source of Information: Audited Financial Statements

East Bradford Township Wastewater System Assets

Population and Housing Units
 EDU and Customer Count
 Penetration of Service Area
Estimated Flows

	Township	
	<u>2017</u>	
Population	10,009	8.0
Housing Units	<u>3,481</u>	36%
Average Size	<u><u>2.88</u></u>	

East Bradford Township Wastewater System Assets

	<u>Current</u>	
<u>Customers</u>		
Residential	1,213	
Commercial/Industrial	<u>35</u>	
Total	<u><u>1,248</u></u>	Paid & Connected EDUs <u><u>1,560</u></u>

	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<u>Wastewater System Annual Flows (MG)</u>					
Goose Creek WWTP	0.834	0.895	0.818	0.855	0.849
Taylor Run WWTP	<u>1.045</u>	<u>1.084</u>	<u>0.958</u>	<u>0.946</u>	<u>0.893</u>
Totals	<u><u>1.879</u></u>	<u><u>1.979</u></u>	<u><u>1.776</u></u>	<u><u>1.801</u></u>	<u><u>1.742</u></u>

	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>Totals</u>
<u>Project EDUs</u>						
Goose Creek WWTP	1	107	28		64	200
Taylor Run WWTP	<u>6</u>	<u>136</u>		60		<u>202</u>
Totals	<u><u>7</u></u>	<u><u>243</u></u>	<u><u>28</u></u>	<u><u>60</u></u>	<u><u>64</u></u>	<u><u>402</u></u>

Source: Chapter 94 Reports

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

Geographic Area	Population		Percentage Change	Municipal Growth Rank
	2000	2010		
Pennsylvania	12,281,054	12,702,379	3.4%	-
Chester County	433,501	498,886	15.1%	-
East Bradford township	9,405	9,942	5.7%	743 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%
Subtotal - Five Pennsylvania Counties	4,093,907	4,188,255	4,279,334	4,374,837	4,457,645	4,523,322	4,577,771	2.3%	2.2%	2.2%	1.9%	1.5%	1.2%	11.8%
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%
Subtotal - Four New Jersey Counties	1,624,026	1,658,444	1,692,697	1,725,811	1,754,530	1,778,179	1,798,297	2.1%	2.1%	2.0%	1.7%	1.3%	1.1%	10.7%
Total - Nine DVRPC Counties	5,717,933	5,846,699	5,972,031	6,100,648	6,212,175	6,301,501	6,376,068	2.3%	2.1%	2.2%	1.8%	1.4%	1.2%	11.5%
East Bradford Township	10,038	10,470	10,900	11,336	11,714	12,025	12,288	4.3%	4.1%	4.0%	3.3%	2.7%	2.2%	22.4%

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%
Subtotal - Five Pennsylvania Counties	2,255,680	2,310,874	2,364,147	2,419,171	2,467,523	2,506,728	2,538,789	2.4%	2.3%	2.3%	2.0%	1.6%	1.3%	12.6%
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%
Subtotal - Four New Jersey Counties	912,557	930,545	948,431	965,698	979,816	991,943	1,002,261	2.0%	1.9%	1.8%	1.5%	1.2%	1.0%	9.8%
Total - Nine DVRPC Counties	3,168,237	3,241,419	3,312,578	3,384,869	3,447,339	3,498,671	3,541,050	2.3%	2.2%	2.2%	1.8%	1.5%	1.2%	11.8%
East Bradford Township	1,844	1,966	2,097	2,229	2,341	2,433	2,527	6.6%	6.7%	6.3%	5.0%	3.9%	3.9%	37.0%

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

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

TABLE 4.1 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	
<u>Market</u> <u>Quartile</u>	<u>Quartile</u> <u>Name</u>	<u>Premium</u> <u>1926-16</u> <u>(%)</u>	<u>Deviation</u> <u>of</u> <u>Return</u> <u>(%)</u>	<u>Quartile</u> <u>Premium</u> <u>(%)</u>	<u>Market Value</u> <u>in the Quartile</u> <u>(Mill \$)</u>	<u>Beta</u>	<u>Group</u> <u>Beta</u>	<u>Ratio</u>	<u>Quartile</u> <u>Size</u> <u>Premium</u> <u>(%)</u>	<u>Change in</u> <u>Quartile</u> <u>Premium</u> <u>(%)</u>
(Largest Stocks)										
1	Large-Cap	0.00	19.6	--	609,163	1.00	0.75	75%	0.00	
2	Mid-Cap	1.02	24.6	1.02	10,712	1.12	0.75	67%	0.68	0.68
3	Low-Cap	1.75	28.9	0.73	2,392	1.22	0.75	61%	1.08	0.39
4	Mico-Cap	3.67	39.1	1.92	569	1.35	0.75	56%	2.04	0.96
(Smallest Stocks)										

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

TABLE 4.2 Recent Market Values and Ibbotson Associates Market Quartiles for the Comparable Group

	12/31/2017	Market	Market
	Market	Quartile	Quartile
	Value	Name	Quartile
	(Mill \$)		
<u>Comparable Group</u>			
American States Water Co	2,124	Low-Cap	3
American Water Works Co Inc	16,320	Large-Cap	1
Aqua America Inc	6,971	Mid-Cap	2
Artesian Resources -Cl A	354	Mico-Cap	4
California Water Service Gp	2,177	Low-Cap	3
Connecticut Water Svc Inc	693	Low-Cap	3
Middlesex Water Co	652	Low-Cap	3
SJW Corp	1,310	Low-Cap	3
York Water Co	436	Mico-Cap	4
Median	1,310	Low-Cap	3

East Bradford Township Wastewater System

Property Plant & Equipment Analysis

Capital Expenditures Analysis

Growth Rate Analyses

Profit Margin Analyses**TABLE 5.1 Property Plant & Equipment Analysis**

(Current Know Statistics)			
Gross Property, Plant & Equipment (Millions of \$)	Net Property, Plant & Equipment	Percentage of Property, Plant & Equipment Not Depreciated	
East Bradford Township Wastewater System	\$8.295	\$5.474	<u>66%</u>
Limerick's			
American States Water Co	\$1,714.457	\$1,181.616	69%
American Water Works Co Inc	19,682.000	14,417.000	73%
Aqua America Inc	6,857.090	5,276.473	77%
Artesian Resources -CL A	567.359	451.684	80%
California Water Service Gp	2,892.666	1,981.924	69%
Connecticut Water Svc Inc	921.319	683.738	74%
Middlesex Water Co	688.730	545.461	79%
SJW Corp	1,814.855	1,271.965	70%
York Water Co	361.927	288.360	<u>80%</u>
Median			<u>74%</u>

TABLE 5.2 Property Plant & Equipment Analysis for Contributions

(As of 9/30/2017)			
Net Property, Plant & Equipment	Investor's Capital	Percentage of Property, Plant & Equipment Net of Contributions	
(Millions of \$)			
<u>Comparable Group</u>			
American States Water Co	\$1,181.616	\$846.761	72%
American Water Works Co Inc	14,417.000	12,199.000	85%
Aqua America Inc	5,276.473	3,890.738	74%
Artesian Resources -CL A	451.684	250.444	55%
California Water Service Gp	1,981.924	1,207.423	61%
Connecticut Water Svc Inc	683.738	550.370	80%
Middlesex Water Co	545.461	365.268	67%
SJW Corp	1,271.965	883.480	69%
York Water Co	288.360	206.503	<u>72%</u>
Median			<u>72%</u>

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

TABLE 5.3 Capital Expenditures Analysis

	PP&E-Total Net				Capital Expenditures			
	2016	2015	2014	2013	2016	2015	2014	2013
	(Millions of \$)				(Millions of \$)			
East Bradford Township Wastewater System	NA	NA	NA	NA	NA	NA	NA	NA
<u>Comparable Group</u>								
American States Water Co	\$1,150.926	\$1,060.794	\$1,003.520	\$981.477	\$129.867	\$87.323	\$72.553	\$97.379
American Water Works Co Inc	13,774.000	12,812.000	11,824.832	11,201.655	1,311.000	1,160.000	956.119	980.252
Aqua America Inc	5,001.615	4,688.925	4,401.990	4,167.293	382.996	364.689	328.605	308.171
Artesian Resources -CL A	429.383	409.562	397.823	383.102	28.251	20.694	23.730	21.188
California Water Service Gp	1,859.277	1,689.252	1,579.060	1,503.612	228.938	176.833	132.015	122.988
Connecticut Water Svc Inc	601.396	546.284	506.939	471.876	66.689	48.025	45.668	33.303
Middlesex Water Co	517.776	481.870	465.406	446.479	47.375	25.773	22.596	20.080
SJW Corp	1,196.822	1,098.247	1,025.215	966.557	142.220	106.774	101.936	94.325
York Water Co	271.652	262.189	253.959	245.000	13.158	13.844	14.139	9.852
	Capital Expenditures / PP&E-Total Net							
	2016	2015	2014	2013				
East Bradford Township Wastewater System	NA	NA	NA	NA				
<u>Comparable Group</u>								
American States Water Co	11%	8%	7%	10%				
American Water Works Co Inc	10%	9%	8%	9%				
Aqua America Inc	8%	8%	7%	7%				
Artesian Resources -CL A	7%	5%	6%	6%				
California Water Service Gp	12%	10%	8%	8%				
Connecticut Water Svc Inc	11%	9%	9%	7%				
Middlesex Water Co	9%	5%	5%	4%				
SJW Corp	12%	10%	10%	10%				
York Water Co	5%	5%	6%	4%				
Median	10%	8%	7%	7%				

East Bradford Township Wastewater System
Property Plant & Equipment Analysis
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Revenues				EBITDA			
2016	2015	2014	2013	2016	2015	2014	2013

(Millions of \$)

(Millions of \$)

East Bradford Township
Wastewater System

NA NA NA NA NA NA NA NA

Comparable Group

American States Water Co	\$436.087	\$458.641	\$465.791	\$472.077	\$153.566	\$160.522	\$160.063	\$159.160
American Water Works Co Inc	3,302.000	3,159.000	3,011.328	2,901.858	1,306.476	1,154.957	1,102.741	917.849
Aqua America Inc	819.875	814.204	779.903	768.643	433.284	387.423	380.137	340.460
Artesian Resources -CL A	79.089	77.024	72.465	69.073	30.401	25.800	26.382	25.061
California Water Service Gp	609.370	588.368	597.499	584.103	147.867	140.577	127.710	122.709
Connecticut Water Svc Inc	99.411	96.838	94.853	92.337	37.534	31.856	28.316	23.242
Middlesex Water Co	132.906	126.025	117.139	114.846	38.056	33.947	35.841	28.720
SJW Corp	339.706	305.082	319.668	276.869	86.302	83.532	68.003	63.335
York Water Co	47.584	47.089	45.900	42.383	25.743	24.780	24.359	21.800

EBIT			
2016	2015	2014	2013

(Millions of \$)

East Bradford Township
Wastewater System

NA NA NA NA

Comparable Group

American States Water Co	\$114.716	\$118.489	\$118.990	\$119.070
American Water Works Co Inc	1,080.000	1,075.000	1,014.026	945.849
Aqua America Inc	325.585	321.100	314.359	305.242
Artesian Resources -CL A	27.150	25.366	22.421	20.072
California Water Service Gp	100.998	95.681	108.574	93.052
Connecticut Water Svc Inc	32.115	26.670	30.224	29.942
Middlesex Water Co	40.632	35.840	34.392	30.970
SJW Corp	93.116	79.960	92.878	53.407
York Water Co	22.888	22.661	22.077	20.761

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

TABLE 5.4 Growth Rate Analyses

	Revenue Growth			EBITDA Growth		
	2016	2015	2014	2016	2015	2014
East Bradford Township Wastewater System	NA	NA	NA	NA	NA	NA
<u>Comparable Group</u>						
American States Water Co	-4.9%	-1.5%	-1.3%	-4.3%	0.3%	0.6%
American Water Works Co Inc	4.5%	4.9%	3.8%	13.1%	4.7%	20.1%
Aqua America Inc	0.7%	4.4%	1.5%	11.8%	1.9%	11.7%
Artesian Resources -CL A	2.7%	6.3%	4.9%	17.8%	-2.2%	5.3%
California Water Service Gp	3.6%	-1.5%	2.3%	5.2%	10.1%	4.1%
Connecticut Water Svc Inc	2.7%	2.1%	2.7%	17.8%	12.5%	21.8%
Middlesex Water Co	5.5%	7.6%	2.0%	12.1%	-5.3%	24.8%
SJW Corp	11.3%	-4.6%	15.5%	3.3%	22.8%	7.4%
York Water Co	1.1%	2.6%	8.3%	3.9%	1.7%	11.7%
Median	2.7%	2.6%	2.7%	11.8%	1.9%	11.7%
	EBIT Growth					
	2016	2015	2014			
East Bradford Township Wastewater System	NA	NA	NA			
<u>Comparable Group</u>						
American States Water Co	-3.2%	-0.4%	-0.1%			
American Water Works Co Inc	0.5%	6.0%	7.2%			
Aqua America Inc	1.4%	2.1%	3.0%			
Artesian Resources -CL A	7.0%	13.1%	11.7%			
California Water Service Gp	5.6%	-11.9%	16.7%			
Connecticut Water Svc Inc	20.4%	-11.8%	0.9%			
Middlesex Water Co	13.4%	4.2%	11.0%			
SJW Corp	16.5%	-13.9%	73.9%			
York Water Co	1.0%	2.6%	6.3%			
Median	5.6%	2.1%	7.2%			

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

TABLE 5.5 Profit Margin Analyses			
	EBITDA / Revenue - Margin		
	2016	2015	2014
East Bradford Township Wastewater System	NA	NA	NA
<u>Comparable Group</u>			
American States Water Co	35.2%	35.0%	34.4%
American Water Works Co Inc	39.6%	36.6%	36.6%
Aqua America Inc	52.8%	47.6%	48.7%
Artesian Resources -CL A	38.4%	33.5%	36.4%
California Water Service Gp	24.3%	23.9%	21.4%
Connecticut Water Svc Inc	37.8%	32.9%	29.9%
Middlesex Water Co	28.6%	26.9%	30.6%
SJW Corp	25.4%	27.4%	21.3%
York Water Co	54.1%	52.6%	53.1%
Median	37.8%	33.5%	34.4%
	EBIT / Revenue - Margin		
	2016	2015	2014
East Bradford Township Wastewater System	NA	NA	NA
<u>Comparable Group</u>			
American States Water Co	26.3%	25.8%	25.5%
American Water Works Co Inc	32.7%	34.0%	33.7%
Aqua America Inc	39.7%	39.4%	40.3%
Artesian Resources -CL A	34.3%	32.9%	30.9%
California Water Service Gp	16.6%	16.3%	18.2%
Connecticut Water Svc Inc	32.3%	27.5%	31.9%
Middlesex Water Co	30.6%	28.4%	29.4%
SJW Corp	27.4%	26.2%	29.1%
York Water Co	48.1%	48.1%	48.1%
Median	32.3%	28.4%	30.9%

Source: S&P Research Insight
EXHIBIT 1

**East Bradford Township
Sewer System**

Summary of Original Cost, Calculated Depreciation and Development of Depreciated
Original Cost as of December 31, 2017

<u>Acct. No.</u>	<u>Description</u>	<u>Original Cost</u>	<u>Curve /Life</u>	<u>Calculated Depreciation Reserve</u>	<u>Depreciated Original Cost at 12/31/2017</u>
<u>NON-DEPRECIABLE</u>					
353.10	Pump Station Land/Land Rights	\$ 63,551			\$ 63,551
	Total Non-Depreciable Plant	\$ 63,551			\$ 63,551
<u>DEPRECIABLE</u>					
<u>Treatment Structures</u>					
354.10	Structure - Pump Station	494,807	45-R4	188,308	306,499
354.20	Treatment Plant Capacity	2,156,532	45-R4	310,793	1,845,739
	Total Account 354	\$ 2,651,339		\$ 499,101	\$ 2,152,238
355.00	Power Generator Equipment	133,384	25-R3	50,232	83,152
<u>Collection Mains - Force</u>					
360.11	Conveyance Mains Force - 4" & Under Plastic Pipe	32,636	55-R3	17,293	15,343
360.21	Conveyance Mains Force - 4" & Under DI Pipe	410,132	60-R3	124,089	286,043
360.22	Conveyance Mains Force - 6"- 8" DI Pipe	293,454	65-R3	116,450	177,004
360.31	Air Release	2,033	35-R3	748	1,285
360.41	Valves	5,142	35-R3	2,768	2,374
	Total Account 360	\$ 743,397		\$ 261,348	\$ 482,049
<u>Collection Mains - Gravity</u>					
361.12	Collection Mains Gravity - 6" - 8" Plastic Pipe	3,077,890	65-R3	1,221,386	1,856,504
361.71	Manholes	1,036,070	45-R3	468,046	568,024
	Total Account 361	\$ 4,113,960		\$ 1,689,432	\$ 2,424,528
363.00	Service Laterals	460,958	45-R3	238,298	222,660
364.00	Flow Meter	23,007	25-R3	4,862	18,145
371.00	Pumping Equipment	86,071	25-R3	62,289	23,782
396.00	Communication Equipment	19,264	20-R3	15,421	3,843
	Total Depreciable Plant	\$ 8,231,380		\$ 2,820,983	\$ 5,410,396
	Total Plant	\$ 8,294,931		\$ 2,820,983	\$ 5,473,947

Source: "East Bradford Township Sewer System, Original Cost Study & Depreciated Original Cost at December 31, 2017" (dated March 2018) by AUS Consultants

**EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS**

**SUMMARY OF REPRODUCTION COST AND ACCRUED DEPRECIATION
OF WASTEWATER SYSTEM AS OF DECEMBER 31, 2017**

<u>ACCOUNT</u> (1)	<u>DESCRIPTION</u> (2)	<u>REPRODUCTION COST</u> (3)	<u>ACCRUED DEPRECIATION</u> (4)
353.30	LAND AND LAND RIGHTS - PUMPING	63,551.00	
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	901,404.63	362,523
354.40	STRUCTURES AND IMPROVEMENTS - TREATMENT	2,477,796.18	357,348
355.30	POWER GENERATION EQUIPMENT	234,324.44	106,317
360.21	FORCE MAINS - 4-INCH AND UNDER PVC	90,038.17	50,182
360.22	FORCE MAINS - 4-INCH AND UNDER DIP	860,502.00	268,985
360.23	FORCE MAINS - 6 TO 8 INCH DIP	767,954.20	304,701
360.24	FORCE - MAINS - AIR RELEASE VALVES	3,526.85	1,325
360.25	FORCE - MAINS - VALVES	11,446.77	6,429
361.21	GRAVITY - MAINS - 6 TO 8 INCH PVC	5,645,229.62	2,239,858
361.22	GRAVITY - MANHOLES	2,334,707.70	1,108,377
363.20	SERVICES TO CUSTOMERS	1,092,031.81	574,801
364.20	FLOW MEASURING DEVICES	29,311.21	8,725
371.30	PUMPING EQUIPMENT	230,073.92	171,782
396.70	COMMUNICATION EQUIPMENT	16,862.39	13,415
	TOTAL COMPANY	14,758,760.89	5,574,768

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

SUMMARY OF ANALYSIS OF REPRODUCTION COST
OF WASTEWATER SYSTEM AS OF DECEMBER 31, 2017

ACCOUNT (1)	DESCRIPTION (2)	REPRODUCTION COST (3)
353.30	LAND AND LAND RIGHTS - PUMPING	63,551.00
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	901,404.63
354.40	STRUCTURES AND IMPROVEMENTS - TREATMENT	2,477,796.18
355.30	POWER GENERATION EQUIPMENT	234,324.44
360.21	FORCE MAINS - 4-INCH AND UNDER PVC	90,038.17
360.22	FORCE MAINS - 4-INCH AND UNDER DIP	860,502.00
360.23	FORCE MAINS - 6 TO 8 INCH DIP	767,954.20
360.24	FORCE - MAINS - AIR RELEASE VALVES	3,526.85
360.25	FORCE - MAINS - VALVES	11,446.77
361.21	GRAVITY - MAINS - 6 TO 8 INCH PVC	5,645,229.62
361.22	GRAVITY - MANHOLES	2,334,707.70
363.20	SERVICES TO CUSTOMERS	1,092,031.81
364.20	FLOW MEASURING DEVICES	29,311.21
371.30	PUMPING EQUIPMENT	230,073.92
396.70	COMMUNICATION EQUIPMENT	16,862.39
	TOTAL COMPANY	14,758,760.89

**EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS**

**SUMMARY OF SERVICE LIFE ESTIMATES AND CALCULATED ACCRUED
DEPRECIATION RELATED TO REPRODUCTION COST AS OF DECEMBER 31, 2017**

ACCOUNT	DESCRIPTION	SURVIVOR CURVE	REPRODUCTION COST	ACCRUED DEPRECIATION
(1)	(2)	(3)	(4)	(5)
353.30	LAND AND LAND RIGHTS - PUMPING	NONDEPRECIABLE	63,551.00	
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	45-R4	901,404.63	362,523
354.40	STRUCTURES AND IMPROVEMENTS - TREATMENT	45-R4	2,477,796.18	357,348
355.30	POWER GENERATION EQUIPMENT	25-R3	234,324.44	106,317
360.21	FORCE MAINS - 4-INCH AND UNDER PVC	55-R3	90,038.17	50,182
360.22	FORCE MAINS - 4-INCH AND UNDER DIP	60-R3	860,502.00	268,985
360.23	FORCE MAINS - 6 TO 8 INCH DIP	65-R3	767,954.20	304,701
360.24	FORCE - MAINS - AIR RELEASE VALVES	35-R3	3,526.85	1,325
360.25	FORCE - MAINS - VALVES	35-R3	11,446.77	6,429
361.21	GRAVITY - MAINS - 6 TO 8 INCH PVC	65-R3	5,645,229.62	2,239,858
361.22	GRAVITY - MANHOLES	45-R3	2,334,707.70	1,108,377
363.20	SERVICES TO CUSTOMERS	45-R3	1,092,031.81	574,801
364.20	FLOW MEASURING DEVICES	25-R3	29,311.21	8,725
371.30	PUMPING EQUIPMENT	25-R3	230,073.92	171,782
396.70	COMMUNICATION EQUIPMENT	20-R3	16,862.39	13,415
	TOTAL COMPANY		14,758,760.89	5,574,768

**EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS**

**SUMMARY OF REPRODUCTION COST AND TREND FACTORS BY ACCOUNT AND VINTAGE YEAR
OF WASTEWATER SYSTEM AS OF DECEMBER 31, 2017**

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	1992	1.00	1.00	(1)	1.00
353.30	LAND AND LAND RIGHTS - PUMPING	1999	63,548.00	1.00	(1)	63,548.00
353.30	LAND AND LAND RIGHTS - PUMPING	2012	2.00	1.00	(1)	2.00
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	1990	52,236.00	2.48	(2)	129,337.11
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	1995	125,803.00	2.12	(2)	267,132.32
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	2001	145,626.00	1.78	(2)	258,505.41
354.30	STRUCTURES AND IMPROVEMENTS - PUMPING	2006	171,142.00	1.44	(2)	246,429.79
354.40	STRUCTURES AND IMPROVEMENTS - TREATMENT	2011	2,156,532.00	1.15	(2)	2,477,796.18
355.30	POWER GENERATION EQUIPMENT	1995	24,197.00	2.57	(3)	62,134.83
355.30	POWER GENERATION EQUIPMENT	2001	24,374.00	2.15	(3)	52,494.29
355.30	POWER GENERATION EQUIPMENT	2006	28,858.00	1.82	(3)	52,490.11
355.30	POWER GENERATION EQUIPMENT	2015	55,955.00	1.20	(3)	67,205.21
360.21	FORCE MAINS - 4-INCH AND UNDER PVC	1978	17,327.50	3.42	(4)	59,342.85
360.21	FORCE MAINS - 4-INCH AND UNDER PVC	1993	15,308.00	2.01	(4)	30,695.32
360.22	FORCE MAINS - 4-INCH AND UNDER DIP	1995	246,160.00	2.33	(5)	572,396.14
360.22	FORCE MAINS - 4-INCH AND UNDER DIP	2001	80,560.00	1.97	(5)	159,059.64
360.22	FORCE MAINS - 4-INCH AND UNDER DIP	2006	83,412.00	1.55	(5)	129,046.22
360.23	FORCE MAINS - 6 TO 8 INCH DIP	1990	293,454.00	2.62	(5)	767,954.20
360.24	FORCE - MAINS - AIR RELEASE VALVES	2001	893.00	1.97	(5)	1,763.16
360.24	FORCE - MAINS - AIR RELEASE VALVES	2006	1,140.00	1.55	(5)	1,763.69
360.25	FORCE - MAINS - VALVES	1990	1,964.00	2.62	(5)	5,139.69
360.25	FORCE - MAINS - VALVES	1995	1,086.00	2.33	(5)	2,525.28
360.25	FORCE - MAINS - VALVES	2001	1,276.00	1.97	(5)	2,519.37
360.25	FORCE - MAINS - VALVES	2006	816.00	1.55	(5)	1,262.43
361.21	GRAVITY - MAINS - 6 TO 8 INCH PVC	1990	3,077,890.05	1.83	(4)	5,645,229.62
361.22	GRAVITY - MANHOLES	1993	897,306.00	2.40	(5)	2,158,006.95
361.22	GRAVITY - MANHOLES	1998	20,062.96	2.17	(5)	43,629.87
361.22	GRAVITY - MANHOLES	2001	2,582.00	1.97	(5)	5,097.96
361.22	GRAVITY - MANHOLES	2006	3,527.00	1.55	(5)	5,456.60
361.22	GRAVITY - MANHOLES	2012	53,366.50	1.12	(5)	59,969.34
361.22	GRAVITY - MANHOLES	2014	59,225.18	1.06	(5)	62,546.98
363.20	SERVICES TO CUSTOMERS	1990	381,295.00	2.48	(6)	947,416.20
363.20	SERVICES TO CUSTOMERS	1995	21,913.00	2.12	(6)	46,466.98
363.20	SERVICES TO CUSTOMERS	2001	37,870.00	1.84	(6)	69,642.29
363.20	SERVICES TO CUSTOMERS	2006	19,880.00	1.43	(6)	28,506.34
364.20	FLOW MEASURING DEVICES	1990	2,074.00	2.63	(7)	5,452.40
364.20	FLOW MEASURING DEVICES	2006	3,241.00	1.69	(7)	5,462.65
364.20	FLOW MEASURING DEVICES	2015	17,692.00	1.04	(7)	18,396.16
371.30	PUMPING EQUIPMENT	1990	30,265.00	3.25	(3)	98,426.29
371.30	PUMPING EQUIPMENT	1995	36,131.00	2.57	(3)	92,779.83
371.30	PUMPING EQUIPMENT	2001	9,202.00	2.15	(3)	19,818.35
371.30	PUMPING EQUIPMENT	2006	10,473.00	1.82	(3)	19,049.45
396.70	COMMUNICATION EQUIPMENT	1990	8,562.00	0.87	(8)	7,448.68
396.70	COMMUNICATION EQUIPMENT	1995	4,109.00	0.82	(8)	3,372.81
396.70	COMMUNICATION EQUIPMENT	2001	3,394.00	0.86	(8)	2,921.42
396.70	COMMUNICATION EQUIPMENT	2006	3,199.00	0.98	(8)	3,119.48
TOTAL COMPANY			8,294,930.19			14,758,760.89

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

SUMMARY OF REPRODUCTION COST AND TREND FACTORS BY ACCOUNT AND VINTAGE YEAR
OF WASTEWATER SYSTEM AS OF DECEMBER 31, 2017

<u>ACCOUNT</u>	<u>DESCRIPTION</u>	<u>VINTAGE YEAR</u>	<u>ORIGINAL COST</u>	<u>INDEX FACTOR</u>	<u>FACTOR REFERENCE</u>	<u>REPRODUCTION COST</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)

- NOTES : (1) Not trended
- (2) Handy-Whitman Index of Public Utility Costs, 7/1/17, Cost Trends of Water Utility Construction, North Atlantic Region, Line 8
 - (3) Handy-Whitman Index of Public Utility Costs, 7/1/17, Cost Trends of Water Utility Construction, North Atlantic Region, Line 9
 - (4) Handy-Whitman Index of Public Utility Costs, 7/1/17, Cost Trends of Water Utility Construction, North Atlantic Region, Line 38
 - (5) Handy-Whitman Index of Public Utility Costs, 7/1/17, Cost Trends of Water Utility Construction, North Atlantic Region, Line 34
 - (6) Handy-Whitman Index of Public Utility Costs, 7/1/17, Cost Trends of Water Utility Construction, North Atlantic Region, Line 39
 - (7) Handy-Whitman Index of Public Utility Costs, 7/1/17, Cost Trends of Water Utility Construction, North Atlantic Region, Line 40
 - (8) U.S. Bureau of Labor Statistics, Producer Price Index: PPI industry group data for Communications equipment mfg, not seasonally adjusted

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 353.30 LAND AND LAND RIGHTS - PUMPING

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

YEAR (1)	ORIGINAL COST (2)	AVG. LIFE (3)	--ANNUAL ACCRUAL-- RATE (4)	AMOUNT (5)	EXP. (6)	--ACCRUED DEPREC.-- FACTOR (7)	AMOUNT (8)
NONDEPRECIABLE							
1992	1.00						
1999	63,548.00						
2012	2.00						
	63,551.00						
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 0.00							

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 354.30 STRUCTURES AND IMPROVEMENTS - PUMPING

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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 45-R4							
NET SALVAGE PERCENT.. 0							
1990	129,337.11	45.00	2.22	2,871.28	18.64	0.5858	75,763
1995	267,132.32	45.00	2.22	5,930.34	23.04	0.4880	130,361
2001	258,505.41	45.00	2.22	5,738.82	28.68	0.3627	93,752
2006	246,429.79	45.00	2.22	5,470.74	33.56	0.2542	62,647
	901,404.63			20,011.18			362,523
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.22							

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 354.40 STRUCTURES AND IMPROVEMENTS - TREATMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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 45-R4							
NET SALVAGE PERCENT.. 0							
2011	2,477,796.18	45.00	2.22	55,007.08	38.51	0.1442	357,348
	2,477,796.18			55,007.08			357,348
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.22							

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 355.30 POWER GENERATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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 25-R3							
NET SALVAGE PERCENT.. 0							
1995	62,134.83	25.00	4.00	2,485.39	6.34	0.7464	46,377
2001	52,494.29	25.00	4.00	2,099.77	10.30	0.5880	30,867
2006	52,490.11	25.00	4.00	2,099.60	14.29	0.4284	22,487
2015	67,205.21	25.00	4.00	2,688.21	22.55	0.0980	6,586
	234,324.44			9,372.97			106,317
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.00							

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 360.21 FORCE MAINS - 4-INCH AND UNDER PVC

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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							
1978	59,342.85	55.00	1.82	1,080.04	20.33	0.6304	37,407
1993	30,695.32	55.00	1.82	558.65	32.11	0.4162	12,775
	90,038.17			1,638.69			50,182

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.82

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 360.22 FORCE MAINS - 4-INCH AND UNDER DIP

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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 60-R3							
NET SALVAGE PERCENT.. 0							
1995	572,396.14	60.00	1.67	9,559.02	38.72	0.3547	203,012
2001	159,059.64	60.00	1.67	2,656.30	44.16	0.2640	41,992
2006	129,046.22	60.00	1.67	2,155.07	48.85	0.1858	23,981
	860,502.00			14,370.39			268,985
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.67							

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 360.23 FORCE MAINS - 6 TO 8 INCH DIP

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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							
1990	767,954.20	65.00	1.54	11,826.49	39.21	0.3968	304,701
	767,954.20			11,826.49			304,701
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.54							

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 360.24 FORCE - MAINS - AIR RELEASE VALVES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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 35-R3							
NET SALVAGE PERCENT.. 0							
2001	1,763.16	35.00	2.86	50.43	19.66	0.4383	773
2006	1,763.69	35.00	2.86	50.44	24.04	0.3131	552
	3,526.85			100.87			1,325

COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.86

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 360.25 FORCE - MAINS - VALVES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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 35-R3							
NET SALVAGE PERCENT.. 0							
1990	5,139.69	35.00	2.86	147.00	11.32	0.6766	3,477
1995	2,525.28	35.00	2.86	72.22	14.86	0.5754	1,453
2001	2,519.37	35.00	2.86	72.05	19.66	0.4383	1,104
2006	1,262.43	35.00	2.86	36.11	24.04	0.3131	395
	11,446.77			327.38			6,429
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.86							

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS
ACCOUNT 361.21 GRAVITY - MAINS - 6 TO 8 INCH PVC

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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							
1990	5,645,229.62	65.00	1.54	86,936.54	39.21	0.3968	2,239,858
	5,645,229.62			86,936.54			2,239,858
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 1.54							

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 361.22 GRAVITY - MANHOLES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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 45-R3							
NET SALVAGE PERCENT.. 0							
1993	2,158,006.95	45.00	2.22	47,907.75	22.57	0.4984	1,075,637
1998	43,629.87	45.00	2.22	968.58	26.74	0.4058	17,704
2001	5,097.96	45.00	2.22	113.17	29.37	0.3473	1,771
2006	5,456.60	45.00	2.22	121.14	33.93	0.2460	1,342
2012	59,969.34	45.00	2.22	1,331.32	39.63	0.1193	7,156
2014	62,546.98	45.00	2.22	1,388.54	41.57	0.0762	4,767
	2,334,707.70			51,830.50			1,108,377
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.22							

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 363.20 SERVICES TO CUSTOMERS

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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 45-R3							
NET SALVAGE PERCENT.. 0							
1990	947,416.20	45.00	2.22	21,032.64	20.20	0.5511	522,131
1995	46,466.98	45.00	2.22	1,031.57	24.21	0.4620	21,468
2001	69,642.29	45.00	2.22	1,546.06	29.37	0.3473	24,189
2006	28,506.34	45.00	2.22	632.84	33.93	0.2460	7,013
	1,092,031.81			24,243.11			574,801
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 2.22							

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 364.20 FLOW MEASURING DEVICES

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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 25-R3							
NET SALVAGE PERCENT.. 0							
1990	5,452.40	25.00	4.00	218.10	3.99	0.8404	4,582
2006	5,462.65	25.00	4.00	218.51	14.29	0.4284	2,340
2015	18,396.16	25.00	4.00	735.85	22.55	0.0980	1,803
	29,311.21			1,172.46			8,725
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.00							

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 371.30 PUMPING EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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 25-R3							
NET SALVAGE PERCENT.. 0							
1990	98,426.29	25.00	4.00	3,937.05	3.99	0.8404	82,717
1995	92,779.83	25.00	4.00	3,711.19	6.34	0.7464	69,251
2001	19,818.35	25.00	4.00	792.73	10.30	0.5880	11,653
2006	19,049.45	25.00	4.00	761.98	14.29	0.4284	8,161
	230,073.92			9,202.95			171,782
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 4.00							

EAST BRADFORD TOWNSHIP
EAST BRADFORD TOWNSHIP WASTEWATER SYSTEM ASSETS

ACCOUNT 396.70 COMMUNICATION EQUIPMENT

CALCULATED ANNUAL AND ACCRUED DEPRECIATION
RELATED TO REPRODUCTION COST AT DECEMBER 31, 2017

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 20-R3							
NET SALVAGE PERCENT.. 0							
1990	7,448.68	20.00	5.00	372.43	1.56	0.9220	6,868
1995	3,372.81	20.00	5.00	168.64	3.01	0.8495	2,865
2001	2,921.42	20.00	5.00	146.07	5.96	0.7020	2,051
2006	3,119.48	20.00	5.00	155.97	9.54	0.5230	1,631
	16,862.39			843.11			13,415
COMPOSITE ANNUAL ACCRUAL RATE, PERCENT .. 5.00							

Income Approach
 East Bradford 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	Estimated
	2014	2015	2016	2017	Year 0	Year 1
1. OPERATING REVENUES (1)						
2. Charges for services	1,110,112	1,076,961	1,062,631	1,112,143	1,070,000	1,179,903
3. Other operating income	6,593	33,055	28,179	22,130	25,000	25,000
4. Tap Fees (Excludes WWTP fee)	400	0	0	0	0	97,200
5. Other (Rate Increase)	0	0	0	0	0	0
6. Total Operating Revenues	1,117,105	1,110,016	1,090,810	1,134,273	1,095,000	1,302,103
7. Rate Increase						
8. OPERATING EXPENSES (1)						
9. Operating & Maintenance Expenses	1,075,741	1,016,467	1,095,568	1,073,852	1,591,407	1,623,235
10. Remove Economies of Scale						
11. ADD: EOS - Wages & Benefits	0	0	0	0	0	228,269
12. LESS: EOS - Professional Services	0	0	0	0	0	(2,805)
13. LESS: EOS - Utilities	0	0	0	0	0	(2,346)
14. LESS: EOS - Transfers	0	0	0	0	0	(575,974)
15. LESS: EOS - Tapping Fees WWTP	0	0	0	0	0	0
16. Operating Expenses Before Depreciation	1,075,741	1,016,467	1,095,568	1,073,852	1,591,407	1,270,380
17. Depreciation (2)	0	0	0	0	162,348	163,404
18. Total Operating Expenses	1,075,741	1,016,467	1,095,568	1,073,852	1,753,755	1,433,784
19. Operating Income	41,364	93,549	(4,758)	60,421	(658,755)	(131,681)
20. Revenues (3)	1,117,105	1,110,016	1,090,810	1,134,273	1,095,000	1,302,103
21. EBITDA (4)	41,364	93,549	(4,758)	60,421	(496,407)	31,723
22. EBIT (5)	41,364	93,549	(4,758)	60,421	(658,755)	(131,681)
23. EBIT	41,364	93,549	(4,758)	60,421	(658,755)	(131,681)
24. (-) Income Taxes	0	0	0	0	0	0
25. Debt Free Net Income	41,364	93,549	(4,758)	60,421	(658,755)	(131,681)
26. (+) Depreciation & Amortization	0	0	0	0	162,348	163,404
27. (-) Capital Expenditures (6)	0	0	0	0	0	154,231
28. (-) Changes in Working Capital (7)	2,681	2,664	764	794	767	911
29. Debt Free Net Cash Flow	\$38,683	\$90,885	(\$5,522)	\$59,627	(\$497,174)	(\$123,419)
30. PV Time Period (mid-year)						0.5
31. Present Value Factor: 3.65% (8)						0.9822
32. Present Value Debt Free Net Cash Flow						<u>(\$121,223)</u>
33. Present Value Factor: 3.25% (9)						0.9841
34. Present Value Debt Free Net Cash Flow						<u>(\$121,457)</u>

See last page of this EXHIBIT for notes.

Income Approach
 East Bradford 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 Year 2 2020	Estimated Year 3 2021	Estimated Year 4 2022	Estimated Year 5 2023	Estimated Year 6 2024	Estimated Year 7 2025
1. OPERATING REVENUES (1)						
2. Charges for services	1,214,223	1,243,513	1,773,005	1,808,710	1,821,371	1,834,121
3. Other operating income	25,000	25,000	25,000	25,000	25,000	25,000
4. Tap Fees (Excludes WWTP fee)	11,200	24,000	25,600	5,600	5,600	5,600
5. Other (Rate Increase)	0	472,535	0	0	0	36,682
6. Total Operating Revenues	1,250,423	1,765,048	1,823,605	1,839,310	1,851,971	1,901,403
7. Rate Increase		38%				2%
8. OPERATING EXPENSES (1)						
9. Operating & Maintenance Expenses	1,655,700	1,688,814	1,722,590	1,757,042	1,792,183	1,828,026
10. Remove Economies of Scale						
11. ADD: EOS - Wages & Benefits	232,835	237,492	242,241	247,086	252,028	257,068
12. LESS: EOS - Professional Services	(2,861)	(2,918)	(2,977)	(3,036)	(3,097)	(3,159)
13. LESS: EOS - Utilities	(2,393)	(2,441)	(2,490)	(2,539)	(2,590)	(2,642)
14. LESS: EOS - Transfers	(587,493)	(599,243)	(611,228)	(623,452)	(635,921)	(648,640)
15. LESS: EOS - Tapping Fees WWTP	0	0	0	0	0	0
16. Operating Expenses Before Depreciation	1,295,788	1,321,703	1,348,137	1,375,100	1,402,602	1,430,654
17. Depreciation (2)	165,977	168,576	171,216	173,898	176,622	179,387
18. Total Operating Expenses	1,461,765	1,490,280	1,519,354	1,548,998	1,579,224	1,610,042
19. Operating Income	(211,342)	274,768	304,251	290,312	272,747	291,361
20. Revenues (3)	1,250,423	1,765,048	1,823,605	1,839,310	1,851,971	1,901,403
21. EBITDA (4)	(45,365)	443,345	475,468	464,210	449,369	470,749
22. EBIT (5)	(211,342)	274,768	304,251	290,312	272,747	291,361
23. EBIT	(211,342)	274,768	304,251	290,312	272,747	291,361
24. (-) Income Taxes	0	0	0	0	0	0
25. Debt Free Net Income	(211,342)	274,768	304,251	290,312	272,747	291,361
26. (+) Depreciation & Amortization	165,977	168,576	171,216	173,898	176,622	179,387
27. (-) Capital Expenditures (6)	155,234	157,678	160,148	162,655	165,203	167,791
28. (-) Changes in Working Capital (7)	875	1,236	1,277	1,288	1,296	1,331
29. Debt Free Net Cash Flow	(\$201,474)	\$284,431	\$314,043	\$300,267	\$282,869	\$301,627
30. PV Time Period (mid-year)	1.5	2.5	3.5	4.5	5.5	6.5
31. Present Value Factor: 3.65% (8)	0.9476	0.9143	0.8821	0.8510	0.8210	0.7921
32. Present Value Debt Free Net Cash Flow	(\$190,917)	\$260,055	\$277,017	\$255,527	\$232,236	\$238,919
33. Present Value Factor: 3.25% (9)	0.9532	0.9232	0.8941	0.8660	0.8387	0.8123
34. Present Value Debt Free Net Cash Flow	(\$192,045)	\$262,587	\$280,786	\$260,032	\$237,243	\$245,011

See last page of this EXHIBIT for notes.

Income Approach
 East Bradford 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
	2026	2027	2028	2029	2030	2031
1. OPERATING REVENUES (1)						
2. Charges for services	1,883,899	1,897,086	1,910,366	1,981,450	1,995,321	2,009,288
3. Other operating income	25,000	25,000	25,000	25,000	25,000	25,000
4. Tap Fees (Excludes WWTP fee)	5,600	5,600	5,600	5,600	5,600	6,000
5. Other (Rate Increase)	0	0	57,311	0	0	40,186
6. Total Operating Revenues	1,914,499	1,927,686	1,998,277	2,012,050	2,025,921	2,080,474
7. Rate Increase			3%			2%
8. OPERATING EXPENSES (1)						
9. Operating & Maintenance Expenses	1,864,587	1,901,879	1,939,916	1,978,715	2,018,289	2,058,655
10. Remove Economies of Scale						
11. ADD: EOS - Wages & Benefits	262,210	267,454	272,803	278,259	283,824	289,501
12. LESS: EOS - Professional Services	(3,222)	(3,287)	(3,352)	(3,419)	(3,488)	(3,557)
13. LESS: EOS - Utilities	(2,695)	(2,749)	(2,804)	(2,860)	(2,917)	(2,975)
14. LESS: EOS - Transfers	(661,613)	(674,845)	(688,342)	(702,109)	(716,151)	(730,474)
15. LESS: EOS - Tapping Fees WWTP	0	0	0	0	0	0
16. Operating Expenses Before Depreciation	1,459,267	1,488,453	1,518,222	1,548,586	1,579,558	1,611,149
17. Depreciation (2)	182,208	185,088	188,015	190,988	194,007	197,074
18. Total Operating Expenses	1,641,476	1,673,541	1,706,236	1,739,574	1,773,565	1,808,223
19. Operating Income	273,023	254,145	292,041	272,476	252,356	272,251
20. Revenues (3)	1,914,499	1,927,686	1,998,277	2,012,050	2,025,921	2,080,474
21. EBITDA (4)	455,232	439,233	480,055	463,464	446,363	469,325
22. EBIT (5)	273,023	254,145	292,041	272,476	252,356	272,251
23. EBIT	273,023	254,145	292,041	272,476	252,356	272,251
24. (-) Income Taxes	0	0	0	0	0	0
25. Debt Free Net Income	273,023	254,145	292,041	272,476	252,356	272,251
26. (+) Depreciation & Amortization	182,208	185,088	188,015	190,988	194,007	197,074
27. (-) Capital Expenditures (6)	172,039	174,759	177,522	180,329	183,180	186,076
28. (-) Changes in Working Capital (7)	1,340	1,349	1,399	1,408	1,418	1,456
29. Debt Free Net Cash Flow	\$281,853	\$263,125	\$301,135	\$281,726	\$261,765	\$281,793
30. PV Time Period (mid-year)	7.5	8.5	9.5	10.5	11.5	12.5
31. Present Value Factor: 3.65% (8)	0.7642	0.7373	0.7114	0.6863	0.6621	0.6388
32. Present Value Debt Free Net Cash Flow	\$215,392	\$194,002	\$214,227	\$193,349	\$173,315	\$180,009
33. Present Value Factor: 3.25% (9)	0.7867	0.7620	0.7380	0.7148	0.6923	0.6705
34. Present Value Debt Free Net Cash Flow	\$221,733	\$200,501	\$222,237	\$201,378	\$181,220	\$188,942

See last page of this EXHIBIT for notes.

Income Approach

East Bradford 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 @ 3.65%	
	Terminal Value
Projected Debt Free Net Cash Flow (10)	\$281,793
Divided by Capitalization Factor (8)	<u>3.65%</u>
13th Year Terminal Value	7,720,347
13th Year Present Value Factor (11)	<u>0.6388</u>
Present Value of Terminal Value	4,931,758
Present Value Debt Free Net	
Cash Flow for 13 Years	<u>2,121,909</u>
Indicated Value	<u>\$7,053,667</u>

DCF With EBIT & EBITDA Terminal Value Model - Discount Rate of 3.65%			
		Multiples (13)	Terminal Value
Projected EBIT	\$272,251	15.1	\$4,110,987
Projected EBITDA	469,325	11.0	<u>5,162,575</u>
Weighted (1/3 EBIT 2/3 EBITDA) Terminal Value			4,815,551
13th Year Present Value Factor (11)			<u>0.6388</u>
Present Value of Terminal Value			3,076,174
Present Value Debt Free Net			
Cash Flow for 13 Years			<u>2,121,909</u>
Indicated Value			<u>\$5,198,083</u>

DCF With Capitalization of Terminal Value Model @ 3.25%	
	Terminal Value
Projected Debt Free Net Cash Flow (10)	\$281,793
Divided by Capitalization Factor (9)	<u>3.25%</u>
13th Year Terminal Value	8,670,544
13th Year Present Value Factor (12)	<u>0.6388</u>
Present Value of Terminal Value	5,538,743
Present Value Debt Free Net	
Cash Flow for 13 Years	<u>2,121,909</u>
Indicated Value	<u>\$7,660,652</u>

DCF With EBIT & EBITDA Terminal Value Model - Discount Rate of 3.25%			
		Multiples (13)	Terminal Value
Projected EBIT	\$272,251	15.1	\$4,110,987
Projected EBITDA	469,325	11.0	<u>5,162,575</u>
Weighted (1/3 EBIT 2/3 EBITDA) Terminal Value			4,815,551
13th Year Present Value Factor (12)			<u>0.6388</u>
Present Value of Terminal Value			3,076,174
Present Value Debt Free Net			
Cash Flow for 13 Years			<u>2,121,909</u>
Indicated Value			<u>\$5,198,083</u>

See last page of this EXHIBIT for notes and assumptions.

Income Approach

East Bradford 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-2019 are actual or budget. Post-2018 based on customer growth (EDU) and average revenue per customer. Rate increases (Other rate increase line item) are added year after they occur.

Tap Fees - Pre-2018 are actuals. Post-2017 based on Engineers Assessment, 2018 - 2022, and new EDUs @ current EDU rate.

Other (Rate Increase) - Assumed purchase by MUNI at end of 2018. 2021 assumed 38% rate increase so operating income is 5.2% of Net Property, Plant & Equipment (Similar to large MUNIs). 2025 assumes 2.0% rate increase, 2028 3% rate increase and 2031 2% rate increase to account for expense increases (2%) less growth in customers (EDU). Rate increases are added into Sewer Rental Fees year after they occur.

OPERATING EXPENSES - increase at 2% annually after 2018 unless noted elsewhere. Assumed economies of scale are shown on lines below.

Wages & Benefits - Post-2018 assumed at MUNI / IOU industry standard per customer. Increase at 2% afterwards.

Net Professional Services - Post-2018 assumed 50% savings due to economies of scale. Increase at 2% afterwards.

Utilities - Post-2018 assumed 10% savings due to economies of scale. Increase at 2% afterwards.

Transfers - Post-2019 removed due to economies of scale. Increase at 2% afterwards.

WWTP tap fee - Post-2019 removed. Increase at 2% afterwards.

- (2) OCNLD depreciation rate plus same rate on half of CAPX.
- (3) Line 6.
- (4) Line 19 + line 17.
- (5) Line 19.
- (6) Capital Expenditures - Pre-2019 based on budget. Post-2018 years are estimates at 1.86% 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 12/31/2017 equal to discount rate, where capitalization rate = $K - g$.
- (9) Discount rate is the current MUNI discount rate. Capitalization rate, "K", at 12/31/2017 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 31.
- (13) Developed on Market Multiples EXHIBIT 12.

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 Bradford 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	Estimated
	2014	2015	2016	2017	Year 0	Year 1
1. OPERATING REVENUES (1)						
2. Charges for services	1,110,112	1,076,961	1,062,631	1,112,143	1,070,000	1,179,903
3. Other operating income	6,593	33,055	28,179	22,130	25,000	25,000
4. Tap Fees (Excludes WWTP fee)	400	0	0	0	0	0
5. Other (Rate Increase)	0	0	0	0	0	0
6. Total Operating Revenues	1,117,105	1,110,016	1,090,810	1,134,273	1,095,000	1,204,903
7. Rate Increase						
8. OPERATING EXPENSES (1)						
9. Operating & Maintenance Expenses	1,075,741	1,016,467	1,095,568	1,073,852	1,591,407	1,623,235
10. Remove Economies of Scale						
11. ADD: EOS - Wages & Benefits	0	0	0	0	0	94,896
12. LESS: EOS - Professional Services	0	0	0	0	0	(2,805)
13. LESS: EOS - Utilities	0	0	0	0	0	(2,346)
14. LESS: EOS - Transfers	0	0	0	0	0	(575,974)
15. LESS: EOS - Tapping Fees WWTP	0	0	0	0	0	0
16. ADD: PURTA & Reg Assessment						13,837
17. Operating Expenses Before Depreciation	1,075,741	1,016,467	1,095,568	1,073,852	1,591,407	1,150,843
18. Depreciation (2)	0	0	0	0	162,348	163,404
19. Total Operating Expenses	1,075,741	1,016,467	1,095,568	1,073,852	1,753,755	1,314,247
20. Operating Income	41,364	93,549	(4,758)	60,421	(658,755)	(109,344)
21. Revenues (3)	1,117,105	1,110,016	1,090,810	1,134,273	1,095,000	1,204,903
22. EBITDA (4)	41,364	93,549	(4,758)	60,421	(496,407)	54,060
23. EBIT (5)	41,364	93,549	(4,758)	60,421	(658,755)	(109,344)
24. EBIT	41,364	93,549	(4,758)	60,421	(658,755)	(109,344)
25. (-) Income Taxes	0	0	0	0	0	(31,590)
26. Debt Free Net Income	41,364	93,549	(4,758)	60,421	(658,755)	(77,754)
27. (+) Depreciation & Amortization	0	0	0	0	162,348	163,404
28. (-) Capital Expenditures (6)	0	0	0	0	0	154,231
29. (-) Changes in Working Capital (7)	2,681	2,664	764	794	767	843
30. Debt Free Net Cash Flow	\$38,683	\$90,885	(\$5,522)	\$59,627	(\$497,174)	(\$69,425)
31. PV Time Period (mid-year)						0.5
32. Present Value Factor: 6.80% (8)						0.9676
33. Present Value Debt Free Net Cash Flow						(\$67,175)
34. Present Value Factor: 8.17% (9)						0.9615
35. Present Value Debt Free Net Cash Flow						(\$66,752)
36. Present Value Factor: 6.55% (8)						0.9688
37. Present Value Debt Free Net Cash Flow						(\$67,259)
38. Present Value Factor: 7.92% (9)						0.9626
39. Present Value Debt Free Net Cash Flow						(\$66,828)

See last page of this EXHIBIT for notes.

Income Approach
 East Bradford 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 2020	Estimated Year 3 2021	Estimated Year 4 2022	Estimated Year 5 2023	Estimated Year 6 2024	Estimated Year 7 2025
1. OPERATING REVENUES (1)						
2. Charges for services	1,214,223	1,243,513	1,901,483	1,939,776	1,953,355	2,006,369
3. Other operating income	25,000	25,000	25,000	25,000	25,000	25,000
4. Tap Fees (Excludes WWTP fee)	0	0	0	0	0	0
5. Other (Rate Increase)	0	596,886	0	0	39,067	0
6. Total Operating Revenues	1,239,223	1,865,399	1,926,483	1,964,776	2,017,422	2,031,369
7. Rate Increase		48%			2%	
8. OPERATING EXPENSES (1)						
9. Operating & Maintenance Expenses	1,655,700	1,688,814	1,722,590	1,757,042	1,792,183	1,828,026
10. Remove Economies of Scale						
11. ADD: EOS - Wages & Benefits	96,794	98,730	100,704	102,718	104,773	106,868
12. LESS: EOS - Professional Services	(2,861)	(2,918)	(2,977)	(3,036)	(3,097)	(3,159)
13. LESS: EOS - Utilities	(2,393)	(2,441)	(2,490)	(2,539)	(2,590)	(2,642)
14. LESS: EOS - Transfers	(587,493)	(599,243)	(611,228)	(623,452)	(635,921)	(648,640)
15. LESS: EOS - Tapping Fees WWTP	0	0	0	0	0	0
16. ADD: PURTA & Reg Assessment	14,449	14,629	18,176	18,508	18,710	18,993
17. Operating Expenses Before Depreciation	1,174,195	1,197,570	1,224,776	1,249,240	1,274,057	1,299,447
18. Depreciation (2)	165,977	168,576	171,216	173,898	176,622	179,387
19. Total Operating Expenses	1,340,172	1,366,147	1,395,992	1,423,138	1,450,678	1,478,834
20. Operating Income	(100,949)	499,252	530,491	541,638	566,744	552,535
21. Revenues (3)	1,239,223	1,865,399	1,926,483	1,964,776	2,017,422	2,031,369
22. EBITDA (4)	65,028	667,829	701,707	715,536	743,365	731,922
23. EBIT (5)	(100,949)	499,252	530,491	541,638	566,744	552,535
24. EBIT	(100,949)	499,252	530,491	541,638	566,744	552,535
25. (-) Income Taxes	(29,164)	144,234	153,259	156,479	163,732	159,627
26. Debt Free Net Income	(71,785)	355,018	377,232	385,159	403,012	392,908
27. (+) Depreciation & Amortization	165,977	168,576	171,216	173,898	176,622	179,387
28. (-) Capital Expenditures (6)	155,234	157,678	160,148	162,655	165,203	167,791
29. (-) Changes in Working Capital (7)	867	1,306	1,349	1,375	1,412	1,422
30. Debt Free Net Cash Flow	(\$61,910)	\$364,611	\$386,951	\$395,027	\$413,018	\$403,082
31. PV Time Period (mid-year)	1.5	2.5	3.5	4.5	5.5	6.5
32. Present Value Factor: 6.80% (8)	0.9060	0.8483	0.7943	0.7438	0.6964	0.6521
33. Present Value Debt Free Net Cash Flow	(\$56,090)	\$309,299	\$307,355	\$293,821	\$287,626	\$262,850
34. Present Value Factor: 8.17% (9)	0.8889	0.8217	0.7597	0.7023	0.6493	0.6002
35. Present Value Debt Free Net Cash Flow	(\$55,032)	\$299,601	\$293,967	\$277,427	\$268,173	\$241,930
36. Present Value Factor: 6.55% (8)	0.9092	0.8533	0.8009	0.7516	0.7054	0.6621
37. Present Value Debt Free Net Cash Flow	(\$56,288)	\$311,122	\$309,909	\$296,902	\$291,343	\$266,881
38. Present Value Factor: 7.92% (9)	0.8920	0.8265	0.7658	0.7096	0.6576	0.6093
39. Present Value Debt Free Net Cash Flow	(\$55,224)	\$301,351	\$296,327	\$280,311	\$271,601	\$245,598

See last page of this EXHIBIT for notes.

Income Approach
East Bradford 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 8 2026	Estimated Year 9 2027	Estimated Year 10 2028	Estimated Year 11 2029	Estimated Year 12 2030	Estimated Year 13 2031
1. OPERATING REVENUES (1)						
2. Charges for services	2,020,413	2,034,556	2,089,774	2,104,402	2,119,133	2,176,646
3. Other operating income	25,000	25,000	25,000	25,000	25,000	25,000
4. Tap Fees (Excludes WWTP fee)	0	0	0	0	0	0
5. Other (Rate Increase)	0	40,691	0	0	42,383	0
6. Total Operating Revenues	2,045,413	2,100,247	2,114,774	2,129,402	2,186,516	2,201,646
7. Rate Increase		2%			2%	
8. OPERATING EXPENSES (1)						
9. Operating & Maintenance Expenses	1,864,587	1,901,879	1,939,916	1,978,715	2,018,289	2,058,655
10. Remove Economies of Scale						
11. ADD: EOS - Wages & Benefits	109,005	111,185	113,409	115,677	117,991	120,351
12. LESS: EOS - Professional Services	(3,222)	(3,287)	(3,352)	(3,419)	(3,488)	(3,557)
13. LESS: EOS - Utilities	(2,695)	(2,749)	(2,804)	(2,860)	(2,917)	(2,975)
14. LESS: EOS - Transfers	(661,613)	(674,845)	(688,342)	(702,109)	(716,151)	(730,474)
15. LESS: EOS - Tapping Fees WWTP	0	0	0	0	0	0
16. ADD: PURTA & Reg Assessment	19,055	19,121	19,418	19,486	19,554	19,863
17. Operating Expenses Before Depreciation	1,325,118	1,351,305	1,378,246	1,405,490	1,433,278	1,461,862
18. Depreciation (2)	182,208	185,088	188,015	190,988	194,007	197,074
19. Total Operating Expenses	1,507,326	1,536,393	1,566,260	1,596,478	1,627,286	1,658,936
20. Operating Income	538,087	563,854	548,514	532,924	559,230	542,710
21. Revenues (3)	2,045,413	2,100,247	2,114,774	2,129,402	2,186,516	2,201,646
22. EBITDA (4)	720,295	748,942	736,528	723,912	753,238	739,784
23. EBIT (5)	538,087	563,854	548,514	532,924	559,230	542,710
24. EBIT	538,087	563,854	548,514	532,924	559,230	542,710
25. (-) Income Taxes	155,453	162,897	158,466	153,962	161,562	156,789
26. Debt Free Net Income	382,634	400,957	390,048	378,962	397,668	385,921
27. (+) Depreciation & Amortization	182,208	185,088	188,015	190,988	194,007	197,074
28. (-) Capital Expenditures (6)	172,039	174,759	177,522	180,329	183,180	186,076
29. (-) Changes in Working Capital (7)	1,432	1,470	1,480	1,491	1,531	1,541
30. Debt Free Net Cash Flow	\$391,371	\$409,816	\$399,060	\$388,130	\$406,965	\$395,378
31. PV Time Period (mid-year)	7.5	8.5	9.5	10.5	11.5	12.5
32. Present Value Factor: 6.80% (8)	0.6105	0.5717	0.5353	0.5012	0.4693	0.4394
33. Present Value Debt Free Net Cash Flow	\$238,932	\$234,292	\$213,617	\$194,531	\$190,989	\$173,729
34. Present Value Factor: 8.17% (9)	0.5549	0.5130	0.4742	0.4384	0.4053	0.3747
35. Present Value Debt Free Net Cash Flow	\$217,172	\$210,235	\$189,234	\$170,156	\$164,943	\$148,148
36. Present Value Factor: 6.55% (8)	0.6214	0.5832	0.5473	0.5137	0.4821	0.4525
37. Present Value Debt Free Net Cash Flow	\$243,198	\$239,005	\$218,406	\$199,382	\$196,198	\$178,909
38. Present Value Factor: 7.92% (9)	0.5646	0.5232	0.4848	0.4492	0.4162	0.3857
39. Present Value Debt Free Net Cash Flow	\$220,968	\$214,416	\$193,464	\$174,348	\$169,379	\$152,497

See last page of this EXHIBIT for notes.

Income Approach

East Bradford 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 @ 6.80%	
	Terminal Value
Projected Debt Free Net Cash Flow (10)	\$395,378
Divided by Capitalization Factor (8)	<u>6.80%</u>
13th Year Terminal Value	5,814,382
13th Year Present Value Factor (11)	<u>0.4394</u>
Present Value of Terminal Value	2,554,840
Present Value Debt Free Net	
Cash Flow for 13 Years	<u>2,583,775</u>
Indicated Value	<u>\$5,138,615</u>

DCF With EBIT & EBITDA Terminal Value Model - Discount Rate of 6.80%			
		Multiples (13)	Terminal Value
Projected EBIT	\$542,710	15.1	\$8,194,920
Projected EBITDA	739,784	11.0	<u>8,137,626</u>
Weighted (1/3 EBIT 2/3 EBITDA) Terminal Value			8,156,533
13th Year Present Value Factor (11)			<u>0.4394</u>
Present Value of Terminal Value			3,583,981
Present Value Debt Free Net			
Cash Flow for 13 Years			<u>2,583,775</u>
Indicated Value			<u>\$6,167,756</u>

DCF With Capitalization of Terminal Value Model @ 8.17%	
	Terminal Value
Projected Debt Free Net Cash Flow (10)	\$395,378
Divided by Capitalization Factor (9)	<u>8.17%</u>
13th Year Terminal Value	4,839,388
13th Year Present Value Factor (12)	<u>0.3747</u>
Present Value of Terminal Value	1,813,319
Present Value Debt Free Net	
Cash Flow for 13 Years	<u>2,359,203</u>
Indicated Value	<u>\$4,172,522</u>

DCF With EBIT & EBITDA Terminal Value Model - Discount Rate of 8.17%			
		Multiples (13)	Terminal Value
Projected EBIT	\$542,710	15.1	\$8,194,920
Projected EBITDA	739,784	11.0	<u>8,137,626</u>
Weighted (1/3 EBIT 2/3 EBITDA) Terminal Value			8,156,533
13th Year Present Value Factor (12)			<u>0.3747</u>
Present Value of Terminal Value			3,056,253
Present Value Debt Free Net			
Cash Flow for 13 Years			<u>2,359,203</u>
Indicated Value			<u>\$5,415,456</u>

DCF With Capitalization of Terminal Value Model @ 6.55%	
	Terminal Value
Projected Debt Free Net Cash Flow (10)	\$395,378
Divided by Capitalization Factor (8)	<u>6.55%</u>
13th Year Terminal Value	6,036,305
13th Year Present Value Factor (11)	<u>0.4394</u>
Present Value of Terminal Value	2,652,353
Present Value Debt Free Net	
Cash Flow for 13 Years	<u>2,583,775</u>
Indicated Value	<u>\$5,236,128</u>

DCF With Capitalization of Terminal Value Model @ 7.92%	
	Terminal Value
Projected Debt Free Net Cash Flow (10)	\$395,378
Divided by Capitalization Factor (9)	<u>7.92%</u>
13th Year Terminal Value	4,992,146
13th Year Present Value Factor (12)	<u>0.3747</u>
Present Value of Terminal Value	1,870,557
Present Value Debt Free Net	
Cash Flow for 13 Years	<u>2,359,203</u>
Indicated Value	<u>\$4,229,760</u>

See last page of this EXHIBIT for notes and assumptions.

Income Approach

East Bradford 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-2019 are actual or budget. Post-2018 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 2018. 2021 assumed 48% rate increase so EBIT is 10.1% of investor's capital (similar to IOU water industry). Beginning in 2024 assumes 2.0% rate increase every 3 years to account for expense increases (2%) less growth in customers. Rate increases are added into Sewer Rental Fees year after they occur.

OPERATING EXPENSES - increase at 2% annually after 2018 unless noted elsewhere. Assumed economies of scale are shown on lines below.

Wages & Benefits - Post-2018 assumed at MUNI / IOU industry standard per customer. Increase at 2% afterwards.

Net Professional Services - Post-2018 assumed 50% savings due to economies of scale. Increase at 2% afterwards.

Utilities - Post-2018 assumed 10% savings due to economies of scale. Increase at 2% afterwards.

Transfers - Post-2019 removed due to economies of scale. Increase at 2% afterwards.

WWTP tap fee - Post-2019 removed. Increase at 2% afterwards.

PURTA & Reg Assessment - 2019 assumed due to IOU purchase at the end of 2018.

- (2) OCNLD depreciation rate plus same rate on half of CAPX.
- (3) Line 6.
- (4) Line 20 + line 18.
- (5) Line 20.
- (6) Capital Expenditures - Pre-2019 based on budget. Post-2018 years are estimates at 1.86% 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 12/31/2017 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 12/31/2017 adjusted for stated growth, "g", where capitalization rate = $K - g$.
- (10) Final year shown, line 30.
- (11) Final year shown, line 32.
- (12) Final year shown, line 34.
- (13) Developed on Market Multiples EXHIBIT 12.

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 Bradford Township Wastewater System Assets
 2017 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)
Subject Company Statistic (1)	Comparison Group's Valuation Multiples 12/31/2017	East Bradford's Growth & Risk Adjustment	East Bradford's Risk Adjusted Valuation Multiples 12/31/2017	East Bradford's Market Multiples Valuation
Risk Adjusted Multiple				
<u>1. East Bradford Township Wastewater System Assets</u>				
2. Investor Provided Capital	\$0	2.02	70.00%	1.41
3. Gross PP&E	\$8,294,930	1.19	108.00%	1.29
4. Net PP&E	\$5,473,947	1.50	107.00%	1.61
5. Revenues	\$1,134,273	6.25	70.00%	4.38
6. EBITDA	\$60,421	15.72	70.00%	11.00
7. EBIT	\$60,421	21.55	70.00%	15.09
8. Customers	1,248	\$7,493	90.00%	\$6,744
9. Population	10,009	\$2,047	90.00%	\$1,842
10.				<u>18,436,578</u>
11. Average				<u><u>\$7,558,729</u></u>

Conclusion of Market Multiple Method Valuation

	<u>Low</u>	<u>High</u>	<u>Conclusion</u>
12. Capital Items	\$8,813,055	\$10,700,460	\$9,756,757
13. (Items 3-4)			
14. Income Statement Items	664,631	4,968,116	-
15. (Items 5 -7)			
16. Demographics Items	8,416,512		<u>8,416,512</u>
17. (Item 8)			
		Conclusion	<u><u>\$9,086,635</u></u>

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

	Latest Quarter End			Latest 12 Months			2016		12/31/2017
	Gross PP&E (\$ Mill)	Net PP&E (\$ Mill)	Invest. Perm. Capital (\$ Mill)	12 Mos. Rev. (\$ Mill)	12 Mos. EBITDA (\$ Mill)	12 Mos. EBIT (\$ Mill)	Customers	Population	Enterprise Value (\$ Mill)
American States Water Co	\$1,714.457	\$1,181.616	\$846.761	\$443.223	\$158.051	\$118.895	284,942	1,000,000	\$2,484.702
American Water Works Company Inc	\$19,682.000	\$14,417.000	\$12,199.000	\$3,338.000	\$1,733.000	\$1,235.000	3,312,000	12,200,000	\$23,669.528
Aqua America Inc	\$6,857.090	\$5,276.473	\$3,890.738	\$803.012	\$458.806	\$323.956	972,265	3,053,800	\$9,024.846
Artesian Resources Corp	\$567.359	\$451.684	\$250.444	\$81.464	\$36.425	\$27.048	85,000	314,300	\$468.091
California Water Service Group	\$2,892.666	\$1,981.924	\$1,207.423	\$655.829	\$201.028	\$127.551	511,500	2,000,000	\$2,898.854
Connecticut Water Service Inc	\$921.319	\$683.738	\$550.370	\$103.745	\$45.705	\$30.047	124,968	400,000	\$967.012
Middlesex Water Co	\$688.730	\$545.461	\$365.268	\$131.127	\$51.511	\$37.996	109,300	400,000	\$818.954
SJW Corp.	\$1,814.855	\$1,271.965	\$883.480	\$375.002	\$143.607	\$96.254	242,421	1,092,600	\$1,746.295
York Water Company (The)	\$361.927	\$288.360	\$206.503	\$48.121	\$28.788	\$22.098	67,052	196,000	\$525.926
Average	\$3,944.489	\$2,899.802	\$2,266.665	\$664.391	\$317.436	\$224.316	634,383	2,295,189	\$4,733.801
Max	\$19,682.000	\$14,417.000	\$12,199.000	\$3,338.000	\$1,733.000	\$1,235.000	3,312,000	12,200,000	\$23,669.528
Min	\$361.927	\$288.360	\$206.503	\$48.121	\$28.788	\$22.098	67,052	196,000	\$468.091
Median	\$1,714.457	\$1,181.616	\$846.761	\$375.002	\$143.607	\$96.254	242,421	1,000,000	\$1,746.295

	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	2.78	1.45	2.10	5.61	15.72	20.90	\$8,720	\$2,485	3.51
American Water Works Company Inc	1.82	1.20	1.64	7.09	13.66	19.17	\$7,147	\$1,940	3.68
Aqua America Inc	2.26	1.32	1.71	11.24	19.67	27.86	\$9,282	\$2,955	3.14
Artesian Resources Corp	1.80	0.83	1.04	5.75	12.85	17.31	\$5,507	\$1,489	3.70
California Water Service Group	2.02	1.00	1.46	4.42	14.42	22.73	\$5,667	\$1,449	3.91
Connecticut Water Service Inc	1.68	1.05	1.41	9.32	21.16	32.18	\$7,738	\$2,418	3.20
Middlesex Water Co	2.07	1.19	1.50	6.25	15.90	21.55	\$7,493	\$2,047	3.66
SJW Corp.	1.95	0.96	1.37	4.66	12.16	18.14	\$7,204	\$1,598	4.51
York Water Company (The)	2.53	1.45	1.82	10.93	18.27	23.80	\$7,844	\$2,683	2.92
Average	2.10	1.16	1.56	7.25	15.98	22.63	\$7,400	\$2,118	3.58
Max	2.78	1.45	2.10	11.24	21.16	32.18	\$9,282	\$2,955	4.51
Min	1.68	0.83	1.04	4.42	12.16	17.31	\$5,507	\$1,449	2.92
Median	2.02	1.19	1.50	6.25	15.72	21.55	\$7,493	\$2,047	3.66

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

	Net PP&E	Gross PP&E	Invest. Capital
Comparable Group Multiple	1.50	1.19	2.02
Implied Capitalization Rate (1÷Multiple)	66.67%	84.03%	49.50%
Ratio of Net PP&E Mult. to Invest. Capital Mult.	134.7%		
Less 1	- 1.00		
Difference in Capital Source due to Contributions	34.67%		
Assumed Investor Financed (1-Difference in Capital Source)	65.33%	65.33%	
Implied Capitalization Rate (1÷Multiple)	x 66.67%	84.03%	
Not Contributed Cap. Rate	43.56%	54.90%	
Not Contributed Multiple (1÷Cap. Rate)	2.30	1.82	
Base Risk Factor	x 70%	70%	
Subject Company Adjusted Multiple	1.61	1.28	
Subject Company Adjusted Multiple	1.61	1.28	
Comparable Group Multiple	÷ 1.50 1.19		
Effective Risk/Growth Adjustment	107% 108%		

	Rev.	EBITDA	EBIT
Comparable Group Multiple	6.25	15.72	21.55
Implied Capitalization Rate (1÷Multiple)	16.00%	6.36%	4.64%
(-) Growth Adjustment	- 0.00% 0.00% 0.00%		
Adjusted Capitalization Rate (k-G)	16.00%	6.36%	4.64%
Adjusted Multiple (1÷Adj. Cap. Rate))	6.25	15.72	21.55
Base Risk Factor	x 70%	70%	70%
Subject Company Adjusted Multiple	4.38	11.00	15.09
Subject Company Adjusted Multiple	4.38	11.00	15.09
Comparable Group Multiple	÷ 6.25 15.72 21.55		
Effective Risk/Growth Adjustment	70% 70% 70%		

Selected Transactions Method
For East Bradford Township Wastewater System Assets
Summary

	<u>Low</u>	<u>High</u>	<u>Value</u>
<u>All Selected Transactions Companies</u>			
1. Capital Items	8,987,508.74	18,472,607.68	\$13,730,058
2. (Page 2, Items 1 - 3; 11 - 13; 21 -23; 31 -33)			
3. Income Statement Items	1,525,038.28	19,277,718.89	-
4. (Page 2, Items 4 - 6; 14 - 16; 24 - 26; 34 - 36)			
5. Demographics Items	4,933,832.71	39,987,014.58	<u>22,460,424</u>
6. (Page 2, Items 7 - 8; 17 - 18; 27 -28; 37 - 38)			
7.		Indicated Value	<u><u>\$18,095,241</u></u>
<u>Selected Transactions Companies Excluding Mahoning</u>			
8. Capital Items	8,987,508.74	14,152,105.88	\$11,569,807
9. (Page 2, Items 1 - 3; 11 - 13; 21 -23)			
10. Income Statement Items	1,525,038.28	19,277,718.89	-
11. (Page 2, Items 4 - 6; 14 - 16; 24 - 26)			
12. Demographics Items	9,581,102.36	39,987,014.58	<u>24,784,058</u>
13. (Page 2, Items 7 - 8; 17 - 18; 27 -28)			
14.		Indicated Value	<u><u>\$18,176,933</u></u>
<u>Selected Transactions Companies - Mahoning</u>			
15. Capital Items	14,432,456.85	18,472,607.68	\$16,452,532
16. (Page 2, Items 31 - 33)			
17. Income Statement Items	1,940,019.87	5,026,661.30	-
18. (Page 2, Items 34 - 36)			
19. Demographics Items	4,933,832.71	11,223,500.94	<u>8,078,667</u>
20. (Page 2, Items 37 - 38)			
21.		Indicated Value	<u><u>\$12,265,600</u></u>

Selected Transactions Method
For East Bradford Township Wastewater System Assets
Based on 2016 & 2017 Acquisitions of Assets of Water or Sewer System, Without Discount for Customer Contributions

Municipal Authority of the City of Mckeessport			East Bradford Township Wastewater System Assets		
Purchase Price was: \$156,000,000			East Bradford Township Wastewater System Assets's		
Subject Company Statistics	Transaction Multiple		East Bradford Township Wastewater System Assets's	Selected Transactions Multiples Valuation	
1. Investor Provided Capital	\$83,903,219	1.86	Investor Provided Capital	\$0	NA
2. Gross PP&E	\$91,435,797	1.71	Gross PP&E	\$8,294,930	14,152,106
3. Net PP&E	\$73,813,794	2.11	Net PP&E	\$5,473,947	11,568,783
4. Revenues	\$13,047,844	11.96	Revenues	\$1,134,273	13,561,366
5. EBITDA	\$6,180,616	25.24	EBITDA	\$60,421	1,525,038
6. EBIT	\$3,811,679	40.93	EBIT	\$60,421	2,472,841
7. Customers	20,320	\$7,677	Customers	1,248	9,581,102
8. Population	61,752	\$2,526	Population	10,009	25,285,076
9.					
10. Average					\$11,163,759

New Garden Township and Authority's Sewage Collection and Treatment System			East Bradford Township Wastewater System Assets		
Purchase Price was: \$29,500,000			East Bradford Township Wastewater System Assets's		
Subject Company Statistics	Transaction Multiple		East Bradford Township Wastewater System Assets's	Selected Transactions Multiples Valuation	
11. Investor Provided Capital	\$23,001,140	1.28	Investor Provided Capital	\$0	NA
12. Gross PP&E	\$25,988,330	1.14	Gross PP&E	\$8,294,930	9,415,781
13. Net PP&E	\$17,967,319	1.64	Net PP&E	\$5,473,947	8,987,509
14. Revenues	\$2,261,294	13.05	Revenues	\$1,134,273	14,797,303
15. EBITDA	\$907,386	32.51	EBITDA	\$60,421	1,964,345
16. EBIT	\$499,638	59.04	EBIT	\$60,421	3,567,422
17. Customers	1,796	\$16,425	Customers	1,248	20,498,886
18. Population	12,085	\$2,441	Population	10,009	24,432,396
19.					
20. Average					\$11,951,949

Limerick Township Wastewater System's Assets			East Bradford Township Wastewater System Assets		
Purchase Price was: \$75,100,000			East Bradford Township Wastewater System Assets's		
Subject Company Statistics	Transaction Multiple		East Bradford Township Wastewater System Assets's	Selected Transactions Multiples Valuation	
21. Investor Provided Capital	\$43,501,755	1.73	Investor Provided Capital	\$0	NA
22. Gross PP&E	\$60,847,250	1.23	Gross PP&E	\$8,294,930	10,237,919
23. Net PP&E	\$36,113,701	2.08	Net PP&E	\$5,473,947	11,383,309
24. Revenues	\$4,418,775	17.00	Revenues	\$1,134,273	19,277,719
25. EBITDA	\$2,487,775	30.19	EBITDA	\$60,421	1,823,966
26. EBIT	\$893,600	84.04	EBIT	\$60,421	5,077,906
27. Customers	5,416	\$13,866	Customers	1,248	17,305,170
28. Population	18,798	\$3,995	Population	10,009	39,987,015
29.					
30. Average					\$15,013,286

Mahoning Township Water & Sewer System's Assets			East Bradford Township Wastewater System Assets		
Purchase Price was: \$9,500,000			East Bradford Township Wastewater System Assets's		
Subject Company Statistics	Transaction Multiple		East Bradford Township Wastewater System Assets's	Selected Transactions Multiples Valuation	
31. Investor Provided Capital	\$2,815,114	3.37	Investor Provided Capital	\$0	NA
32. Gross PP&E	\$5,460,043	1.74	Gross PP&E	\$8,294,930	14,432,457
33. Net PP&E	\$2,815,114	3.37	Net PP&E	\$5,473,947	18,472,608
34. Revenues	\$2,143,688	4.43	Revenues	\$1,134,273	5,026,661
35. EBITDA	\$295,873	32.11	EBITDA	\$60,421	1,940,020
36. EBIT	\$164,652	57.70	EBIT	\$60,421	3,486,137
37. Customers	2,403	\$3,953	Customers	1,248	4,933,833
38. Population*	8,472	\$1,121	Population	10,009	11,223,501
39.					
40. Average					\$8,502,174

* - Doubled because Water & Sewer

East Bradford 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	\$9,183,993		33%
Income Approach	5,877,580		33%
Market Approach	9,086,635		33%
		Conclusion \$8,050,000	

WORKPAPERS

EAST BRADFORD TOWNSHIP		50 Final Budget 2016					PUBLIC
FINAL CAPITAL BUDGET 2016		Budget Approved by Board of Supervisors December 08, 2015					PUBLIC
Approved 12-08-15 / Authorized 11-10-15							c:\files\budget50 Final 2016.xls
CAPITAL RESERVE FUND (50)		2014		ACTUAL	2015	2016	
ACCT. NO.	TITLE/CATEGORY	ACTUAL	BUDGET	YEAR TO DATE	YEAR END	FINAL	Miscellaneous Notes
(updates / revisions marked in RED) (pending in BLUE)		thru 12-31-14	2015	thru 12-31-15	PROJECTION	BUDGET	
EXPENDITURES							
CAPITAL REPLACEMENT							
404	Capital Schedule Recommended Funding						
404.500	Asset Replacement (Depreciation)	\$0	\$0	\$0	\$0	\$0	
ADMINISTRATION & FACILITIES							
407	Productivity Technology						
407.700	Capital (IT) Technology	\$65,260	\$55,500	\$33,123	\$37,500	\$9,500	
409	Township Campus Facilities						
409.600	Capital Reserve Plan, Construct & Improve	\$0	\$0	\$0	\$0	\$0	
409.610	Township Facilities (Int / Ext)	\$3,735	\$75,000	\$84,692	\$84,692	\$4,000	
409.650	Copeland School	\$0	\$0	\$0	\$0	\$0	
409.700	Twp Offices Equipment	\$0	\$0	\$0	\$0	\$10,000	
410	Public Safety						
410.500	Contributions, Grants & Subsidies	\$0	\$0	\$0	\$0	\$0	
410.700	WCPD Police	\$0	\$37,719	\$37,719	\$37,719	\$39,961	
411	Fire Protection						
411.310	Capital Contribution - WBFC	\$0	\$0	\$0	\$0	\$0	
411.500	Capital Contribution - WCFD (Fame FC)	\$0	\$0	\$0	\$0	\$10,000	
412	Ambulance / Rescue						
412.300	Good Fellowship Ambulance Club	\$0	\$0	\$0	\$0	\$0	
412.500	Contributions, Grants & Subsidies	\$0	\$0	\$0	\$0	\$0	
417	Planning & Zoning						
417.100	Comp Plan Update	\$0	\$0	\$0	\$0	\$0	
419	Emergency Management						
		\$0	\$0	\$0	\$0	\$0	
420	Health & Welfare						
421.500	Contributions, Grants & Subsidies	\$0	\$0	\$0	\$0	\$0	
429	Sewer Collection & Treatment						
		\$0	\$0	\$0	\$0	\$0	

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RED = Updated BLUE = Update Pending

SUMMARY VERSION

(Last revised: 01-10-18)

FINAL BUDGET 2018

Approved 12-12-17 / Authorized 11-14-17

CAPITAL RESERVE FUND (50)

ACCT. NO.	TITLE/CATEGORY	2016		ACTUAL	2017	2018
		ACTUAL thru 12-31-16	BUDGET 2017	YEAR TO DATE thru 12-31-17	YEAR END PROJECTION	PRELIMINARY BUDGET
REVENUES						
341	Interest	\$1,018	\$500	\$1,988	\$1,750	\$1,000
357	Grants - State/Local/Other	\$0	\$0	\$0	\$0	\$0
367	Fees in Lieu of Open Space	\$5,780	\$0	\$0	\$0	\$0
380	Farm Leases & Related	\$5,240	\$5,000	\$240	\$240	\$5,000
387	Contributions - Trails, Parks & Open Space	\$11,625	\$10,000	\$18,678	\$18,678	\$10,000
391	Proceeds of General Fixed Asset Dispose	\$22,000	\$150,000	\$129,000	\$129,000	\$0
392	Interfund Operating Transfers (01 Fund)	\$719,600	\$550,000	\$550,000	\$550,000	\$550,000
393	Insurance Proceeds	\$0	\$0	\$50,000	\$10,000	\$0
	Total Revenues	\$765,263	\$715,500	\$749,906	\$709,668	\$566,000
	Fund Balance 12-31-16 (audited)	\$435,260	\$435,260		\$551,330	
	Fund Balance 12-31-17 (unaudited)					\$609,766
	Estimated Total Funds Available		\$1,150,760			\$1,117,330
	Fund Balance History					\$488,288
Projected	Fund Balance as of 12-31-18 (unaudited)		\$488,288			
Projected	Fund Balance as of 12-31-17 (unaudited)		\$551,330			
Actual	Fund Balance 12-31-17 (unaudited)		\$609,766			
	Fund Balance as of 12-31-16 (audited)		\$435,260			
	Fund Balance as of 12-31-15 (audited)		\$279,697			
	Fund Balance as of 12-31-14 (audited)		\$833,275			
EXPENDITURES						
400	Capital Asset (Depreciation) Schedule Funding	\$0	\$0	\$0	\$0	\$0
409	Administration & Facilities	\$15,745	\$57,500	\$55,156	\$65,000	\$22,500
411, 412	Public Safety - Police, Fire, Ambulance	\$49,961	\$49,834	\$49,834	\$49,834	\$51,364
414	Planning & Zoning	\$0	\$0	\$0	\$0	\$0
440	Emergency Management	\$0	\$0	\$0	\$0	\$0
440	Health & Welfare	\$0	\$0	\$0	\$0	\$0
440	Sewer Collection & Treatment	\$0	\$0	\$0	\$0	\$0
430, 432	Public Works - facilities, fleet, equipment	\$183,046	\$131,500	\$180,917	\$180,666	\$108,000
430	Traffic Signals	\$0	\$0	\$0	\$0	\$0
430	Stormwater Maintenance Projects	\$5,572	\$42,500	\$9,819	\$9,459	\$42,500
438	Bridge & Related Facilities	\$0	\$0	\$0	\$0	\$0
439	Road Construction & Rebuilding	\$40,000	\$250,000	\$160,866	\$180,866	\$250,000
450, 454	Parks, Open Space & Trails	\$9,839	\$85,000	\$22,869	\$31,934	\$55,000
456	Libraries	\$0	\$0	\$0	\$0	\$0
460	Conservation & Development	\$0	\$0	\$0	\$0	\$0
470	Debt Service	\$106,345	\$104,248	\$95,939	\$95,939	\$102,678
480	Miscellaneous Expenditures	\$0	\$0	\$0	\$0	\$0
481	Intergovernmental - contributions, grants	\$0	\$0	\$0	\$0	\$0
Interfund Operating Transfers						
492.01	Transfer to General Fund	\$0	\$0	\$0	\$0	\$0
492.08	Transfer to Sewer Fund	\$0	\$0	\$0	\$0	\$0
492.18	Transfer to Highway Improvement Fund	\$199,192	\$0	\$0	\$0	\$0
492.35	Transfer to Liquid Fuels Fund	\$0	\$0	\$0	\$0	\$0
492.99	Transfer to Open Space Fund	\$0	\$0	\$0	\$0	\$0
	TOTAL	\$609,700	\$720,582	\$575,400	\$593,598	\$629,042
	STARTING BALANCE (prior year-end)	\$279,697	\$435,260	\$435,260	\$435,260	\$551,330
	RECEIPTS & TRANSFERS	\$765,263	\$715,500	\$749,906	\$709,668	\$566,000
	EXPENDITURES	\$609,700	\$720,582	\$575,400	\$593,598	\$629,042
	ENDING BALANCE	\$435,260	\$430,178	\$609,766	\$551,330	\$488,288

2017 Projected Fund Balance 12-31-17

Above calculated as: Prior Year 12-31-16 Fund Balance + Current Year (17) Projected Revenues

- Current Year (17) Projected Expenses

Estimated Total Funds Available for 2018

Above calculated as: Current Year (17) Projected Fund Balance + Next Year (18) Projected Revenues

Projected 2018 Fund Balance 12-31-18

ACTUAL Projected Current Year 12-31 (2017) Fund Balance + Projected Next Year (2018) Revenues

- Projected Next Year (2018) Expenditures

Projected Year end 2017 Fund Balance 12-31-17

Projected Year-end 2018 Fund Balance 12-31-18

Contract, Debt, Pledge, Program - this line expense (all / partial)



BALANCE SHEET

DCED-CLGS-30 (09-09)

EAST BRADFORD TWP, CHESTER County
BALANCE SHEET
 December 31, 2017

		Governmental Funds				Proprietary Funds		Fid. Fund	Account Groups		Total
		General Fund	Special Revenue (Including State Liquid Fuels)	Capital Projects	Debt Service	Enterprise	Internal Service	Trust and Agency	General Fixed Assets	General Long Term Debt	Memorandum Only
Assets and Other Debits											
100-120	Cash and Investments	2,454,855	531,357	609,766		1,328,506		1,446,476			6,370,960
140-144	Tax Receivable										
121-129, 145-149	Accounts Receivable (excluding taxes)										
130.00	Due From Other Funds										
131-139, 150-159	Other Current Assets	129,048									129,048
160-169	Fixed Assets										
180-189	Other Debits									11,067,750	11,067,750
Total Assets and Other Debits		2,583,903	531,357	609,766		1,328,506		1,446,476		11,067,750	17,567,758
Liabilities and Other Credits											
210-229	Payroll Taxes and Other Payroll Withholdings										
200-209, 231-239	All Other Current Liabilities	129,048									129,048
230.00	Due To Other Funds										

EAST BRADFORD TWP, CHESTER County

BALANCE SHEET

December 31, 2017

		Governmental Funds				Proprietary Funds		Fid. Fund	Account Groups		Total
		General Fund	Special Revenue (Including State Liquid Fuels)	Capital Projects	Debt Service	Enterprise	Internal Service	Trust and Agency	General Fixed Assets	General Long Term Debt	Memorandum Only
Liabilities and Other Credits											
260-269	Long-Term-Liabilities									10,229,000	10,229,000
240-259	Current Portion of Long-Term Debt and Other Credits									838,750	838,750
Total Liabilities and Other Credits		129,048								11,067,750	11,196,798
Fund and Account Group Equity											
281-284	Contributed Capital										
290.00	Investment in General Fixed Assets										
270-289	Fund Balance / Retained Earnings on 12/31	2,454,855	531,357	609,766		1,328,506		1,446,476			6,370,960
291-299	Other Equity										
Total Fund and Account Group Equity		2,454,855	531,357	609,766		1,328,506		1,446,476			6,370,960
TOTAL LIABILITIES AND FUND AND ACCOUNT GROUP EQUITY											17,567,758

EAST BRADFORD TWP, CHESTER County
STATEMENT OF REVENUES AND EXPENDITURES
December 31, 2017

Governmental Funds				Proprietary Funds		Fiduciary Fund	Total
General Fund	Special Revenue (Including State Liquid Fuels)	Capital Projects	Debt Service	Enterprise	Internal Service	Trust and Agency	Memorandum Only

REVENUES

Taxes								
301.00	Real Estate Taxes	785,025						785,025
305.00	Occupation Taxes (levied under municipal code)							
308.00	Residence Taxes (levied by cities of the 3rd Class)							
309.00	Regional Asset District Sales Tax (Allegheny County municipalities only)							
310.00	Per Capita Taxes							
310.10	Real Estate Transfer Taxes	350,994						350,994
310.20	Earned Income Taxes / Wage Taxes	2,388,987	1,151,042					3,540,029
310.30	Business Gross Receipts Taxes							
310.40	Occupation Taxes (levied under Act 511)							
310.50	Local Services Tax **	78,325						78,325
310.60	Amusement / Admission Taxes							
310.70	Mechanical Device Taxes							
310.90	Other: _____							
	Other: _____							
Total Taxes		3,603,331	1,151,042					4,754,373

Licenses and Permits								
320-322	All Other Licenses and Permits							
321.80	Cable Television Franchise Fees	229,654						229,654
Total Licenses and Permits		229,654						229,654

Fines and Forfeits								
330-332	Fines and Forfeits	23,676						23,676
Total Fines and Forfeits		23,676						23,676

EAST BRADFORD TWP, CHESTER County
STATEMENT OF REVENUES AND EXPENDITURES
December 31, 2017

Governmental Funds				Proprietary Funds		Fiduciary Fund	Total
General Fund	Special Revenue (Including State Liquid Fuels)	Capital Projects	Debt Service	Enterprise	Internal Service	Trust and Agency	Memorandum Only

REVENUES

Interest, Rents and Royalties							
341.00	Interest Earnings	7,747	1,112	1,988		3,470	14,317
342.00	Rents and Royalties						
	Total Interest, Rents and Royalties	7,747	1,112	1,988		3,470	14,317

Federal							
351.03	Highways and Streets						
351.09	Community Development						
351.00	All Other Federal Capital and Operating Grants						
352.01	National Forest						
352.00	All Other Federal Shared Revenue and Entitlements						
353.00	Federal Payments in Lieu of Taxes						
	Total Federal						

State							
354.03	Highways and Streets						
354.09	Community Development						
354.15	Recycling / Act 101	24,349					24,349
354.00	All Other State Capital and Operating Grants						
355.01	Public Utility Realty Tax (PURTA)	4,817					4,817
355.02-355.03	Motor Vehicle Fuel Tax (Liquid Fuels Tax) and State Road Turnback		368,914				368,914
355.04	Alcoholic Beverage Licenses						
355.05	General Municipal Pension System State Aid	59,647					59,647
355.07	Foreign Fire Insurance Tax Distribution	85,112					85,112
355.08	Local Share Assessment/Gaming Proceeds						
355.09	Marcellus Shale Impact Fee Distribution						

EAST BRADFORD TWP, CHESTER County
STATEMENT OF REVENUES AND EXPENDITURES
December 31, 2017

Governmental Funds				Proprietary Funds		Fiduciary Fund	Total
General Fund	Special Revenue (Including State Liquid Fuels)	Capital Projects	Debt Service	Enterprise	Internal Service	Trust and Agency	Memorandum Only

REVENUES

State								
356.00	State Payments in Lieu of Taxes							
355.00	All Other State Shared Revenues and Entitlements	11,704						11,704
Total State		185,629	368,914					554,543

Local Government Units								
357.03	Highways and Streets							
357.00	All Other Local Governmental Units Capital and Operating Grants	169						169
358.00	Local Government Unit Shared Payments for Contracted Intergovernmental Services							
359.00	Local Governmental Units and Authorities Payments in Lieu of Taxes							
Total Local Government Units		169						169

Charges for Service								
361.00	General Government	142,386						142,386
362.00	Public Safety	74,986						74,986
363.20	Parking							
363.00	All Other Charges for Highway & Street Services							
364.10	Wastewater / Sewage (including connection / tapping fees, sewer usage charges, reserve capacity fee, etc.)				1,098,411			1,098,411
364.30	Solid Waste Collection and Disposal Charge (trash)							
364.60	Host Municipality Benefit Fee for Solid Waste Facility							
364.00	All Other Charges for Sanitation Services				1,850			1,850
365.00	Health							
366.00	Human Services							
367.00	Culture and Recreation							
368.00	Airports							

EAST BRADFORD TWP, CHESTER County
STATEMENT OF REVENUES AND EXPENDITURES
December 31, 2017

Governmental Funds				Proprietary Funds		Fiduciary Fund	Total
General Fund	Special Revenue (Including State Liquid Fuels)	Capital Projects	Debt Service	Enterprise	Internal Service	Trust and Agency	Memorandum Only

REVENUES

Charges for Service								
369.00	Bars							
370.00	Cemeteries							
372.00	Electric System							
373.00	Gas System							
374.00	Housing System							
375.00	Markets							
377.00	Transit Systems							
378.00	Water System							
379.00	All Other Charges for Service							
Total Charges for Service		217,372				1,100,261		1,317,633

Unclassified Operating Revenues								
383.00	Special Assessments							
386.00	Escheats (sale of personal property)							
387.00	Contributions and Donations from Private Sectors	470	14,000	18,678				33,148
388.00	Fiduciary Fund Pension Contributions							
389.00	All Other Unclassified Operating Revenues	3,685		240				3,925
Total Unclassified Operating Revenues		4,155	14,000	18,918				37,073

Other Financing Sources								
391.00	Proceeds of General Fixed Asset Disposition	20,713		179,000				199,713
392.00	Interfund Operating Transfers	142,000		550,000			1,446,476	2,138,476
393.00	Proceeds of General Long-Term Debt		4,090,000					4,090,000
394.00	Proceeds of Short Term Debt							

EAST BRADFORD TWP, CHESTER County
STATEMENT OF REVENUES AND EXPENDITURES
December 31, 2017

Governmental Funds				Proprietary Funds		Fiduciary Fund	Total
General Fund	Special Revenue (Including State Liquid Fuels)	Capital Projects	Debt Service	Enterprise	Internal Service	Trust and Agency	Memorandum Only

REVENUES

Other Financing Sources							
395.00	Refunds of Prior Year Expenditures	73,334					73,334
Total Other Financing Sources		236,047	4,090,000	729,000		1,446,476	6,501,523

TOTAL REVENUES	4,507,780	5,625,068	749,906	1,103,731	1,446,476	13,432,961
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EXPENDITURES

General Government							
400.00	Legislative (Governing) Body	30,758					30,758
401.00	Executive (Manager or Mayor)	230,189					230,189
402.00	Auditing Services / Financial Administration	20,226					20,226
403.00	Tax Collection						
404.00	Solicitor / Legal Services	21,961	2,923				24,884
405.00	Secretary / Clerk						
406.00	Other General Government Administration	124,454	12,539				136,993
407.00	IT-Networking Services-Data Processing	59,913		7,889			67,802
408.00	Engineering Services	176,032					176,032
409.00	General Government Buildings and Plant	48,078		47,267			95,345
Total General Government		711,611	15,462	55,156			782,229

Public Safety							
410.00	Police	1,233,332		39,834			1,273,166
411.00	Fire	357,471		10,000			367,471
412.00	Ambulance / Rescue	7,000					7,000
413.00	UCC and Code Enforcement	122,379					122,379

EAST BRADFORD TWP, CHESTER County
STATEMENT OF REVENUES AND EXPENDITURES
December 31, 2017

Governmental Funds				Proprietary Funds		Fiduciary Fund	Total
General Fund	Special Revenue (Including State Liquid Funds)	Capital Projects	Debt Service	Enterprise	Internal Service	Trust and Agency	Memorandum Only

EXPENDITURES

Public Safety							
414.00	Planning and Zoning	86,826					86,826
415.00	Emergency Management and Communications	1,500					1,500
416.00	Militia and Armories						
417.00	Examination of Licensed Occupations						
418.00	Public Scales (weights and measures)						
419.00	Other Public Safety	2,068					2,068
Total Public Safety		1,810,576	49,834				1,860,410

Health and Human Services							
420.00-425.00	Health and Human Services	2,500					2,500
Total Health and Human Services		2,500					2,500

Public Works - Sanitation							
426.00	Recycling Collection and Disposal						
427.00	Solid Waste Collection and Disposal (garbage)	8,121					8,121
428.00	Weed Control						
429.00	Wastewater / Sewage Treatment and Collection				1,047,154		1,047,154
Total Public Works - Sanitation		8,121			1,047,154		1,055,275

Public Works - Highways and Streets							
430.00	General Services - Administration	429,347		126,625			555,972
431.00	Cleaning of Streets and Gutters						
432.00	Winter Maintenance - Snow Removal	9,062	43,960				53,022
433.00	Traffic Control Devices	20,237	27,215				47,452
434.00	Street Lighting	11,762					11,762

EAST BRADFORD TWP, CHESTER County
STATEMENT OF REVENUES AND EXPENDITURES
December 31, 2017

Governmental Funds				Proprietary Funds		Fiduciary Fund	Total
General Fund	Special Revenue (Including State Liquid Fuels)	Capital Projects	Debt Service	Enterprise	Internal Service	Trust and Agency	Memorandum Only

EXPENDITURES

Public Works - Highways and Streets							
435.00	Sidewalks and Crosswalks						
436.00	Storm Sewers and Drains	6,944					6,944
437.00	Repairs of Tools and Machinery	3,292					3,292
438.00	Maintenance and Repairs of Roads and Bridges	40,338		9,819			50,157
439.00	Highway Construction and Rebuilding Projects	4,609	341,535	160,866			507,010
Total Public Works - Highways and Streets		525,591	412,710	297,310			1,235,611

Other Public Works Enterprises							
440.00	Airports						
441.00	Cemeteries						
442.00	Electric System						
443.00	Gas System						
444.00	Markets						
445.00	Parking						
446.00	Storm Water and Flood Control						
447.00	Transit System						
448.00	Water System						
449.00	Water Transport and Terminals						
Total Other Public Works Enterprises							

Culture and Recreation							
451.00	Culture-Recreation Administration	7,920					7,920
452.00	Participant Recreation						
453.00	Spectator Recreation						
454.00	Parks	127,487		22,869			150,356

EAST BRADFORD TWP, CHESTER County
STATEMENT OF REVENUES AND EXPENDITURES
December 31, 2017

Governmental Funds				Proprietary Funds		Fiduciary Fund	Total
General Fund	Special Revenue (Including State Liquid Fuels)	Capital Projects	Debt Service	Enterprise	Internal Service	Trust and Agency	Memorandum Only

EXPENDITURES

Culture and Recreation							
455.00	Shade Trees						
456.00	Libraries	7,500					7,500
457.00	Civil and Military Celebrations						
458.00	Senior Citizens' Centers						
459.00	All Other Culture and Recreation						
Total Culture and Recreation		142,907	22,869				165,776

Community Development							
461.00	Conservation of Natural Resources		438,015				438,015
462.00	Community Development and Housing						
463.00	Economic Development						
464.00	Economic Opportunity						
465-469	All Other Community Development						
Total Community Development			438,015				438,015

Debt Service							
471.00	Debt Principal (short-term and long-term)		3,191,047	122,281			3,313,328
472.00	Debt Interest (short-term and long-term)		301,286	27,950			329,236
475.00	Fiscal Agent Fees		92,631				92,631
Total Debt Service			3,584,964	150,231			3,735,195

Employer Paid Benefits and Withholding Items							
481.00	Employer Paid Withholding Taxes and Unemployment Compensation	77,852					77,852
482.00	Judgments and Losses						
483.00	Pension / Retirement Fund Contributions	130,656					130,656

EAST BRADFORD TWP, CHESTER County
STATEMENT OF REVENUES AND EXPENDITURES
December 31, 2017

Governmental Funds				Proprietary Funds		Fiduciary Fund	Total
General Fund	Special Revenue (Including State Liquid Fuels)	Capital Projects	Debt Service	Enterprise	Internal Service	Trust and Agency	Memorandum Only

EXPENDITURES

Employer Paid Benefits and Withholding Items							
484.00	Worker Compensation Insurance	17,631					17,631
487.00	Other Group Insurance Benefits	299,445					299,445
Total Employer Paid Benefits and Withholding Items		525,584					525,584

Insurance							
486.00	Insurance, Casualty, and Surety	78,478			6,540		85,018
Total Insurance		78,478			6,540		85,018

Unclassified Operating Expenditures							
488.00	Fiduciary Fund Benefits and Refunds Paid						
489.00	All Other Unclassified Expenditures						
Total Unclassified Operating Expenditures							

Other Financing Uses							
491.00	Refund of Prior Year Revenues				158		158
492.00	Interfund Operating Transfers	550,000	1,568,476		20,000		2,138,476
493.00	All Other Financing Uses						
Total Other Financing Uses		550,000	1,568,476		20,158		2,138,634

TOTAL EXPENDITURES	4,355,368	6,019,627	575,400		1,073,852		12,024,247
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EXCESS/DEFICIT OF REVENUES OVER EXPENDITURES	152,412	-394,559	174,506		29,879	1,446,476	1,408,714
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EAST BRADFORD TWP

December 31, 2017

DEBT STATEMENT

OUTSTANDING BONDS AND NOTES

Listed below are all currently outstanding bond and note issues according to our files, excluding bond issues redeemed or refunded and defeased. Please show the principal payments and make any other necessary corrections and additions.

Purpose	Bond (B) Capital Lease (C) Lease Rental (L) Note (N)	Issue Year (yyyy)	Maturity Year (yyyy)	Original Amount of Issue	Outstanding Beginning of Year (1)	Principal Incurred This Year	Principal Paid This Year	Current Year Accretion on Compound Interest Bonds	Outstanding at Year End (1)	Plus (less) Unamortized Premium (Discount)	Total Balance
General Obligation Bonds and Notes											
G.O. Bond	Bond	2011	2028	4,150,000	4,125,000		2,500,000		1,625,000		1,625,000
G.O. Bond	Bond	2013	2028	5,025,000	3,510,000		400,000		3,110,000		3,110,000
G.O. Bond	Bond	2017	2028	4,090,000	0	4,090,000	25,000		4,065,000		4,065,000
Revenue Bonds and Notes											
Guaranteed Revenue Note	Note	2002	2023	12,000,000	2,555,000		339,000		2,216,000		2,216,000
Lease Rental Debt											
Truck Lease	Capital Leases	2016	2018	155,370	101,078		49,328		51,750		51,750
Other											

(1) - excludes unamortized premium/discount

Total bonds and notes outstanding	11,067,750
Capitalized lease obligations	0
Net debt	11,067,750

EAST BRADFORD TWP, CHESTER County
STATEMENT OF CAPITAL EXPENDITURES
 December 31, 2017

Category	Capital Purchases	Capital Construction	Total
Community Development			
Electric			
Fire			
Gas System			
General Government		72,618	72,618
Health			
Housing			
Libraries			
Mass Transit			
Parks	22,869		22,869
Police			
Recreation			
Sewer			
Solid Waste			
Streets / Highways	100,627	486,258	586,885
Water			
Other: Open Space Acquisition	402,000		402,000
TOTAL CAPITAL EXPENDITURES	525,496	558,876	1,084,372

EMPLOYEE COMPENSATION

Total salaries, wages, commissions, etc. paid this year (including all employees and elected officials)

980,184

Utilities

Aa

A

Baa

3.77

		Decade Spread	Annual Spread
10-Year	2.43		
20-Year	2.6	0.17	0.017
30-Year	2.75	0.15	

REVENUE BOND INDEX

10-20 Yr

20-30 Yr

3.41

0.09

0.15

3.65

30-Yr Rev Bond Est.

3.65

2016 Lt Debt

Prf Stk

Pref Stock Est.

4.1

5.4

132%

3.77

132%

4.97

12/31/2017

A-Rated Rev Bonds	3.65
A-Rated PU Bonds	3.77
A-Rated PU Pref Stk	4.97
30-yr T-bond	2.75

EAST BRADFORD TOWNSHIP							2016 Budget	(Sewer Fund) and Actuals entered 01-07-16)
FINAL BUDGET 2016							Approved by Board of Supervisors December 08, 2015	
Approved 12-08-15 / Authorized 11-10-15							(Last revised 01-07-16 12-31-15; 11-05-15 YTD & to FE: 10-27-15 YTD / selected updates including MuniBilling fees. 09-28-15 - revisions re: no rate increase from Boro for '16, 09-10-15 YTD +; 08-17-15 up	
SEWER FUND BUDGET (08)							2015	2016
ACCT. NO.	TITLE/CATEGORY	ACTUAL	BUDGET	YEAR TO DATE	% '15 Budget	YEAR END	FINAL	Miscellaneous Notes
(revisions marked in RED) (pending in BLUE)		12-31-14	2015	thru 12-31-15	YTD	PROJECTION	BUDGET	
EXPENDITURES								
Township System								
402.15	Bank Related - Services Charges	\$15	\$0	\$15		\$0	\$0	16 Bank fees pending 3rd party service agreement; '15 Susquehanna Bank service fees expensed to 429.30
407.30	On-site System Mt / Admin	\$0	\$0	\$0		\$0	\$0	16 administration on-kt maintenance / system data commenced in-house 2013 (no direct expenses anticipated other than
429.00	Sewer Conveyance & Treatment	see 429.101/102	see 429.101/102	see 429.101/102		see 429.101/102	see 429.101/102	See below -- Per WC Boro fee schedule & projected customer base
429.101	Sewer User Fees - Residential	\$655,167	\$655,630	\$659,867	101%	\$659,867	\$655,630	16 See 2016 System Info below; estimate includes WC Boro 0 % rate increase / Twp 0% rate increase
429.102	Sewer User Fees - Commercial	\$204,415	\$197,014	\$200,104	102%	\$197,014	\$197,014	16 See 2016 System Info below; estimate includes WC Boro 0 % rate increase / Twp 0% rate increase
429.21	Office Supplies	\$0	\$0	\$0		\$0	\$0	16 expenses absorbed by 01 Fund and reimbursed via annual support 429.311 / 492.01
429.22	Postage	\$600	\$0	\$1,437		\$1,437	\$0	16 estimate; MuniBilling services agree includes postage
429.25	Sewer Payment Merchant Fees	\$3,143	\$3,000	\$3,754	125%	\$3,500	\$3,500	16 - this payment option could be eliminated w/ service entry of MuniBilling and its pay option menu; trend toward increas
429.30	Third Party Invoice/Collect MuniBilling 2016	\$11,168	\$4,800	\$6,357	138%	\$5,406	\$20,450	16 return to full service bill / collect w/ MuniBilling; See Note 5; Third party invoice/collection commenced in 2005
429.31	Township Engineering System Support							
429.310	Consulting Engineer	\$3,855	\$2,500	\$1,792	72%	\$2,500	\$2,500	16 per Twp Eng input; plan / schedule prep Ch. 94 inspections; ongoing system operations; varies year to year -- Carroll
429.311	Admin Support (Reimburse Gen'l Fund)	\$0	\$0	\$0		\$0	\$0	16 refer to 492.01 below; Staff admin / operation support; Gen'l Fund reimburse since 2004
429.315	Township Engineer	\$65	\$0	\$65		\$0	\$0	16 Twp Eng support; reimbursable to Gen'l Fund; Ref: 429.311 / 492.01; varies year-to-year
429.32	System annual inspect, test, video, grout, repair	\$3,521	\$32,500	\$7,520	23%	\$7,520	\$32,500	16 per 12-2013 Sewer Capital Reserve Study (Carroll Engineers); may include training/into testing license and / for Ch. 94
429.33	Sewer Connections / Tapping Fees	\$2,332	\$0	\$0		\$0	\$0	16 pending Tigue Farm/Toil Bros approval process; as of 09-24-15 no taps projected for 2016; See Note 1 & Note 7 (\$2.7
	Sub-Total	\$884,281	\$895,244	\$880,911	98%	\$877,244	\$911,594	
429.34	Sewer Alarm / Communications	see below	see below	see below		see below	see below	Verizon & Alarm Monitoring (Vector)
429.341	Windon	\$689	\$750	\$868	116%	\$868	\$850	16 estimate
429.342	Plum Tree	\$1,175	\$750	\$727	97%	\$727	\$800	16 estimate
429.343	Strode's	\$708	\$750	\$1,273	170%	\$782	\$800	16 estimate
429.344	Kenmara	\$703	\$500	\$972	194%	\$972	\$500	16 estimate
429.345	East Bradford Park	\$188	\$200	\$147	74%	\$147	\$200	16 estimate
429.346	Mercer's Mill	\$415	\$400	\$418	105%	\$400	\$400	16 estimate
	Sub-Total	\$3,878	\$3,350	\$4,405	131%	\$3,896	\$3,550	
429.35	Insurance	\$4,911	\$5,000	\$7,450	149%	\$7,450	\$7,600	16 08-14-15 updated quote from 05-27-15 ins review (B. J. G. / H.A. Thomson);
	Sub-Total	\$4,911	\$5,000	\$7,450	149%	\$7,450	\$7,600	PIRMA property & liability (14% of general liability & 09% property/ equip; per H.A. Thomson);

EAST BRADFORD TOWNSHIP							2016 Budget	(Budget Fund Actuals entered 01-07-16)
FINAL BUDGET 2016							Approved by Board of Supervisors December 08, 2015	
Approved 12-08-15 / Authorized 11-10-15							(Last revised 01-07-16 12-31-15; 11-05-15 YTD & to TE; 10-27-15 YTD / selected updates including MuniBilling fees; 09-28-15 - revisions re: no rate increase from Boro for '16; 09-10-15 YTD +; 08-17-15 up	
SEWER FUND BUDGET (08)							2015	2016
ACCT. NO.	TITLE/CATEGORY	ACTUAL	BUDGET	YEAR TO DATE	% '15 Budget	YEAR END	2016	Miscellaneous Notes
(revisions marked in RED) (pending in BLUE)		12-31-14	2015	thru 12-31-15	YTD	PROJECTION	BUDGET	
429.36	Electric - Pump Stations	see below	see below	see below		see below	see below	PECO Energy / Exelon; electric rate rate deregulation effective January 2011
429.361	Windon PECO 48241-00801	\$4,838	\$6,500	\$4,081	63%	\$6,000	\$6,500	16 estimate
429.362	Plum Tree PECO 51338-01005	\$3,351	\$4,000	\$3,649	91%	\$4,000	\$4,000	16 estimate
429.363	Strode's Mill PECO 75916-01004	\$4,761	\$4,500	\$3,940	88%	\$4,500	\$4,500	16 estimate; 2014 YTD substantial PS mechanical / infiltration events and problems
429.364	Kenmara PECO 01652-00401	\$1,904	\$2,500	\$2,202	88%	\$2,500	\$2,500	16 estimate
429.365	East Bradford Park	\$938	\$1,000	\$716	72%	\$1,000	\$1,000	16 estimate
429.366	Mercer's Mill	\$1,592	\$2,500	\$1,468	59%	\$2,000	\$2,500	16 estimate
	Sub-Total	\$17,384	\$21,000	\$16,056	76%	\$20,000	\$21,000	
								TWP ENG REVIEW
429.37	(PM) Maintenance - Pump Stations	see below	see below	see below		see below	see below	Monthly PM Aqua Wastewater Mgt. wet well cleaning, generators
429.371	Windon	\$8,187	\$6,100	\$5,961	98%	\$6,100	\$6,100	16 -- 12 16 15 accepted revised proposal w/ 2.5% increase (original 10%) from AWM to \$485 / PS per mo from \$474 sinc
429.372	Plum Tree	\$8,260	\$6,100	\$5,961	98%	\$6,100	\$6,100	16 -- 12 16 15 accepted revised proposal w/ 2.5% increase (original 10%) from AWM to \$485 / PS per mo from \$474 sinc
429.373	Strode's	\$8,268	\$6,100	\$5,961	98%	\$6,100	\$6,100	16 -- 12 16 15 accepted revised proposal w/ 2.5% increase (original 10%) from AWM to \$485 / PS per mo from \$474 sinc
429.374	Kenmara	\$8,045	\$6,100	\$6,181	101%	\$6,100	\$6,100	16 -- 12 16 15 accepted revised proposal w/ 2.5% increase (original 10%) from AWM to \$485 / PS per mo from \$474 sinc
429.375	East Bradford Park	\$7,379	\$6,100	\$5,961	98%	\$6,100	\$6,100	16 -- 12 16 15 accepted revised proposal w/ 2.5% increase (original 10%) from AWM to \$485 / PS per mo from \$474 sinc
429.376	Mercer's Mill	\$8,276	\$6,100	\$5,961	98%	\$6,100	\$6,100	16 -- 12 16 15 accepted revised proposal w/ 2.5% increase (original 10%) from AWM to \$485 / PS per mo from \$474 sinc
	Sub-Total	\$48,415	\$36,600	\$35,006	98%	\$36,600	\$36,600	
								TWP ENG REVIEW
429.38	Repairs - Pump Stations	see below	see below	see below		see below	see below	Repairs/equipment failures - Aqua Wastewater Mgt
429.381	Windon	\$8,395	\$8,000	\$1,832	23%	\$8,000	\$8,000	16 estimate; AWM service fee schedule increase 2.5% for '16
429.382	Plum Tree	\$6,321	\$7,500	\$3,096	41%	\$7,500	\$7,500	16 estimate; AWM service fee schedule increase 2.5% for '16
429.383	Strode's	\$70,071	\$7,500	\$8,758	90%	\$7,500	\$7,500	16 pending; 14 major issues w/ infiltration investigations / repairs
429.384	Kenmara	\$4,726	\$4,500	\$3,099	69%	\$4,500	\$4,500	16 estimate; AWM service fee schedule increase 2.5% for '16
429.385	East Bradford Park	\$0	\$1,000	\$0	0%	\$1,000	\$1,000	16 estimate; AWM service fee schedule increase 2.5% for '16
429.386	Mercer's Mill	\$4,492	\$6,000	\$3,417	90%	\$6,000	\$6,000	16 estimate; AWM service fee schedule increase 2.5% for '16
429.389	Conveyance System Repairs/Maint	\$3,748	\$0	\$0		\$0	\$0	16; refer to 08 429.320 above (for 2016 and per Sewer Capital Reserve Study (2013))
	Sub-Total	\$97,753	\$34,500	\$20,202	59%	\$34,500	\$34,500	
								Aqua PA
429.39	Water Charges	see below	see below	see below		see below	see below	
429.391	Windon	\$218	\$300	\$197	66%	\$300	\$300	16 estimate
429.392	Plum Tree	\$386	\$400	\$351	88%	\$400	\$400	16 estimate
429.393	Strode's	\$565	\$400	\$232	58%	\$400	\$400	16 estimate
429.394	Kenmara	\$219	\$300	\$161	54%	\$300	\$300	16 estimate
429.395	East Bradford Park	\$0	\$100	\$0	0%	\$100	\$100	16 estimate
429.396	Mercer's Mill	\$210	\$300	\$194	65%	\$300	\$300	16 estimate
	Sub-Total	\$1,598	\$1,800	\$1,135	63%	\$1,800	\$1,800	

EAST BRADFORD TOWNSHIP							2016 Budget	(Sewer Fund) End Actuals entered 01-07-16)
FINAL BUDGET 2016							Approved by Board of Supervisors December 08, 2015	
Approved 12-08-15 / Authorized 11-10-15							(Last revised 01-07-16 12-31-15; 11-05-15 YTD & to FE; 10-27-15 YTD / selected updates including Muni Billing fees; 09-28-15 - revisions re: no rate increase from Boro for '16; 09-10-15 YTD +; 08-17-15 up	
SEWER FUND BUDGET (08)							2015	2016
ACCT. NO.	TITLE/CATEGORY	ACTUAL	BUDGET	YEAR TO DATE	% '15 Budget	YEAR END	FINAL	
(revisions marked in RED)	(pending in BLUE)	12-31-14	2015	thru 12-31-15	YTD	PROJECTION	BUDGET	
Miscellaneous Notes								
429.40	Other Sewer System Expenses							
	open							
429.401	All Pump Stations (Propane)	\$186	\$2,000	\$450	23%	\$2,000	\$2,000	
429.45	Act 537 Plan Update	\$0	\$0	\$0		\$0	\$0	
429.46	Other Sewer Related Study	\$0	\$0	\$5,189		\$7,000	\$70,000	
429.50	Legal Services	\$853	\$1,000	\$0	0%	\$1,000	\$1,000	
429.55	Third Party Collection Services	\$812	\$2,000	\$0	0%	\$0	\$2,000	
429.61	Special Projects Installations	\$0	\$0	\$0		\$0	\$0	
429.70	Capital Improvements	\$0	\$0	\$0		\$0	\$0	
	Sub-Total	\$1,851	\$5,000	\$5,639	113%	\$10,000	\$75,000	
TWP ENG REVIEW								
429.75	Capital Improve / Replace							
429.751	Hillsdale	\$0	\$0	\$0		\$0	\$0	
429.752	Plum Run	\$0	\$0	\$10,738		\$5,748	\$0	
429.753	Strode's	\$0	\$0	\$5,644		\$5,644	\$0	
429.754	Kenmara	\$0	\$0	\$6,301		\$6,301	\$0	
429.755	East Bradford Park	\$0	\$0	\$0		\$0	\$0	
429.756	Mercer's Mill	\$0	\$0	\$0		\$0	\$0	
429.759	General Capital Sewer Contingency	\$520	\$0	\$0		\$0	\$0	
429.799	Capital Reserve Funding	\$0	\$44,680	\$0		\$44,680	\$44,680	
	Sub-Total	\$520	\$44,680	\$22,683	51%	\$62,373	\$44,680	
Per Capital Replacement Schedule								
16: Twp Engineer identified project/replace \$								
16: Twp Engineer identified project/replace \$: '15 YTD mag meter replace;								
16: Twp Engineer identified project/replace \$: '15 YTD mag meter replace;								
16: Twp Engineer identified project/replace \$: '15 YTD mag meter replace;								
16: Twp Engineer identified project/replace \$								
16: Twp Engineer identified project/replace \$								
16: '15 per Dec 2013 Sewer Capital Reserve Study (Carroll Engineers) recommended \$44,680 - also refer to 08 429.32								
Above Capital expenditures (429.751 -- 756) not budgeted directly								
but if expended would offset (reduce) actual capital funding (429-799)								
429.80	Other Sewer Expense							
429.801	Customer Refunds (Overpayments)	\$150	\$0	\$0		\$0	\$0	
	Sub-Total	\$150	\$0	\$0		\$0	\$0	
429.01	Transfer to General Fund	\$15,000	\$22,000	\$22,000		\$22,000	\$15,000	
	Sub Total	\$15,000	\$22,000	\$22,000		\$22,000	\$15,000	
16 revised 10-11-15 ref: change in 3rd party services / expected reduced Staff Support; See 439.311 above per Twp Aud								
	Township System	\$1,075,741	\$1,069,174	\$1,016,467	95%	\$1,075,863	\$1,151,324	
Capital accumulation of tap/service fees over expenses								
364.11 + 364.12 + 429.101 + 429.102 + 429.33								
Revenues to Expenditures								
	Fund Equity Performance	\$44,517	\$7	\$95,250		\$5,046	(\$72,143)	
	Capital Reserve (Expense)	\$520	\$44,680	\$22,683	51%	\$62,373	\$44,680	
	Total Expenditures	\$1,075,741	\$1,069,174	\$1,016,467	95%	\$1,075,863	\$1,151,324	
	Total Revenue	\$1,120,258	\$1,069,181	\$1,111,717	104%	\$1,080,909	\$1,079,181	
UPDATED								
BUDGET NOTES:								
2016	Note 1: Township operation/capital costs/fees - for 2016 as of 09-25-15							
	West Chester Boro sewer rates / fees -- per WC Boro Manager - M. Cotter 09-25-15 -- no rate increase for 2016							
	2014 no rate increase; 2013 18% rate increase (2 phase @ 9% (Pfizer law suit related); 2012 no rate increase; 2011 no rate increase; 2010 no rate increase; 2009 13% rate increase;							
	2008 15% rate increase; 2005 5% rate increase; 2004 6% rate increase; 1996 25% rate							
2016	This budget version prepared assuming an 0% rate increase from Borough and 0% increase from Township as noted above							
	Year 2016 Estimate of Connection Fees (using 2016 tap fee schedule): 0 TH (pending / open) & 0 SFD (all individual lots / 0 contingency)							
	See West Chester Borough Connection Fee Schedule 2016-2020 below							
	(Renewal Agreement PENDING as of 10-11-15) w/ indication of renewal process (from WC Boro Mgr) to occur 1st Qtr. 2016 (a bridge agreement of existing terms executed).							
	Total projected 2016= 0							
	Note 2: Township has 6 sewer pump stations as of 2015: Plum Run; Windon; Strodes Mill, Kenmara, East Bradford Park and Mercer's Mill							
	Note 3: No new sewer pump stations planned for 2016 (potential new PS ref: Tique Farm / Toll Bros. 2017)							

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EAST BRADFORD TOWNSHIP		Approved by Board of Supervisors December 13, 2016					08 (Final Year) 08/15 Appropriations 08-01-17		08
FINAL BUDGET 2017		Approved 12-13-16 / Authorized 11-07-16					16 YTD & Selected updates 07-12-16 YTD + 06-07-16 YTD; 02-21-16 new year set up.		
SEWER FUND BUDGET (08)		2016					2016		2017
ACCT. NO.	TITLE/CATEGORY	ACTUAL	BUDGET	YEAR TO DATE	% '16 Budget	YEAR END	FINAL	FINAL	
	(revisions marked in RED) (pending in BLUE)	12-31-15	2016	thru 12-31-16	YTD	PROJECTION	BUDGET	BUDGET	Miscellaneous Notes
REVENUES									
TOWNSHIP SYSTEM									
341.00	Interest Checking & PLGIT Merchant	\$255	\$200	\$1,239	620%	\$1,100	\$1,000	\$1,000	17 assume 0.15% on \$500K balance; Checking + PLGIT Merchant
341.50	Interest Capital Reserve	\$668	\$800	\$674	84%	\$750	\$750	\$750	17 assume 0.15% on \$500K balance; Sewer Reserve account
364.11	Sewer System Connection Fees	\$0	\$0	\$0	0%	\$0	\$0	\$0	17 pending Tighe Farm/Toh Bros approval process; as of 09-24-15 no taps projected for 2016; See Note 1 & Note 7(52)
364.12	Sewer User Payments	\$1,076,961	\$1,058,181	\$1,062,631	100%	\$1,058,181	\$1,070,000	\$1,070,000	17 estimate based upon 2015 actual and See 2016 System Info below; estimate includes WC, Retro and Tap tiered total
364.250	Delinquent Account Collections / Payments	\$31,855	\$20,000	\$26,009	130%	\$27,500	\$25,000	\$25,000	17 estimated receipt from 3rd Party - Portnoff Law Associates - collection services; 2015 first year of service
364.310	On-site Sewer Admin / Compliance	\$1,200	\$0	\$2,170	0%	\$1,095	\$0	\$0	17; new acct for 2014
355.00	Other State Shared Revenue/Entitlements	\$0	\$0	\$0	0%	\$0	\$0	\$0	17; new account per Twp Auditor 02-2007
380.10	Miscellaneous Revenue, incld grants	\$778	\$0	\$3,637	0%	\$0	\$0	\$0	16 Tighe Rd blockage / damage insurance claim settlement (PIRMA) 11-16
392.08	Transfer to Sewer Fund	\$0	\$0	\$0	0%	\$0	\$0	\$0	
	Township System Sub-Total	\$1,111,717	\$1,079,181	\$1,096,360	102%	\$1,088,626	\$1,096,750	\$1,096,750	
	Total Revenue	\$1,111,717	\$1,079,181	\$1,096,360	102%	\$1,088,626	\$1,096,750	\$1,096,750	
	Fund balance as of 12-31-14 (unaudited)	\$1,168,573							
	Fund balance as of 12-31-15 (unaudited)		\$1,263,820	\$1,263,820		\$1,195,958	\$1,195,958	\$1,195,958	12-31-16 Projected [Actual] Fund Balance (unaudited)
	Fund balance as of 12-31-16 (unaudited)			\$1,264,612					Prior Year 12-31 (15) Fund Balance + Current Year (16) Projected Revenues - Current Year (16) Projected Expenses
	Total Funds Available	\$2,280,290	\$2,343,001					\$2,292,708	Estimated Total Funds Available
									For 01-01-2017 = Prior year 12-31-15 estimated balance + projected 2017 revenue
E 6	Appropriate from Capital Reserve	\$22,683	\$0	\$27,545		\$0	\$0	\$0	Refer to Accl Group 429 75 below; Capital Reserve Account (within Fund) established 04-2005
	Operating Receipts to Expenditures	\$95,250	(\$72,143)	\$792		(\$67,862)	\$7,743	\$7,743	(1) = deficit of OPERATING Expenditures
									In excess of Budgeted Revenues; Positive figure indicates
									Budgeted Revenues in excess of Budgeted OPERATING Expenditures
									See Note 2
								\$1,272,355	Projected Fund Balance 12-31-17
									ACTUAL Projected Current Year 12-31 (2016) Fund Balance + Projected Next Year (2017) Revenues
									- Projected Next Year (2017) Expenditures
Projected	Fund Balance as of 12-31-16	\$1,195,958	(unaudited)						
Projected	Fund Balance as of 12-31-17	\$1,272,355	(unaudited)						
Actual	Fund Balance as of 12-31-16	\$1,264,612	(unaudited)						
	Fund Balance as of 12-31-15	\$1,263,820	(audited)						
	Fund Balance as of 12-31-14	\$1,168,573	(audited)						
	Fund Balance as of 12-31-13	\$1,124,051	(audited)						
	Fund Balance as of 12-31-12	\$1,074,428	(audited)						
	Fund Balance as of 12-31-11	\$1,080,817	(audited)						
	Fund Balance as of 12-31-10	\$1,121,476	(audited)						
	Fund Balance as of 12-31-09	\$1,149,043	(audited)						
	Fund Balance as of 12-31-08	\$1,117,990	(audited)						
	Fund Balance as of 12-31-07	\$1,046,948.73	(audited)						
	Fund Balance as of 12-31-06	\$956,179.86	(audited)						
	Fund balance as of 12-31-05	\$852,016.33	(audited)						
	Fund balance as of 12-31-04	\$786,952.44	(audited)						
	Fund balance as of 12-31-03	\$806,167.48	(audited)						
	Fund balance as of 12-31-02	\$691,111.22	(audited)						
	Fund balance as of 12-31-01	\$660,706.68	(audited)						

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EAST BRADFORD TOWNSHIP							08 (Final Year) EWB Acquisition 08-01-17)		
FINAL BUDGET 2017		Approved by Board of Supervisors December 13, 2016							
Approved 12-13-16 / Authorized 11-07-16		(last revised 01-01-17 YTD; 11-07-16 line adjustments Staff Support; 11-02-16 YTD; 10-03-16 YTD = 09-01-16 YTD & selected updates 07-12-16 YTD +06-07-16 YTD; 02-21-16 new year sel up.)							
SEWER FUND BUDGET (08)							c:\files\budget08 FINAL 2017.xls		
ACCT. NO.	TITLE/CATEGORY	ACTUAL	BUDGET	YEAR TO DATE	% '16 Budget	YEAR END	2017	FINAL	Miscellaneous Notes
	(revisions marked in RED) (pending in BLUE)	12-31-15	2016	thru 12-31-16	YTD	PROJECTION	BUDGET		
EXPENDITURES									
Township System									
402.15	Bank Related - Services Charges	\$15	\$0	\$50		\$0	\$0	\$0	17 Bank fees pending 3rd party service agreement; 15 Susquehanna Bank service fees expensed to 429.30
407.30	On-site System Mgt / Admin	\$0	\$0	\$0		\$0	\$0	\$0	17 administration on lot maintenance / system data commenced in house 2013 (no direct expenses anticipated other than
429.00	Sewer Conveyance & Treatment	see 429.101/102	see 429.101/102	see 429.101/102		see 429.101/102	see 429.101/102	see 429.101/102	See below -- Per WC Baro fee schedule & projected customer base
429.101	Sewer User Fees - Residential	\$659,867	\$655,630	\$658,727	100%	\$655,630	\$658,727	\$658,727	17 est based upon actual & See 2016 System Info below; estimate includes WCBoro 0% rate increase / Tap 0% rate in
429.102	Sewer User Fees - Commercial	\$200,104	\$197,014	\$196,449	100%	\$197,014	\$200,000	\$200,000	17 est based upon actual & See 2016 System Info below; estimate includes WCBoro 0% rate increase / Tap 0% rate in
429.21	Office Supplies	\$0	\$0	\$0		\$0	\$0	\$0	17 expenses absorbed by 01 Fund and reimbursed via annual support 429.311 / 492.01
429.22	Postage	\$1,437	\$0	\$0		\$0	\$0	\$0	17 estimate: MuniBilling/services agree includes postage
429.25	Sewer Payment Merchant Fees	\$3,754	\$3,500	\$112	3%	\$100	\$100	\$100	17 in 2016 discontinued customer payments to this account w/ service entry of MuniBilling and its pay option menu; the
429.30	Third Party Invoice/Collect - MuniBilling 2017	\$6,357	\$20,450	\$18,137	89%	\$20,450	\$20,450	\$20,450	17 return to full service bill / collect w/ MuniBilling; See Note 5; Third party invoice/collection commenced in 2005
429.31	Township Engineering System Support	\$1,792	\$2,500	\$1,604	68%	\$2,500	\$2,500	\$2,500	17 per Tap Eng input plan / schedule prep Ch. 94 inspections, ongoing system operations; varies year to year -- Carrol
429.310	Consulting Engineer	\$0	\$0	\$0		\$0	\$0	\$0	17 refer to 492.01 below; Staff Admin / operation support; Gen1 Fund reimburse since 2004
429.311	Admin Support (Reimburse Gen1 Fund)	\$65	\$0	\$125		\$125	\$0	\$0	17 Tap Eng support; reimbursable to Gen1 Fund; Ref: 429.311 / 492.01; varies year-to-year
429.315	Township Engineer	\$7,520	\$32,500	\$20,738	64%	\$32,500	\$32,500	\$32,500	17 per 12-2013 Sewer Capital Reserve Study (Carroll Engineers); may include training/licensing and for Ch. 9
429.32	System annual inspect, test, video, grout, repair	\$0	\$0	\$0		\$0	\$0	\$0	17 pending Town Farm/ToB Bires approval process; as of 09-24-16 no taps projected for 2016; See Note 1 & Note 7/52
429.33	Sewer Connections / Tapping Fees	\$0	\$0	\$0		\$0	\$0	\$0	
	Sub-Total	\$880,911	\$911,594	\$896,030	98%	\$908,319	\$914,277	\$914,277	
429.34	Sewer Alarm / Communications	see below	see below	see below		see below	see below	see below	Varizen & Alarm Monitoring (Vector)
429.341	Windon	\$868	\$850	\$727	86%	\$850	\$850	\$850	17 estimate
429.342	Plum Tree	\$727	\$800	\$1,386	173%	\$800	\$800	\$800	17 estimate
429.343	Sirode's	\$1,273	\$800	\$994	124%	\$800	\$800	\$800	17 estimate
429.344	Kenmara	\$972	\$500	\$539	108%	\$500	\$500	\$500	17 estimate
429.345	East Bradford Park	\$147	\$200	\$0	0%	\$200	\$200	\$200	17 estimate
429.346	Mercer's Mill	\$418	\$400	\$374	94%	\$400	\$400	\$400	17 estimate
	Sub-Total	\$4,405	\$3,550	\$4,020	113%	\$3,550	\$3,550	\$3,550	
429.35	Insurance	\$7,450	\$7,600	\$7,600	100%	\$7,600	\$7,600	\$7,600	16 08-14-15 updated quote from 05-27-15 ins review (B. J. G. / H. A. Thomson);
	Sub-Total	\$7,450	\$7,600	\$7,600	100%	\$7,600	\$7,600	\$7,600	PRIMA property & liability (14% of general liability & 09% property) equip per H.A. Thomson;

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EAST BRADFORD TOWNSHIP		Approved by Board of Supervisors December 13, 2016						08 Final Budget 2017	
FINAL BUDGET 2017		Approved 12-13-16 / Authorized 11-07-16						16 YTD & selected updates: 07-12-16 YTD + 08-07-16 YTD: 02-21-16 new year set up.)	
SEWER FUND BUDGET (08)		Approved 12-13-16 / Authorized 11-07-16						16 YTD & selected updates: 07-12-16 YTD + 08-07-16 YTD: 02-21-16 new year set up.)	
ACCT. NO.	TITLE/CATEGORY	ACTUAL	BUDGET	YEAR TO DATE	% '16 Budget	YEAR END	2017	Miscellaneous Notes	
(revisions marked in RED) (pending in BLUE)		12-31-15	2016	(thru 12-31-16)	YTD	PROJECTION	BUDGET		
429.36	Electric - Pump Stations	see below	see below	see below		see below	see below	PECO Energy / Exelon: electric rate rate deregulation effective January 2011	
429.361	Windon PECO 48241-00801	\$4,081	\$6,500	\$3,981	61%	\$6,500	\$6,500	17 estimate	
429.362	Plum Tree PECO 51338-01005	\$3,649	\$4,000	\$3,785	95%	\$4,000	\$4,000	17 estimate	
429.363	Strode's Mill PECO 75916-01004	\$3,940	\$4,500	\$3,941	88%	\$4,500	\$4,500	17 estimate; 2014 YTD substnial PS mechanical / infiltration events and problems	
429.364	Kenmara PECO 01652-00401	\$2,202	\$2,500	\$2,268	91%	\$2,500	\$2,500	17 estimate	
429.365	East Bradford Park 48138-00503	\$716	\$1,000	\$933	93%	\$1,000	\$1,000	17 estimate	
429.366	Mercer's Mill 01697-30009	\$1,468	\$2,500	\$1,447	58%	\$2,500	\$2,500	17 estimate	
	Sub-Total	\$16,056	\$21,000	\$16,355	78%	\$21,000	\$21,000		
TWP ENG REVIEW									
429.37	(PM) Maintenance - Pump Stations	see below	see below	see below		see below	see below	Monthly PM Aqua Wastewater Mgt. wet well cleaning, generators	
429.371	Windon	\$5,961	\$6,100	\$5,908	97%	\$6,100	\$6,100	17 pending: 16 -- 12 16 15 accepted revised proposal w/ 2.5% increase (original 10%) from AWM to \$485 / PS per mo	
429.372	Plum Tree	\$5,961	\$6,100	\$6,218	102%	\$6,100	\$6,100	12 pending: 16 -- 12 16 15 accepted revised proposal w/ 2.5% increase (original 10%) from AWM to \$485 / PS per mo	
429.373	Strode's	\$5,961	\$6,100	\$5,908	97%	\$6,100	\$6,100	17 pending: 16 -- 12 16 15 accepted revised proposal w/ 2.5% increase (original 10%) from AWM to \$485 / PS per mo	
429.374	Kenmara	\$6,181	\$6,100	\$5,908	97%	\$6,100	\$6,100	17 pending: 16 -- 12 16 15 accepted revised proposal w/ 2.5% increase (original 10%) from AWM to \$485 / PS per mo	
429.375	East Bradford Park	\$5,961	\$6,100	\$5,908	97%	\$6,100	\$6,100	17 pending: 16 -- 12 16 15 accepted revised proposal w/ 2.5% increase (original 10%) from AWM to \$485 / PS per mo	
429.376	Mercer's Mill	\$5,961	\$6,100	\$5,908	97%	\$6,100	\$6,100	17 pending: 16 -- 12 16 15 accepted revised proposal w/ 2.5% increase (original 10%) from AWM to \$485 / PS per mo	
	Sub-Total	\$35,986	\$36,600	\$35,758	98%	\$36,600	\$36,600		
TWP ENG REVIEW									
429.38	Repairs - Pump Stations	see below	see below	see below		see below	see below	Repairs/equipment failures - Aqua Wastewater Mgt	
429.381	Windon	\$1,832	\$8,000	\$1,977	25%	\$8,000	\$8,000	17 estimate: AWM service fee schedule increase 2.5% for '16	
429.382	Plum Tree	\$3,096	\$7,500	\$2,210	29%	\$7,500	\$7,500	17 estimate: AWM service fee schedule increase 2.5% for '16	
429.383	Strode's	\$6,758	\$7,500	\$9,635	128%	\$7,500	\$7,500	17 pending: 14 major issues w/ infiltration investigations / repairs	
429.384	Kenmara	\$3,099	\$4,500	\$3,065	68%	\$4,500	\$4,500	17 estimate: AWM service fee schedule increase 2.5% for '16	
429.385	East Bradford Park	\$0	\$1,000	\$296	30%	\$1,000	\$1,000	17 estimate: AWM service fee schedule increase 2.5% for '16	
429.386	Mercer's Mill	\$5,417	\$6,000	\$3,181	53%	\$6,000	\$6,000	17 estimate: AWM service fee schedule increase 2.5% for '16	
429.389	Conveyance System Repairs/Maint	\$0	\$0	\$0	0%	\$0	\$0	17: refer to 08 429.320 above (for 2017 and per Sewer Capital Reserve Study (2013))	
	Sub-Total	\$20,202	\$34,500	\$20,364	59%	\$42,000	\$34,500		
TWP ENG REVIEW									
429.39	Water Charges	see below	see below	see below		see below	see below	Aqua PA	
429.391	Windon	\$197	\$300	\$197	66%	\$300	\$300	17 estimate	
429.392	Plum Tree	\$351	\$400	\$304	76%	\$400	\$400	17 estimate	
429.393	Strode's	\$232	\$400	\$341	85%	\$400	\$400	17 estimate	
429.394	Kenmara	\$161	\$300	\$219	73%	\$300	\$300	17 estimate	
429.395	East Bradford Park	\$0	\$100	\$0	0%	\$100	\$100	17 estimate	
429.396	Mercer's Mill	\$194	\$300	\$184	61%	\$300	\$300	17 estimate	
	Sub-Total	\$1,135	\$1,800	\$1,245	69%	\$1,800	\$1,800		

EAST BRADFORD TOWNSHIP							08 # (Final Budget 2017/Actuals thru 12-31-17)	
FINAL BUDGET 2017							Approved by Board of Supervisors December 13, 2016	
Approved 12-13-16 / Authorized 11-07-16							(Last revised 07-01-17 YTD, 11-07-16 line adjustments Staff Support, 11-02-16 YTD, 10-03-16 YTD + 09-01-16 YTD & selected updates 07-12-16 YTD + 06-07-16 YTD - 02-21-16 new year set up)	
SEWER FUND BUDGET (08)							c:\files\budget08 FINAL 2017.xls	
ACCT. NO.	TITLE/CATEGORY	ACTUAL	BUDGET	2016	2016	2017		
(revisions marked in RED) (pending in BLUE)		12-31-15	2016	YEAR TO DATE thru 12-31-16	% '16 Budget YTD	YEAR END PROJECTION	FINAL BUDGET	
Miscellaneous Notes:								
429.40	Other Sewer System Expenses							
	open							
429.401	All Pump Stations (Propane)	\$450	\$2,000	\$450	23%	\$2,000	\$2,000	
429.45	Act 537 Plan Update	\$0	\$0	\$0		\$0	\$0	
429.46	Other Sewer Related Study	\$5,189	\$70,000	\$68,497		\$68,497	\$0	
429.50	Legal Services	\$0	\$1,000	\$0	0%	\$1,000	\$1,000	
429.55	Third Party Collection Services	\$0	\$2,000	\$949	47%	\$2,000	\$2,000	
429.61	Special Projects Installations	\$0	\$0	\$0		\$0	\$0	
429.70	Capital Improvements	\$0	\$0	\$0		\$0	\$0	
	Sub-Total	\$5,639	\$75,000	\$69,896	93%	\$73,497	\$5,000	
TWP ENG REVIEW								
429.75	Capital Improve / Replace							
	Hillsdale	\$0	\$0	\$0		\$0	\$0	
429.751	Plum Run	\$10,738	\$0	\$0		\$0	\$0	
429.752	Strodes	\$5,644	\$0	\$2,255		\$0	\$0	
429.753	Kenmara	\$6,301	\$0	\$0		\$0	\$0	
429.754	East Bradford Park	\$0	\$0	\$0		\$0	\$0	
429.755	Mercer's Mill	\$0	\$0	\$0		\$0	\$0	
429.756	General - Capital Sewer Contingency	\$0	\$0	\$25,290		\$0	\$0	
429.759	Capital Reserve Funding	\$0	\$44,680	\$0		\$44,680	\$44,680	
429.799	Sub-Total	\$22,683	\$44,680	\$27,545	62%	\$44,680	\$44,680	
Above Capital expenditures (429.751 - 756) not budgeted directly but if expended would offset (reduce) actual capital funding (429-799)								
429.80	Other Sewer Expense							
429.801	Customer Refunds (Overpayments)	\$0	\$0	\$1,755		\$1,221	\$0	
	Sub-Total	\$0	\$0	\$0		\$1,221	\$0	
429.901	Transfer to General Fund	\$22,000	\$15,000	\$15,000		\$15,000	\$20,000	
	Sub-Total	\$22,000	\$15,000	\$15,000		\$15,000	\$20,000	
1) increased based upon 2016 Staff support level. '16 revised 10-11-15 ref: change in 3rd party services / expected red								
Township System		\$1,016,467	\$1,151,324	\$1,095,568	95%	\$1,156,488	\$1,089,007	
Sub Total		\$1,016,467	\$1,151,324	\$1,095,568	95%	\$1,156,488	\$1,089,007	
Capital accumulation of tap/service fees over expenses 364.11 + 364.12 - 429.101 + 429.102 + 429.33								
Fund Equity Performance		\$95,250	(\$72,143)	\$792		(\$67,862)	\$7,743	
Revenues to Expenditures								
Capital Reserve (Expense)		\$22,683	\$44,680	\$27,545	62%	\$44,680	\$44,680	
Total Expenditures		\$1,016,467	\$1,151,324	\$1,095,568	95%	\$1,156,488	\$1,089,007	
Total Revenue		\$1,111,717	\$1,079,181	\$1,086,360	102%	\$1,088,626	\$1,096,750	
UPDATE PENDING								
BUDGET NOTES:								
2017 Note 1: Township operation/capital costs/fees - for 2017 as of 05-27-16: West Chester Boro sewer rates / fees -- per WC Boro Manager - M. Colter 08-24-16 -- no rate increase for 2017 but indicated likely 2 year cycle rate increases of 5% (2017/2018) and (2019/2020) Confirmation --- -- 2017, 2018, 2015, 2014 no rate increase; 2013 16% rate increase (2 phase @ 9% (Pfizer law suit related)); 2012 no rate increase; 2011 no rate increase; 2010 no rate increase; 2009 13% rate increase; 2008 15% rate increase; 2005 5% rate increase; 2004 6% rate increase; 1996 25% rate								
2017 This budget version prepared assuming an 0% rate increase from Borough and 0% increase from Township as noted above Year 2017 Estimate of Connection Fees (using 2016 tap fee schedule): 0 TH (pending / open) & 0 SFD (all individual lots / 0 contingency) See West Chester Borough Connection Fee Schedule 2016-2020 below (Renewal Agreement PENDING as of 02-21-16) w/ indication of renewal process (from WC Boro Mgr) to occur 1st Qtr. 2016 (a bridge agreement of existing terms executed) Total projected 2017= 0								
Note 2: Township has 6 sewer pump stations as of 2015: Plum Run; Windon; Strodes Mill, Kenmara, East Bradford Park and Mercer's Mill								
Note 3: (No) new sewer pump stations planned for 2017 (potential new PS ref: Tigus Farm / Toll Bros. 2017)								

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EAST BRADFORD TOWNSHIP								(Prior Year Budget Not Approved 01-02-18)
FINAL BUDGET 2018								Approved by Board of Supervisors December 12, 2017
Approved 12-12-17 / Authorized 10-10-17								(Last revised 01-02-18 YTD: 12-02-17 YTD + 11-08-17 YTD: 10-18-17 updates: 09-30-17 YTD + 09-01-17 YTD 08-17-17 update info: 08-02-17 YTD: 07-13-17 YTD - 04-19-17 YTD - 01-17-17 YTD: 01-02-17 new year setup)
SEWER FUND BUDGET (08)								c:\files\budget08 FINAL 2018.xls
ACCT. NO.	TITLE/CATEGORY	ACTUAL	BUDGET	2017	2017	2018		
(revisions marked in RED) (pending in BLUE)		12-31-16	2017	YEAR TO DATE thru 12-31-17	% '17 Budget YTD	YEAR END PROJECTION	FINAL BUDGET	
REVENUES								
TOWNSHIP SYSTEM								
341.00	Interest Checking & PLGIT Merchant	\$1,239	\$1,000	\$2,788	279%	\$2,750	\$2,000	
341.50	Interest Capital Reserve	\$674	\$750	\$682	91%	\$750	\$750	
364.11	Sewer System Connection Fees	\$0	\$0	\$0	0%	\$0	\$0	
364.12	Sewer User Payments (Res'l and Com'l)	\$1,062,631	\$1,070,000	\$1,112,143	104%	\$1,150,000	\$1,070,000	
364.250	Delinquent Account Collections / Payments	\$26,009	\$25,000	\$20,280	81%	\$21,000	\$25,000	
364.310	On-site Sewer Admin / Compliance	\$2,170	\$0	\$1,850		\$1,750	\$0	
355.00	Other State Shared Revenue/Entitlements	\$0	\$0	\$0	0%	\$0	\$0	
380.10	Miscellaneous Revenue, incl grants	\$3,637	\$0	\$0	0%	\$0	\$0	
392.08	Transfer to Sewer Fund	\$0	\$0	\$0	0%	\$0	\$0	
	Township System Sub-Total	\$1,096,360	\$1,096,750	\$1,137,743	104%	\$1,176,250	\$1,097,750	
	Total Revenue	\$1,096,360	\$1,096,750	\$1,137,743	104%	\$1,176,250	\$1,097,750	
	Fund balance as of 12-31-16 (unaudited)	\$1,264,612					\$1,267,982	
	Fund balance as of 12-31-17 (unaudited)			\$1,329,105				
	Total Funds Available	\$1,096,360	\$1,096,750				\$2,385,732	
							Estimated Total Funds Available 01-01-2018	
							= Prior year 12-31-17 estimated fund balance + projected 2018 revenue	
	Appropriate from Capital Reserve	\$27,545	\$0	\$0		\$0	\$500,000	
	Operating Receipts to Expenditures	\$792	\$7,743	\$93,891		\$23,370	(\$493,657)	
							\$794,325	
	Fund Balance History							
Projected	Fund Balance as of 12-31-18	\$794,325	(unaudited)					
Projected	Fund Balance as of 12-31-17	\$1,267,982	(unaudited)					
Actual	Fund Balance as of 12-31-17	\$1,329,105	(unaudited)					
	Fund Balance as of 12-31-16	\$1,264,612	(audited)					
	Fund Balance as of 12-31-15	\$1,263,820	(audited)					
	Fund Balance as of 12-31-14	\$1,168,573	(audited)					
	Fund Balance as of 12-31-13	\$1,124,051	(audited)					
	Fund Balance as of 12-31-12	\$1,074,428	(audited)					
	Fund Balance as of 12-31-11	\$1,080,817	(audited)					
	Fund Balance as of 12-31-10	\$1,121,476	(audited)					
	Fund Balance as of 12-31-09	\$1,149,043	(audited)					
	Fund Balance as of 12-31-08	\$1,117,990	(audited)					
	Fund Balance as of 12-31-07	\$1,046,948	(audited)					
	Fund Balance as of 12-31-06	\$956,179	(audited)					
	Fund balance as of 12-31-05	\$852,016	(audited)					
	Fund balance as of 12-31-04	\$786,952	(audited)					
	Fund balance as of 12-31-03	\$806,167	(audited)					
	Fund balance as of 12-31-02	\$691,111	(audited)					
	Fund balance as of 12-31-01	\$660,706	(audited)					

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EAST BRADFORD TOWNSHIP		Approved by Board of Supervisors December 12, 2017					PIRMA Budget 2018 approved 01-02-18		
FINAL BUDGET 2018		Approved by Board of Supervisors December 12, 2017							
Approved 12-12-17 / Authorized 10-10-17		Update Rate info: 08-22-17 YTD - 07-13-17 YTD - 05-19-17 YTD - 03-17-17 YTD - 01-02-17 new year setup.							
SEWER FUND BUDGET (08)		2017		2017		2018		c:\files\budget08 FINAL 2018.xls	
ACCT. NO.	TITLE/CATEGORY	ACTUAL	BUDGET	YEAR TO DATE	% '17 Budget	YEAR END	FINAL	Miscellaneous Notes	
(revisions marked in RED) (pending in BLUE)		12-31-16	2017	thru 12-31-17	YTD	PROJECTION	BUDGET		
EXPENDITURES									
Township System									
402.15	Bank Related - Services Charges	\$50	\$0	\$0		\$0	\$0	18: 17 Bank fees per BB&T Bank	
407.30	On-site System Mgt / Admin	\$0	\$0	\$0		\$0	\$0	18: administration on lot maintenance / system data commenced in house 2013 (no direct expenses anticipated other than	
429.00	Sewer Conveyance & Treatment	see 429.101/102	see 429.101/102	see 429.101/102		see 429.101/102	see 429.101/102	See below -- Per WC Boro fee schedule & projected customer base	
429.101	Sewer User Fees - Residential	\$658,727	\$658,727	\$659,146	100%	\$659,146	\$658,727	18: 17 est based upon actual & See 2016 System Info below: estimate includes WC Boro 0 % rate increase / Twp 0% increase	
429.102	Sewer User Fees - Commercial	\$196,449	\$200,000	\$207,682	104%	\$200,000	\$200,000	18: 17 est based upon actual & See 2016 System Info below: estimate includes WC Boro 0 % rate increase / Twp 0% increase	
429.21	Office Supplies	\$0	\$0	\$0		\$0	\$0	18: 17 expenses absorbed by 01 Fund and reimbursed via annual support 429.311 / 492.01	
429.22	Postage	\$0	\$0	\$0		\$0	\$0	18: 17 estimate: MuniBilling services agree includes postage	
429.25	Sewer Payment Merchant Fees - PLGIT	\$112	\$100	\$98	98%	\$100	\$100	18: in 2016 discontinued customer payments to this account w/ service entry of MuniBilling and its pay option menu: fee	
429.30	Third Party Invoice/Collect - MuniBilling 2017	\$18,137	\$20,450	\$11,967	59%	\$20,450	\$20,450	18: 17 return to full service bill / collect w/ MuniBilling: See Note 5. Third party invoice/collection commenced in 2005	
429.310	Township Engineering System Support								
429.310	Consulting Engineer	\$1,694	\$2,500	\$21,540	862%	\$25,000	\$2,500	18: 17 per Twp Eng input: plan / schedule prep Ch. 94 inspections; ongoing system operations; varies year to year -- C	
429.311	Admin Support (Reimburse Gen'l Fund)	\$0	\$0	\$0		\$0	\$0	18: 17 refer to 492.01 below: Staff admin / operation support; Gen'l Fund reimburse since 2004	
429.315	Township Engineer	\$125	\$0	\$65		\$65	\$0	18: 17 Twp Eng support: reimbursable to Gen'l Fund: Ref: 429.311 / 492.01: varies year to year	
429.32	System annual inspect, test, video, gROUT, repair	\$20,736	\$32,500	\$27,234	84%	\$32,500	\$32,500	18: 17 per 12-2013 Sewer Capital Reserve Study (Carroll Engineers); may include training/line testing/expense and for C	
429.33	Sewer Connections / Tapping Fees	\$0	\$0	\$0		\$0	\$0	18: 17 pending Tighe Farm/Toll Bros approval process: as of 09-24-15 no taps projected for 2016: See Note 1 & Note 7	
	Sub-Total	\$896,030	\$914,277	\$927,732	101%	\$937,261	\$914,277		
429.34	Sewer Alarm / Communications	see below	see below	see below		see below	see below	Verizon & Alarm Monitoring (Vector)	
429.341	Windon	\$727	\$850	\$506	60%	\$850	\$850	18 estimate	
429.342	Plum Tree	\$1,386	\$800	\$756	95%	\$800	\$800	18 estimate	
429.343	Strode's	\$994	\$800	\$1,045	131%	\$800	\$800	18 estimate	
429.344	Kenmara	\$539	\$500	\$791	158%	\$791	\$500	18 estimate	
429.345	East Bradford Park	\$0	\$200	\$0	0%	\$200	\$200	18 estimate	
429.346	Mercer's Mill	\$374	\$400	\$378	95%	\$400	\$400	18 estimate	
	Sub-Total	\$4,020	\$3,550	\$3,476	98%	\$3,841	\$3,550		
429.35	Insurance	\$7,600	\$7,600	\$6,540	86%	\$6,540	\$7,600	18: H.A. Thomson / PIRMA:	
	Sub-Total	\$7,600	\$7,600	\$6,540	86%	\$6,540	\$7,600	PIRMA property & liability (14% of general liability & 66% property/ equip per H.A. Thomson);	

2018-01-16

EAST BRADFORD TOWNSHIP		Approved by Board of Supervisors December 12, 2017					(Previous to End of Approved 01-02-18)	
FINAL BUDGET 2018		Approved 12-12-17 / Authorized 10-10-17					c:\files\budget08 FINAL 2018.xls	
Approved 12-12-17 / Authorized 10-10-17		Last revised 01-02-18 YTD: 12-02-17 YTD: 11-06-17 YTD: 10-16-17 updates: 09-30-17 YTD: 09-01-17 YTD: 08-17-17 update data info: 08-02-17 YTD: 07-13-17 YTD: 06-19-17 YTD: 05-17-17 YTD: 01-02-17 new year set up:)						
ACCT. NO.	TITLE/CATEGORY	2017		2017		2018		Miscellaneous Notes
(revisions marked in RED)	(pending in BLUE)	ACTUAL	BUDGET	YEAR TO DATE	% '17 Budget	YEAR END PROJECTION	FINAL BUDGET	
		12-31-16	2017	thru 12-31-17	YTD			
429.36	Electric - Pump Stations	see below	see below	see below	see below	see below	see below	PECO Energy / Exelon
429.361	Windon PECO 48241-00801	\$3,981	\$6,500	\$3,943	61%	\$6,500	\$6,500	18 estimate
429.362	Plum Tree PECO 51338-01005	\$3,785	\$4,000	\$3,319	83%	\$4,000	\$4,000	18 estimate
429.363	Strode's Mill PECO 75916-01004	\$3,941	\$4,500	\$4,089	91%	\$4,500	\$4,500	18 estimate
429.364	Kenmara PECO 01652-00401	\$2,268	\$2,500	\$1,844	66%	\$2,500	\$2,500	18 estimate
429.365	East Bradford Park 48138-00503	\$933	\$1,000	\$1,050	105%	\$1,000	\$1,000	18 estimate
429.366	Mercers Mill 01697-30009	\$1,447	\$2,500	\$1,328	53%	\$2,500	\$2,500	18 estimate
	Sub-Total	\$16,355	\$21,000	\$15,373	73%	\$21,000	\$21,000	
TWP ENG REVIEW								
429.37	(PM) Maintenance - Pump Stations	see below	see below	see below	see below	see below	see below	Monthly PM Aqua Wastewater Mgt. wet well cleaning, generators
429.371	Windon	\$5,908	\$6,100	\$6,287	103%	\$6,100	\$6,500	18 pending KBX Golden. KBX Golden purchased assets / operations from AWM: '17 4% increase; '16 2.5% increase
429.372	Plum Tree	\$6,218	\$6,100	\$6,139	101%	\$6,100	\$6,500	18 pending KBX Golden. KBX Golden purchased assets / operations from AWM: '17 4% increase; '16 2.5% increase
429.373	Strode's	\$5,908	\$6,100	\$6,286	103%	\$6,100	\$6,500	18 pending KBX Golden. KBX Golden purchased assets / operations from AWM: '17 4% increase; '16 2.5% increase
429.374	Kenmara	\$5,908	\$6,100	\$6,132	101%	\$6,100	\$6,500	18 pending KBX Golden. KBX Golden purchased assets / operations from AWM: '17 4% increase; '16 2.5% increase
429.375	East Bradford Park	\$5,908	\$6,100	\$6,132	101%	\$6,100	\$6,500	18 pending KBX Golden. KBX Golden purchased assets / operations from AWM: '17 4% increase; '16 2.5% increase
429.376	Mercers Mill	\$5,908	\$6,100	\$6,132	101%	\$6,100	\$6,500	18 pending KBX Golden. KBX Golden purchased assets / operations from AWM: '17 4% increase; '16 2.5% increase
	Sub-Total	\$35,758	\$36,600	\$37,108	101%	\$36,600	\$39,000	
TWP ENG REVIEW								
429.38	Repairs - Pump Stations	see below	see below	see below	see below	see below	see below	Repairs/Equipment Failures - Aqua Wastewater Mgt
429.381	Windon	\$1,977	\$8,000	\$5,403	68%	\$8,000	\$8,000	18 pending KBX Golden. KBX Golden purchased assets / operations from AWM: '17 4% increase; '16 2.5% increase
429.382	Plum Tree	\$2,710	\$7,500	\$3,567	48%	\$7,500	\$7,500	18 pending KBX Golden. KBX Golden purchased assets / operations from AWM: '17 4% increase; '16 2.5% increase
429.383	Strode's	\$9,635	\$7,500	\$9,059	121%	\$10,000	\$7,500	18 pending KBX Golden. KBX Golden purchased assets / operations from AWM: '17 4% increase; '16 2.5% increase
429.384	Kenmara	\$3,065	\$4,500	\$2,607	58%	\$4,500	\$4,500	18 pending KBX Golden. KBX Golden purchased assets / operations from AWM: '17 4% increase; '16 2.5% increase
429.385	East Bradford Park	\$206	\$1,000	\$451	45%	\$1,000	\$1,000	18 pending KBX Golden. KBX Golden purchased assets / operations from AWM: '17 4% increase; '16 2.5% increase
429.386	Mercer's Mill	\$3,181	\$6,000	\$2,510	42%	\$6,000	\$6,000	18 pending KBX Golden. KBX Golden purchased assets / operations from AWM: '17 4% increase; '16 2.5% increase
429.389	Conveyance System Repairs/Maint	\$0	\$0	\$0		\$0	\$0	18: refer to 08 429.320 above for 2017 and per Sewer Capital Reserve Study (2013)
	Sub-Total	\$20,364	\$34,500	\$23,597	68%	\$37,000	\$34,500	
TWP ENG REVIEW								
429.39	Water Charges	see below	see below	see below	see below	see below	see below	Aqua PA
429.391	Windon	\$197	\$300	\$198	66%	\$300	\$300	18 estimate
429.392	Plum Tree	\$304	\$400	\$370	93%	\$400	\$400	18 estimate
429.393	Strode's	\$341	\$400	\$219	55%	\$400	\$400	18 estimate
429.394	Kenmara	\$219	\$300	\$200	67%	\$300	\$300	18 estimate
429.395	East Bradford Park	\$0	\$100	\$0	0%	\$100	\$100	18 estimate
429.396	Mercers Mill	\$184	\$300	\$210	70%	\$300	\$300	18 estimate
	Sub-Total	\$1,245	\$1,800	\$1,197	67%	\$1,800	\$1,800	

EAST BRADFORD TOWNSHIP								Approved by Board of Supervisors December 12, 2017	Priority Budget Act 18 approved 01-02-18	
FINAL BUDGET 2018								Approved 12-12-17 / Authorized 10-10-17	BLA revised 01-02-18 YTD 12-02-17 YTD - 11-06-17 YTD - 10-18-17 updates: SB 30-17 YTD - 09-01-17 YTD 08-17-17 update state info: 08-02-17 YTD: 07-13-17 YTD - 05-19-17 YTD - 03-11-17 YTD 01-02-17 new year set up.)	
SEWER FUND BUDGET (08)								2017	2017	2018
ACCT. NO.	TITLE/CATEGORY	ACTUAL	BUDGET	YEAR TO DATE	% '17 Budget	YEAR END	FINAL	BUDGET	Miscellaneous Notes	
(revisions marked in RED) (pending in BLUE)		12-31-16	2017	thru 12-31-17	YTD	PROJECTION	BUDGET			
	Other Sewer System Expenses									
	open									
429.401	All Pump Stations (Propane)	\$450	\$2,000	\$249	12%	\$2,000	\$2,000		18 propane back up. Windon/Plum Tree last substantial cost increase 2010/2011	
429.45	Act 637 Plan Update	\$0	\$0	\$0		\$0	\$0		18 no activity pending for 2017, also ref. 429.759; Carroll Engineering prepared current plan	
429.46	Other Sewer Related Study	\$68,497	\$0	\$0		\$0	\$0		18: 18 AUS Consultants completed Sewer Original Cost Study \$17K / valuation: \$40K / BOS approved 07-09-15	
429.50	Legal Services	\$0	\$1,000	\$37,744	3774%	\$40,000	\$1,000		18 estimated general legal services: current Sewer Agreement w/WC Boro expires PENDING	
429.55	Third Party Collection Services	\$949	\$2,000	\$678	34%	\$2,000	\$2,000		18: 17 contingency w/ Portnoff Law Associates: delinquent accounts collector i.e. Sheriff Sale legal fees if needed	
429.61	Special Projects Installations	\$0	\$0	\$0		\$0	\$0		18: 17 none known pending Tap Eng input	
429.70	Capital Improvements	\$0	\$0	\$0		\$0	\$0		18 see 429.75 series: pending estimate per recommendations from Tap Engineer	
	Sub-Total	\$69,896	\$5,000	\$38,671	773%	\$44,000	\$5,000			
	Capital Improve / Replace								TWP ENG REVIEW	
	Hilldale	\$0	\$0	\$0		\$0	\$0		Per Capital Replacement Schedule	
429.751	Plum Run	\$0	\$0	\$0		\$0	\$0		18: Tap Engineer identified project/replace \$	
429.752	Strodes	\$2,255	\$0	\$0		\$0	\$0		18: Tap Engineer identified project/replace \$	
429.753	Kenmara	\$0	\$0	\$0		\$0	\$0		18: Tap Engineer identified project/replace \$	
429.754	East Bradford Park	\$0	\$0	\$0		\$0	\$0		18: Tap Engineer identified project/replace \$	
429.755	Mercer's Mill	\$0	\$0	\$0		\$0	\$0		18: Tap Engineer identified project/replace \$	
429.756	System - Infrastructure Improvements	\$25,290	\$0	\$0		\$0	\$500,000		18 flow meters re: Sewer Capacity Agreement w/West Chester Borough: system improvements: Tigue Farm agreement	
429.759	Capital Reserve Funding	\$0	\$44,680	\$0		\$44,680	\$44,680		18: Dec 2013 Sewer Capital Reserve Study (Carroll Engineers) recommended \$44,680 + also refer to 08 429.320	
	Sub-Total	\$27,545	\$44,680	\$0	0%	\$44,680	\$544,680		Above Capital expenditures (429.751 - 756) not budgeted directly but if expended would offset (reduce) actual capital funding (429-799)	
429.80	Other Sewer Expense									
429.01	Customer Refunds (Overpayments)	\$1,755	\$0	\$158		\$158	\$0			
429.01	Transfer to General Fund	\$15,000	\$20,000	\$20,000		\$20,000	\$20,000		18: 17 increased based upon 2016 Staff support level '16 revised 10-11-15 ref: change in 3rd party services / expected	
	Sub Total	\$1,995,568	\$1,089,007	\$1,073,852	99%	\$1,152,880	\$1,591,407		Capital accumulation of tap/service fees over expenses 364.11 + 364.12 429.101 + 429.102 + 429.33	
	Fund Equity Performance	\$792	\$7,743	\$63,891		\$23,370	(\$493,657)		Revenues to Expenditures	
	Capital Reserve (Expense)	\$27,545	\$44,680	\$0	0%	\$44,680	\$544,680			
	Total Expenditures	\$1,095,568	\$1,089,007	\$1,073,852	99%	\$1,152,880	\$1,591,407			
	Total Revenue	\$1,096,360	\$1,096,750	\$1,137,743	104%	\$1,176,250	\$1,097,750			
	UPDATE PENDING									
	BUDGET NOTES:									
2018	Note 1: Township operation/capital costs/fees - for 2018 as of 12-31-17 November 14, 2017 Township / Borough executed a Sewer Capacity Agreement Renewal after a series of extensions and protracted negotiations (the then current Agreement expired 12-31-2015). December 12, 2017, following Public Meeting, the BOS approved an Asset Purchase Agreement with Aqua PA for the sale of the Township public sewerage conveyance system; system. During 2018 the sale of the system will be reviewed (toward its approval) by the PA Public Utility Commission. January 2017 BOS public announcement and selection of Aqua to negotiate an Asset Purchase Agreement with Aqua for sale of the Township public sewer conveyance. Rate Status -- West Chester Boro sewer rates / fees charges to Township -- as of 08-17-17 per WC Boro Manager - M. Cotter 08-16-17 -- NO (0%) rate increase for 2018 (in 2017 M. Cotter, Boro Mgr. indicated likely 2 year cycle rate increases of 5% (2017/2018) and (2019/2020) 2018, 2017, 2016, 2015, 2014 no rate increase; 2013 18% rate increase (2 phase @ 9% (Pfizer law suit related); 2012 no rate increase; 2011 no rate increase; 2010 no rate increase; 2009 13% rate increase; 2008 15% rate increase; 2005 5% rate increase; 2004 6% rate increase; 1996 25% rate increase									
2018	This budget version prepared assuming an 0% rate increase from Borough and 0% increase from Township as noted above Year 2018 Estimate of Connection Fees (using [2017] tap fee schedule); 0 TH (pending / open) & 0 SFD (all individual lots / 0 contingency) See West Chester Borough Connection Fee Schedule 2016-2020 below (Renewal Agreement PENDING as of 08-17-17) (current extension to 07-31-2017). Total projected 2018= 0									
	Note 2: Township has 6 sewer pump stations as of 2017: Plum Run; Windon; Strodes Mill, Kenmara, East Bradford Park and Mercer's Mill Note 3: new sewer pump stations planned for 2018 (potential new PS ref: Tigue Farm / Toll Bros.)									
	Note 4: See Historical Notes below.									
	Note 5: The Township continues with ManuBilling, commenced 2016, to process billing AND collections (with added payment option features and services for customers). The objective is to provide more efficient services and improved utilization of existing Township Staff. Ref account DR 429.30 above									
	Note 6: A Capital Reserve Account within the Sewer Fund was established April 2005 to more clearly account between operating and capital expenditures.									
	Note 7: Act 57 of 2003 (P.L. 404) amended the PA Municipality Authorities Act by revising the method of calculating and determining various tapping fees									

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BUCKS COUNTY WATER AND SEWER AUTHORITY
STATEMENTS OF NET POSITION
DECEMBER 31, 2016 AND 2015

<u>ASSETS</u>	<u>2016</u>	<u>2015</u>
Current Assets		
Cash and Cash Equivalents	\$ 5,089,665	\$ 5,731,089
Investments	24,374,913	17,814,990
Accounts Receivable, Net of Allowance for Doubtful Accounts	10,620,665	10,570,311
Unbilled Revenue	8,573,348	7,935,326
Prepaid Expenses	789,370	260,954
Total Current Assets	<u>49,447,961</u>	<u>42,312,670</u>
Non-Current Assets		
Restricted Assets		
Cash and Cash Equivalents	3,216,792	3,161,760
Investments	94,684,066	135,009,814
Interest Receivable	59,621	64,688
Total Restricted Assets	<u>97,960,479</u>	<u>138,236,262</u>
Capital Assets		
Land, Rights-of-Way and CIP	77,719,725	74,796,483
Other Capital Assets, Net of Accumulated Depreciation	365,717,807	335,450,721
Total Capital Assets, Net	<u>443,437,532</u>	<u>410,247,204</u>
Total Non-Current Assets	<u>541,398,011</u>	<u>548,483,466</u>
Total Assets	<u>590,845,972</u>	<u>590,796,136</u>
Deferred Outflows of Resources		
Deferred Amount from Debt Refundings	3,184,947	3,396,951
Pension: Difference between expected and Actual Experience	144,527	173,432
Pension: Difference between projected and actual earnings on investments	1,676,529	181,362
Pension: Contributions made subsequent to measurement date	1,754,573	1,714,497
Total Deferred Outflows of Resources	<u>6,760,576</u>	<u>5,466,242</u>
<u>LIABILITIES AND NET POSITION</u>		
Current Liabilities		
Accounts Payable and Accrued Expenses	5,516,076	4,231,827
Current Portion of Bonds Payable	19,765,000	17,535,000
Interest Payable	1,031,332	1,073,303
Total Current Liabilities	<u>26,312,408</u>	<u>22,840,130</u>
Non-Current Liabilities		
Customer and Developer Deposits	3,216,788	3,161,756
Bonds Payable, Net of Unamortized Bond Discount and Premium	293,958,458	315,287,483
Net Pension Liability	6,800,663	5,114,435
Total Non-Current Liabilities	<u>303,975,909</u>	<u>323,563,674</u>
Total Liabilities	<u>330,288,317</u>	<u>346,403,804</u>
Deferred Inflows of Resources		
Pension: Changes in Assumptions	64,329	-
Proceeds from sale of future revenues	5,196,730	5,206,301
Total Deferred Inflows of Resources	<u>5,261,059</u>	<u>5,206,301</u>
Net Position		
Net Investment in Capital Assets	163,868,064	171,371,418
Restricted for Capital Activity	24,324,428	20,752,536
Restricted for Debt Service	30,964,216	34,304,360
Unrestricted	42,900,464	18,223,959
Total Net Position	<u>\$ 262,057,172</u>	<u>\$ 244,652,273</u>

See accompanying notes to the financial statements.

BUCKS COUNTY WATER AND SEWER AUTHORITY
STATEMENTS OF REVENUES, EXPENSES,
AND CHANGES IN NET POSITION
YEARS ENDED DECEMBER 31, 2016 AND 2015

	<u>2016</u>	<u>2015</u>
Operating Revenues		
Retail Sewer Service	\$ 43,421,110	\$ 40,074,901
Wholesale Sewer Service	14,897,563	15,357,443
Retail Water Service	11,916,548	8,704,536
Wholesale Water Service	12,191,561	11,633,096
Improvement and Tapping Fees	110,550	320,175
Other Revenues	<u>4,481,483</u>	<u>4,144,208</u>
Total Operating Revenues	<u>87,018,815</u>	<u>80,234,359</u>
Expenses		
Operating Expenses		
Sewage Treatment and Water Procurement		
Sewage Treatment	16,253,379	13,646,982
Water Procurement	<u>8,547,084</u>	<u>8,073,320</u>
Total Sewage Treatment and Water Procurement	<u>24,800,463</u>	<u>21,720,302</u>
Plant Operations		
Payroll and Related Costs	1,755,388	1,633,434
Repairs and Maintenance	968,414	984,929
Electricity	470,001	386,706
Water and Sewage Testing	<u>165,530</u>	<u>118,633</u>
Total Plant Operations	<u>3,359,333</u>	<u>3,123,702</u>
Collection, Transmission and Distribution Service		
Payroll and Related Costs	8,220,765	8,072,542
Repairs and Maintenance	1,468,471	1,540,762
Electricity	874,124	995,081
Other Related Costs	<u>178,188</u>	<u>257,882</u>
Total Collection, Transmission and Distribution Service	<u>10,741,548</u>	<u>10,866,267</u>
Total Operating Expenses	<u>38,901,344</u>	<u>35,710,271</u>
General and Administrative Expenses		
Payroll and Related Costs	3,343,236	3,444,298
Professional Fees	1,133,397	1,573,043
Insurance	471,189	518,425
Bad Debt	-	-
Other	<u>3,844,235</u>	<u>2,781,201</u>
Total General and Administrative Expense	<u>8,792,057</u>	<u>8,316,967</u>
Total Expenses	<u>47,693,401</u>	<u>44,027,238</u>
Income From Operations Before Depreciation	39,325,414	36,207,121
Depreciation	<u>(15,983,865)</u>	<u>(15,105,344)</u>
Operating Income	<u>23,341,549</u>	<u>21,101,777</u>
Non-Operating Revenue (Expense)		
Interest Expense,		
Net of Amounts Capitalized	(10,941,064)	(10,312,121)
Investment Income	1,338,537	903,993
Other	3,012	-
Improvement and Tapping Fees	4,048,410	3,033,482
Amortization	<u>(385,545)</u>	<u>(1,174,018)</u>
Total Non-Operating Expense	<u>(5,936,650)</u>	<u>(7,548,664)</u>
Increase In Net Position, Before Contributed Capital	17,404,899	13,553,113
Contributed Capital	-	<u>192,833</u>
Increase in Net Position	17,404,899	13,745,946
Net Position - Beginning of Year	244,652,273	234,178,514
Cumulative Change	-	<u>(3,272,187)</u>
Net Position - Beginning of Year, Restated	<u>244,652,273</u>	<u>230,906,327</u>
Net Position - End of Year	<u>\$ 262,057,172</u>	<u>\$ 244,652,273</u>

See accompanying notes to the financial statements.

BUCKS COUNTY WATER AND SEWER AUTHORITY
STATEMENTS OF NET POSITION
DECEMBER 31, 2015 AND 2014

<u>ASSETS</u>	<u>2015</u>	<u>2014</u>
Current Assets		
Cash and Cash Equivalents	\$ 5,731,089	\$ 7,741,035
investments	17,814,990	12,213,129
Accounts Receivable, Net of Allowance for Doubtful Accounts	10,570,311	10,346,130
Unbilled Revenue	7,935,326	7,836,048
Prepaid Expenses	260,954	475,678
Total Current Assets	<u>42,312,670</u>	<u>38,612,020</u>
Non-Current Assets		
Restricted Assets		
Cash and Cash Equivalents	3,161,760	2,203,150
Investments	135,009,814	121,172,038
Interest Receivable	64,688	83,517
Total Restricted Assets	<u>138,236,262</u>	<u>123,458,705</u>
Capital Assets		
Land, Rights-of-Way and CIP	74,796,483	73,591,020
Other Capital Assets, Net of Accumulated Depreciation	335,450,721	318,224,639
Total Capital Assets, Net	<u>410,247,204</u>	<u>391,815,659</u>
Total Non-Current Assets	<u>548,483,466</u>	<u>515,274,364</u>
Total Assets	<u>590,796,136</u>	<u>553,886,384</u>
Deferred Outflows of Resources		
Deferred Amount from Debt Refundings	3,396,951	2,961,278
Pension: Difference between expected and Actual Experience	173,432	-
Pension: Difference between projected and actual earnings on investments	181,362	-
Pension: Contributions made subsequent to measurement date	1,714,497	-
Total Deferred Outflows of Resources	<u>5,466,242</u>	<u>2,961,278</u>
<u>LIABILITIES AND NET POSITION</u>		
Current Liabilities		
Accounts Payable and Accrued Expenses	4,231,827	5,848,481
Current Portion of Bonds Payable	17,535,000	18,465,000
Interest Payable	1,073,303	1,058,854
Total Current Liabilities	<u>22,840,130</u>	<u>25,372,335</u>
Non-Current Liabilities		
Customer and Developer Deposits	3,161,756	2,203,146
Bonds Payable, Net of Unamortized Bond Discount and Premium	315,287,483	289,693,532
Net Pension Liability	5,114,435	-
Total Non-Current Liabilities	<u>323,563,674</u>	<u>291,896,678</u>
Total Liabilities	<u>346,403,804</u>	<u>317,269,013</u>
Deferred Inflows of Resources		
Proceeds from sale of future revenues	5,206,301	5,400,135
Net Position		
Net Investment in Capital Assets	171,371,418	172,428,232
Restricted for Capital Activity	20,752,536	17,640,885
Restricted for Debt Service	34,304,360	31,140,834
Unrestricted	18,223,959	12,968,563
Total Net Position	<u>\$ 244,652,273</u>	<u>\$ 234,178,514</u>

See accompanying notes to the financial statements.

BUCKS COUNTY WATER AND SEWER AUTHORITY
STATEMENTS OF REVENUES, EXPENSES,
AND CHANGES IN NET POSITION
YEARS ENDED DECEMBER 31, 2015 AND 2014

	<u>2015</u>	<u>2014</u>
Operating Revenues		
Retail Sewer Service	\$ 40,074,901	\$ 39,741,582
Wholesale Sewer Service	15,357,443	17,054,415
Retail Water Service	8,704,536	8,563,187
Wholesale Water Service	11,633,096	10,933,242
Improvement and Tapping Fees	320,175	102,350
Other Revenues	<u>4,144,208</u>	<u>4,668,861</u>
Total Operating Revenues	<u>80,234,359</u>	<u>81,063,637</u>
Expenses		
Operating Expenses		
Sewage Treatment and Water Procurement		
Sewage Treatment	13,646,982	14,487,654
Water Procurement	<u>8,073,320</u>	<u>8,737,116</u>
Total Sewage Treatment and Water Procurement	<u>21,720,302</u>	<u>23,224,770</u>
Plant Operations		
Payroll and Related Costs	1,633,434	1,483,282
Repairs and Maintenance	984,929	1,037,192
Electricity	386,706	480,754
Water and Sewage Testing	<u>118,633</u>	<u>82,788</u>
Total Plant Operations	<u>3,123,702</u>	<u>3,084,016</u>
Collection, Transmission and Distribution Service		
Payroll and Related Costs	8,072,542	7,378,571
Repairs and Maintenance	1,540,762	1,331,421
Electricity	995,081	1,190,915
Other Related Costs	<u>257,882</u>	<u>307,579</u>
Total Collection, Transmission and Distribution Service	<u>10,866,267</u>	<u>10,208,486</u>
Total Operating Expenses	<u>35,710,271</u>	<u>36,517,272</u>
General and Administrative Expenses		
Payroll and Related Costs	3,444,298	3,550,569
Professional Fees	1,573,043	1,609,101
Insurance	518,425	498,135
Bad Debt	-	2,000,000
Other	<u>2,781,201</u>	<u>1,676,431</u>
Total General and Administrative Expense	<u>8,316,967</u>	<u>9,334,236</u>
Total Expenses	<u>44,027,238</u>	<u>45,851,508</u>
Income From Operations Before Depreciation	36,207,121	35,212,129
Depreciation	<u>(15,105,344)</u>	<u>(12,292,960)</u>
Operating Income	<u>21,101,777</u>	<u>22,919,169</u>
Non-Operating Revenue (Expense)		
Interest Expense,		
Net of Amounts Capitalized	(10,312,121)	(5,992,119)
Investment Income	903,993	1,166,033
Improvement and Tapping Fees	3,033,482	1,079,378
Amortization	<u>(1,174,018)</u>	<u>(326,223)</u>
Total Non-Operating Expense	<u>(7,548,664)</u>	<u>(4,072,931)</u>
Increase In Net Position, Before Contributed Capital	13,553,113	18,846,238
Contributed Capital	<u>192,833</u>	<u>192,833</u>
Increase in Net Position	13,745,946	19,039,071
Net Position - Beginning of Year	234,178,514	215,139,443
Cumulative Change	<u>(3,272,187)</u>	<u>-</u>
Net Position - Beginning of Year, Restated	<u>230,906,327</u>	<u>215,139,443</u>
Net Position - End of Year	<u>\$ 244,652,273</u>	<u>\$ 234,178,514</u>

See accompanying notes to the financial statements.

DELAWARE COUNTY REGIONAL WATER QUALITY
CONTROL AUTHORITY
STATEMENTS OF NET POSITION
DECEMBER 31,

	2016 <u>(AUDITED)</u>	2015 <u>(UNAUDITED)</u>
ASSETS		
Current:		
Cash and cash equivalents	\$ 30,185,381	\$ 24,565,838
Investments	121,010,490	76,816,846
Receivables:		
Western Region		
Residential, net of allowance for doubtful accounts of \$113,943 and \$247,401 in 2016 and 2015, respectively	717,098	822,244
Municipal	1,281,388	1,325,712
Major industries	1,263,198	591,702
Permit industries	117,205	457,168
Eastern Region		
Muckinipates Authority	-	89,169
Notes receivable, current portion	2,857,281	28,124
Other receivables	1,364,173	1,231,298
Prepaid expenses	406,434	475,700
Total current assets	<u>159,202,648</u>	<u>106,403,801</u>
Non Current:		
Capital assets, net of accumulated depreciation	190,825,742	182,422,188
Notes receivable, net of current portion	1,742,031	47,655
Restricted investments	<u>11,537,699</u>	<u>7,494,053</u>
Total non current assets	<u>204,105,472</u>	<u>189,963,896</u>
DEFERRED OUTFLOWS OF RESOURCES		
Pension plan related deferred outflows	<u>3,809,566</u>	<u>4,668,185</u>
Total assets and deferred outflows of resources	<u>\$ 367,117,686</u>	<u>\$ 301,035,882</u>
LIABILITIES		
Current liabilities:		
Accounts payable and accrued expenses	\$ 5,326,187	\$ 4,314,291
Payable to the City of Philadelphia	1,544,746	1,313,145
Current portion of long-term debt	4,056,378	3,569,381
Accrued bond interest payable	1,312,930	823,158
Advances on services		
Central Delaware County Authority	173,306	9,098
Muckinipates Authority	244,460	-
Darby Creek Joint Authority	865,122	1,056,007
Municipal	374,063	379,282
Major industries	837,488	344,854
Permit industries	149,882	91,428
Residential	18,890	27,382
Total current liabilities	<u>14,903,452</u>	<u>11,928,026</u>
Noncurrent		
Long term debt, net of current portion	172,089,769	113,036,859
Deferred revenue - Philadelphia rate stabilization	8,609,026	8,556,436
Net pension liability	4,224,756	5,530,165
Deferred revenue - long term control plan	1,424,002	1,422,000
Total non current liabilities	<u>186,347,553</u>	<u>128,545,460</u>
Total liabilities	<u>201,251,005</u>	<u>140,473,486</u>
NET POSITION		
Invested in capital assets, net of related debt	92,201,416	101,699,396
Restricted for debt service	10,627,348	6,677,573
Unrestricted	63,037,917	52,185,427
Total net position	<u>165,866,681</u>	<u>160,562,396</u>
TOTAL LIABILITIES AND NET POSITION	<u>\$ 367,117,686</u>	<u>\$ 301,035,882</u>

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

**DELAWARE COUNTY REGIONAL WATER QUALITY
CONTROL AUTHORITY**
STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION

FOR THE YEARS ENDED DECEMBER 31,

	<u>2016</u> <u>(AUDITED)</u>	<u>2015</u> <u>(UNAUDITED)</u>
Operating revenues		
Western Region:		
Major Industries	\$ 6,685,024	\$ 6,609,628
Residential	6,869,903	5,622,353
Municipal	7,615,471	7,759,954
Contract operation fees	506,878	450,529
Permit Industries	1,760,954	1,579,289
Total Western Region	<u>23,438,230</u>	<u>22,021,753</u>
Eastern Region:		
Darby Creek Joint Authority	15,790,209	15,555,731
Central Delaware County Authority	8,294,187	8,096,008
Muckinipates Authority	3,566,903	3,705,057
Total Eastern Region	<u>27,651,299</u>	<u>27,356,796</u>
Sludge disposal and processing	<u>4,760,262</u>	<u>4,377,766</u>
Total operating revenues	<u>55,849,791</u>	<u>53,756,315</u>
Operating expenses, including depreciation of \$6,744,284 in 2016 and \$5,422,490 in 2015	<u>43,534,852</u>	<u>42,544,084</u>
Operating income	<u>12,314,939</u>	<u>11,212,231</u>
Nonoperating revenues (expense)		
Interest income	725,185	362,188
Interest expense	(4,731,444)	(2,810,276)
Bond premium amortization	590,080	480,745
EPA - DEP civil penalty	-	(1,376,638)
Debt issuance costs	(448,365)	(369,233)
Loss on asset disposition	(2,643)	-
Other income	388,975	201,186
Special item - construction related sludge removal	(3,532,442)	(1,667,902)
Total non operating revenues (expense)	<u>(7,010,654)</u>	<u>(5,179,930)</u>
Net income before capital contributions	5,304,285	6,032,301
Capital contributions:	-	2,392,191
Net income	<u>5,304,285</u>	<u>8,424,492</u>
Net position - beginning	<u>160,562,396</u>	<u>152,137,904</u>
Net position - ending	<u>\$ 165,866,681</u>	<u>\$ 160,562,396</u>

**DELAWARE COUNTY REGIONAL WATER
QUALITY CONTROL AUTHORITY**
Statements of Net Position
December 31, 2015 and 2014

<u>ASSETS</u>	<u>2015</u>	<u>2014</u>	<u>LIABILITIES</u>	<u>2015</u>	<u>2014</u>
Current:			Current:		
Cash and Cash Equivalents	\$ 3,923,402	\$ 8,240,136	Accounts Payable and Accrued Expenses	\$ 4,314,291	\$ 4,749,366
Certificates of Deposit with Original Maturities Beyond Three Months	2,076,997	2,062,305	Payable to the City of Philadelphia	1,313,145	703,371
Investments	95,382,285	65,950,422	Current Portion of Long-Term Debt	3,569,381	5,073,632
Receivables:			Accrued Bond Interest Payable	823,158	577,547
Western Region:			Advances on Services:		
Residential, Net of Allowance for Doubtful Accounts			Central Delaware County Authority	9,098	130,165
of \$247,401 and \$150,819 in 2015 and 2014, Respectively	822,244	753,235	Muckinipates Authority	0	56,880
Municipal	1,325,712	1,581,531	Darby Creek Joint Authority	1,056,007	941,793
Major Industries	591,702	787,705	Municipal	379,282	77,073
Permit Industries	457,168	284,589	Major Industries	344,854	346,977
Eastern Region:			Permit Industries	91,428	98,152
Muckinipates Authority	89,169	0	Residential	27,382	20,002
Note Receivable, Current Portion	28,124	26,689	TOTAL CURRENT LIABILITIES	11,928,026	12,774,958
Other Receivables	1,231,298	1,034,229	Noncurrent:		
Prepaid Expenses	475,700	634,717	Long-Term Debt	113,036,859	77,755,316
TOTAL CURRENT ASSETS	106,403,801	81,355,558	Payable to the City of Philadelphia (2015 additions of \$2,556,436)	8,556,436	6,000,000
Noncurrent:			Net Pension Liability	5,530,165	3,912,118
Capital Assets, Net of Accumulated Depreciation	182,422,188	163,200,336	Deferred Revenue - Long-Term Control Plan	1,422,000	0
Note Receivable, Net of Current Portion	47,655	75,779	TOTAL NONCURRENT LIABILITIES	128,545,460	87,667,434
Restricted Investments	7,494,053	7,948,623	TOTAL LIABILITIES	140,473,486	100,442,392
TOTAL NONCURRENT ASSETS	189,963,896	171,224,738	<u>NET POSITION</u>		
DEFERRED OUTFLOWS OF RESOURCES			Net Investment in Capital Assets	101,699,396	93,177,543
Deferred Outflows of Resources - Pension Plan	4,668,185	0	Restricted for Debt Service	6,677,573	7,383,735
TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES	\$ 301,035,882	\$ 252,580,296	Unrestricted	52,185,427	51,576,626
			TOTAL NET POSITION	160,562,396	152,137,904
			TOTAL LIABILITIES AND NET POSITION	\$ 301,035,882	\$ 252,580,296

The accompanying notes are an integral part of these statements.

DELAWARE COUNTY REGIONAL WATER
QUALITY CONTROL AUTHORITY
Statements of Revenues, Expenses and Changes in Net Position
For the Years Ended December 31, 2015 and 2014

	<u>2015</u>	<u>2014</u>
Operating Revenues:		
Western Region:		
Major Industries	\$ 6,609,628	\$ 6,751,251
Residential	5,622,353	5,569,475
Municipal	7,759,954	4,043,630
Permit Industries	1,579,289	1,474,611
TOTAL WESTERN REGION	<u>21,571,224</u>	<u>17,838,967</u>
Eastern Region:		
Darby Creek Joint Authority	15,555,731	14,907,180
Central Delaware County Authority	8,096,008	7,603,060
Muckinipates Authority	3,705,057	3,403,140
TOTAL EASTERN REGION	<u>27,356,796</u>	<u>25,913,380</u>
Sludge Disposal and Processing	<u>4,377,766</u>	<u>3,707,977</u>
TOTAL OPERATING REVENUES	53,305,786	47,460,324
Operating Expenses, Including Depreciation of \$5,422,490 in 2015 and \$5,088,028 in 2014	<u>44,211,986</u>	<u>40,225,128</u>
OPERATING INCOME	9,093,800	7,235,196
Nonoperating Revenues (Expenses):		
Interest Income	362,188	288,783
Interest Expense	(2,329,531)	(1,986,942)
EPA - DEP Civil Penalty	(1,376,638)	0
Debt Issue Costs	(369,233)	0
Other Income	651,715	872,215
TOTAL NONOPERATING EXPENSE	<u>(3,061,499)</u>	<u>(825,944)</u>
INCOME BEFORE CAPITAL CONTRIBUTIONS	6,032,301	6,409,252
Capital Contributions	<u>2,392,191</u>	<u>0</u>
CHANGE IN NET POSITION	8,424,492	6,409,252
Net Position - Beginning	<u>152,137,904</u>	<u>145,728,652</u>
NET POSITION - ENDING	<u>\$ 160,562,396</u>	<u>\$ 152,137,904</u>

The accompanying notes are an integral part of these statements.

Consensus Forecasts Of U.S. Interest Rates And Key Assumptions¹

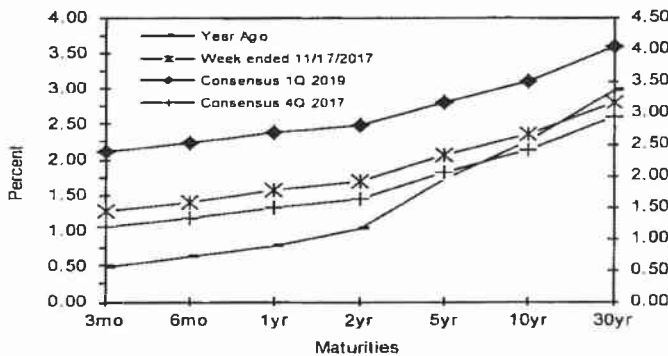
Interest Rates	History								Consensus Forecasts-Quarterly Avg.						
	Average For Week Ending				Average For Month				Latest Qtr		4Q 2017	1Q 2018	2Q 2018	3Q 2018	4Q 2018
	Nov. 17	Nov. 10	Nov. 3	Oct. 27	Oct	Sep	Aug	3Q 2017							
Federal Funds Rate	1.16	1.16	1.15	1.16	1.15	1.16	1.16	1.16	1.2	1.4	1.6	1.8	2.0	2.2	2.2
Prime Rate	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.3	4.5	4.7	4.9	5.1	5.2	5.2
LIBOR, 3-mo.	1.43	1.41	1.39	1.37	1.36	1.33	1.31	1.32	1.4	1.6	1.8	2.0	2.2	2.4	2.4
Commercial Paper, 1-mo.	1.15	1.16	1.14	1.14	1.13	1.12	1.10	1.11	1.2	1.4	1.6	1.8	2.0	2.2	2.2
Treasury bill, 3-mo.	1.26	1.22	1.16	1.11	1.09	1.06	1.04	1.05	1.2	1.4	1.6	1.7	2.0	2.1	2.1
Treasury bill, 6-mo.	1.40	1.34	1.28	1.27	1.25	1.19	1.13	1.17	1.3	1.5	1.7	1.9	2.1	2.2	2.2
Treasury bill, 1 yr.	1.57	1.52	1.45	1.43	1.40	1.31	1.23	1.28	1.5	1.7	1.9	2.0	2.3	2.4	2.4
Treasury note, 2 yr.	1.70	1.64	1.61	1.60	1.54	1.46	1.34	1.41	1.6	1.8	2.0	2.2	2.3	2.5	2.5
Treasury note, 5 yr.	2.06	2.01	2.00	2.04	1.98	1.89	1.79	1.85	2.0	2.2	2.4	2.5	2.7	2.8	2.8
Treasury note, 10 yr.	2.37	2.34	2.36	2.42	2.36	2.28	2.23	2.26	2.4	2.6	2.7	2.8	3.0	3.1	3.1
Treasury note, 30 yr.	2.81	2.81	2.85	2.93	2.88	2.83	2.81	2.82	2.9	3.1	3.3	3.4	3.5	3.6	3.6
Corporate Aaa bond	3.74	3.71	3.71	3.77	3.75	3.75	3.76	3.76	3.8	4.0	4.2	4.3	4.5	4.6	4.6
Corporate Baa bond	4.32	4.29	4.29	4.35	4.32	4.32	4.34	4.33	4.4	4.6	4.9	5.1	5.2	5.3	5.3
State & Local bonds	3.41	3.37	3.40	3.38	3.37	3.34	3.35	3.34	3.5	3.7	3.9	4.0	4.2	4.3	4.3
Home mortgage rate	3.95	3.90	3.94	-3.94	3.90	3.82	3.88	3.85	4.0	4.2	4.4	4.5	4.6	4.8	4.8

Key Assumptions	History								Consensus Forecasts-Quarterly					
	4Q 2015	1Q 2016	2Q 2016	3Q 2016	4Q 2016	1Q 2017	2Q 2017	3Q 2017	4Q 2017	1Q 2018	2Q 2018	3Q 2018	4Q 2018	1Q 2019
Major Currency Index	93.1	93.3	89.6	90.3	93.7	94.4	93.0	88.3	88.7	89.0	89.1	89.1	88.9	88.5
Real GDP	0.5	0.6	2.2	2.8	1.8	1.2	3.1	3.0	2.7	2.4	2.6	2.3	2.3	2.1
GDP Price Index	0.8	0.3	2.4	1.4	2.0	2.0	1.0	2.2	2.2	2.0	1.9	2.1	2.1	2.2
Consumer Price Index	0.4	0.1	2.3	1.8	3.0	3.1	-0.3	2.0	3.0	2.2	1.9	2.2	2.2	2.3

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 is sourced from Haver Analytics. Historical data for Fed's Major Currency Index is 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).

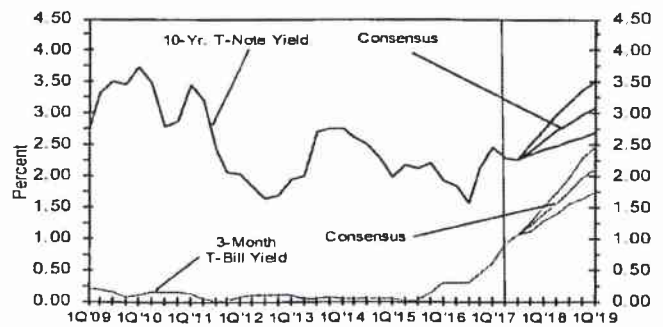
U.S. Treasury Yield Curve

Week ended November 17, 2017 and Year Ago vs. 4Q 2017 and 1Q 2019 Consensus Forecasts



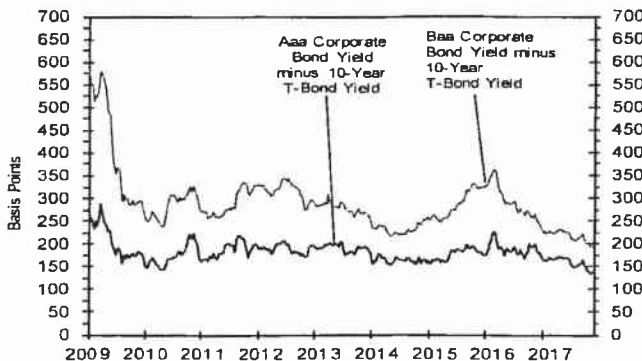
U.S. 3-Mo. T-Bills & 10-Yr. T-Note Yield

(Quarterly Average) Forecast



Corporate Bond Spreads

As of week ended November 17, 2017



U.S. Treasury Yield Curve

As of week November 17, 2017



INDEX

Month

Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2017	11/30/2017	10/31/2017	9/30/2017	8/31/2017	7/31/2017	6/30/2017	5/31/2017	4/30/2017	3/31/2017	2/28/2017	1/31/2017	
0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	
Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE
Company Name												
AMERICAN STATES WATER C	2.103	2.096	1.972	1.877	1.878	1.882	1.893	1.841	1.800	1.765	1.779	1.748
AMERICAN WATER WORKS C	1.642	1.643	1.595	1.540	1.540	1.542	1.517	1.520	1.538	1.518	1.524	1.464
AQUA AMERICA INC	1.710	1.669	1.584	1.536	1.543	1.542	1.553	1.531	1.545	1.519	1.504	1.456
ARTESIAN RESOURCES -CL A	1.036	1.114	1.080	1.040	1.026	1.057	1.053	0.997	1.059	0.941	0.949	0.912
CALIFORNIA WATER SERVICE	1.463	1.469	1.381	1.321	1.304	1.340	1.294	1.239	1.266	1.263	1.286	1.228
CONNECTICUT WATER SVC IN	1.414	1.518	1.451	1.449	1.359	1.387	1.371	1.328	1.338	1.363	1.434	1.379
MIDDLESEX WATER CO	1.501	1.687	1.608	1.500	1.460	1.497	1.524	1.391	1.478	1.455	1.477	1.482
SJW GROUP	1.373	1.442	1.300	1.276	1.258	1.215	1.184	1.165	1.179	1.179	1.182	1.209
YORK WATER CO	1.824	1.969	1.880	1.844	1.799	1.884	1.926	1.845	2.051	1.955	1.998	1.988

Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap
Company Name												
AMERICAN STATES WATER C	2.782	2.773	2.609	2.468	2.470	2.475	2.352	2.287	2.236	2.243	2.260	2.222
AMERICAN WATER WORKS C	1.822	1.823	1.770	1.697	1.696	1.699	1.675	1.678	1.698	1.686	1.693	1.626
AQUA AMERICA INC	2.258	2.203	2.091	2.016	2.025	2.024	2.061	2.032	2.050	2.029	2.009	1.945
ARTESIAN RESOURCES -CL A	1.805	1.939	1.881	1.792	1.769	1.822	1.809	1.713	1.819	1.618	1.631	1.568
CALIFORNIA WATER SERVICE	2.015	2.023	1.903	1.810	1.786	1.835	1.824	1.747	1.785	1.787	1.820	1.738
CONNECTICUT WATER SVC IN	1.676	1.800	1.720	1.823	1.709	1.744	1.743	1.687	1.700	1.737	1.828	1.758
MIDDLESEX WATER CO	2.066	2.323	2.213	2.081	2.026	2.077	2.108	1.924	2.045	2.017	2.047	2.054
SJW GROUP	1.948	2.046	1.844	1.825	1.799	1.737	1.678	1.651	1.670	1.623	1.628	1.665
YORK WATER CO	2.534	2.735	2.613	2.574	2.511	2.630	2.673	2.560	2.847	2.673	2.731	2.718

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Month

Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2017	11/30/2017	10/31/2017	9/30/2017	8/31/2017	7/31/2017	6/30/2017	5/31/2017	4/30/2017	3/31/2017	2/28/2017	1/31/2017	
0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	

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Month

Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2017	11/30/2017	10/31/2017	9/30/2017	8/31/2017	7/31/2017	6/30/2017	5/31/2017	4/30/2017	3/31/2017	2/28/2017	1/31/2017	
0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	

Company Name

Company Name	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE
AMERICAN STATES WATER C	1.000	0.997	0.938	0.892	0.893	0.895	0.900	0.875	0.856	0.839	0.846	0.831
AMERICAN WATER WORKS C	1.000	1.001	0.972	0.938	0.938	0.939	0.924	0.926	0.937	0.925	0.928	0.891
AQUA AMERICA INC	1.000	0.976	0.926	0.898	0.902	0.901	0.908	0.895	0.903	0.888	0.879	0.852
ARTESIAN RESOURCES -CL A	1.000	1.075	1.043	1.003	0.990	1.020	1.016	0.962	1.022	0.908	0.916	0.880
CALIFORNIA WATER SERVICE	1.000	1.004	0.945	0.903	0.891	0.916	0.885	0.847	0.866	0.864	0.880	0.840
CONNECTICUT WATER SVC IN	1.000	1.074	1.026	1.025	0.961	0.981	0.970	0.939	0.946	0.963	1.014	0.975
MIDDLESEX WATER CO	1.000	1.124	1.071	0.999	0.973	0.997	1.015	0.926	0.984	0.969	0.983	0.987
SJW GROUP	1.000	1.051	0.947	0.930	0.916	0.885	0.863	0.849	0.858	0.859	0.861	0.881
YORK WATER CO	1.000	1.079	1.031	1.011	0.986	1.033	1.056	1.011	1.125	1.072	1.095	1.090

Company Name

Company Name	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap
AMERICAN STATES WATER C	1.000	0.997	0.938	0.887	0.888	0.890	0.845	0.822	0.804	0.806	0.812	0.799
AMERICAN WATER WORKS C	1.000	1.001	0.972	0.931	0.931	0.932	0.919	0.921	0.932	0.925	0.929	0.892
AQUA AMERICA INC	1.000	0.976	0.926	0.893	0.897	0.896	0.912	0.900	0.908	0.899	0.890	0.861
ARTESIAN RESOURCES -CL A	1.000	1.075	1.043	0.993	0.980	1.009	1.002	0.949	1.008	0.897	0.904	0.869
CALIFORNIA WATER SERVICE	1.000	1.004	0.945	0.898	0.886	0.911	0.905	0.867	0.886	0.887	0.903	0.862
CONNECTICUT WATER SVC IN	1.000	1.074	1.026	1.087	1.019	1.040	1.040	1.006	1.014	1.036	1.091	1.049
MIDDLESEX WATER CO	1.000	1.124	1.071	1.007	0.981	1.005	1.020	0.931	0.989	0.976	0.990	0.994
SJW GROUP	1.000	1.051	0.947	0.937	0.924	0.892	0.861	0.847	0.857	0.833	0.836	0.855
YORK WATER CO	1.000	1.079	1.031	1.016	0.991	1.038	1.055	1.010	1.123	1.055	1.078	1.073

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Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2017	11/30/2017	10/31/2017	9/30/2017	8/31/2017	7/31/2017	6/30/2017	5/31/2017	4/30/2017	3/31/2017	2/28/2017	1/31/2017	
Enterprise value to Net PPE	100%	105%	97%	94%	94%	94%	92%	93%	94%	91%	92%	88%
Enterprise value to Inv Cap	100%	105%	97%	94%	93%	93%	92%	92%	93%	90%	90%	87%

	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
	12/31/2016	11/30/2016	10/31/2016	9/30/2016	8/31/2016	7/31/2016	6/30/2016	5/31/2016	4/30/2016	3/31/2016	2/29/2016	1/31/2016
	-12	-13	-14	-15	-16	-17	-18	-19	-20	-21	-22	-23
Company Name	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE
AMERICAN STATES WATER C	1.827	1.724	1.645	1.666	1.631	1.770	1.814	1.652	1.741	1.685	1.790	1.901
AMERICAN WATER WORKS C	1.472	1.474	1.494	1.531	1.520	1.635	1.673	1.531	1.514	1.464	1.407	1.416
AQUA AMERICA INC	1.465	1.454	1.489	1.501	1.499	1.654	1.708	1.583	1.559	1.585	1.537	1.569
ARTESIAN RESOURCES -CL A	0.941	0.928	0.863	0.885	0.863	0.997	1.015	0.895	0.868	0.901	0.905	0.946
CALIFORNIA WATER SERVICE	1.223	1.240	1.146	1.201	1.158	1.245	1.289	1.130	1.096	1.079	1.022	1.033
CONNECTICUT WATER SVC IN	1.438	1.413	1.367	1.341	1.276	1.365	1.480	1.322	1.297	1.267	1.198	1.223
MIDDLESEX WATER CO	1.679	1.608	1.458	1.453	1.392	1.648	1.732	1.517	1.505	1.338	1.241	1.274
SJW GROUP	1.332	1.292	1.240	1.147	1.130	1.123	1.078	0.990	0.988	1.052	1.051	0.982
YORK WATER CO	2.138	2.051	1.821	1.745	1.678	1.829	1.877	1.631	1.758	1.815	1.677	1.623

Company Name	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap
AMERICAN STATES WATER C	2.319	2.189	2.089	2.141	2.096	2.275	2.354	2.145	2.260	2.180	2.316	2.460
AMERICAN WATER WORKS C	1.626	1.628	1.650	1.673	1.660	1.786	1.832	1.676	1.657	1.617	1.554	1.563
AQUA AMERICA INC	1.946	1.931	1.978	1.994	1.990	2.196	2.279	2.113	2.080	2.110	2.046	2.089
ARTESIAN RESOURCES -CL A	1.630	1.607	1.495	1.507	1.469	1.697	1.700	1.499	1.454	1.487	1.493	1.561
CALIFORNIA WATER SERVICE	1.749	1.773	1.639	1.683	1.623	1.745	1.821	1.596	1.548	1.525	1.445	1.460
CONNECTICUT WATER SVC IN	1.812	1.781	1.723	1.709	1.626	1.740	1.909	1.705	1.673	1.643	1.553	1.585
MIDDLESEX WATER CO	2.292	2.196	1.991	1.995	1.911	2.264	2.405	2.106	2.089	1.820	1.689	1.734
SJW GROUP	1.841	1.785	1.714	1.585	1.561	1.552	1.512	1.387	1.385	1.440	1.438	1.343
YORK WATER CO	2.870	2.753	2.445	2.347	2.258	2.460	2.530	2.198	2.369	2.423	2.240	2.167

Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2016	11/30/2016	10/31/2016	9/30/2016	8/31/2016	7/31/2016	6/30/2016	5/31/2016	4/30/2016	3/31/2016	2/29/2016	1/31/2016	
-12	-13	-14	-15	-16	-17	-18	-19	-20	-21	-22	-23	

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Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2016	11/30/2016	10/31/2016	9/30/2016	8/31/2016	7/31/2016	6/30/2016	5/31/2016	4/30/2016	3/31/2016	2/29/2016	1/31/2016	
-12	-13	-14	-15	-16	-17	-18	-19	-20	-21	-22	-23	

Company Name	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE
AMERICAN STATES WATER C	0.869	0.820	0.783	0.792	0.775	0.842	0.863	0.786	0.828	0.801	0.851	0.904
AMERICAN WATER WORKS C	0.897	0.898	0.910	0.933	0.926	0.996	1.019	0.932	0.922	0.892	0.857	0.862
AQUA AMERICA INC	0.857	0.850	0.871	0.878	0.876	0.967	0.999	0.926	0.911	0.927	0.898	0.917
ARTESIAN RESOURCES -CL A	0.908	0.895	0.833	0.854	0.833	0.962	0.980	0.864	0.838	0.870	0.874	0.913
CALIFORNIA WATER SERVICE	0.836	0.848	0.784	0.821	0.792	0.851	0.881	0.772	0.749	0.738	0.699	0.706
CONNECTICUT WATER SVC IN	1.017	0.999	0.966	0.948	0.902	0.965	1.047	0.935	0.917	0.896	0.847	0.865
MIDDLESEX WATER CO	1.118	1.071	0.971	0.968	0.927	1.098	1.153	1.010	1.002	0.891	0.827	0.849
SJW GROUP	0.970	0.941	0.904	0.836	0.823	0.818	0.785	0.721	0.720	0.767	0.765	0.715
YORK WATER CO	1.172	1.124	0.999	0.957	0.920	1.003	1.029	0.894	0.964	0.995	0.920	0.890

Company Name	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap
AMERICAN STATES WATER C	0.834	0.787	0.751	0.770	0.753	0.818	0.846	0.771	0.812	0.784	0.832	0.884
AMERICAN WATER WORKS C	0.892	0.893	0.906	0.918	0.911	0.980	1.005	0.920	0.909	0.887	0.853	0.858
AQUA AMERICA INC	0.862	0.855	0.876	0.883	0.881	0.973	1.009	0.936	0.921	0.934	0.906	0.925
ARTESIAN RESOURCES -CL A	0.903	0.890	0.828	0.835	0.814	0.940	0.942	0.830	0.806	0.824	0.827	0.865
CALIFORNIA WATER SERVICE	0.868	0.880	0.814	0.835	0.806	0.866	0.904	0.792	0.768	0.757	0.717	0.725
CONNECTICUT WATER SVC IN	1.081	1.062	1.028	1.019	0.970	1.038	1.139	1.017	0.998	0.980	0.926	0.946
MIDDLESEX WATER CO	1.109	1.063	0.964	0.966	0.925	1.096	1.164	1.019	1.011	0.881	0.817	0.839
SJW GROUP	0.945	0.917	0.880	0.814	0.801	0.797	0.776	0.712	0.711	0.739	0.738	0.690
YORK WATER CO	1.133	1.087	0.965	0.926	0.891	0.971	0.998	0.867	0.935	0.956	0.884	0.855

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Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2016	11/30/2016	10/31/2016	9/30/2016	8/31/2016	7/31/2016	6/30/2016	5/31/2016	4/30/2016	3/31/2016	2/29/2016	1/31/2016	
Enterprise value to Net PPE	91%	90%	90%	88%	88%	97%	100%	89%	91%	89%	85%	86%
Enterprise value to Inv Cap	90%	89%	88%	88%	88%	97%	100%	87%	91%	88%	83%	86%

	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
	12/31/2015	11/30/2015	10/31/2015	9/30/2015	8/31/2015	7/31/2015	6/30/2015	5/31/2015	4/30/2015	3/31/2015	2/28/2015	1/31/2015
	-24	-25	-26	-27	-28	-29	-30	-31	-32	-33	-34	-35
Company Name	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE
AMERICAN STATES WATER C	1.797	1.792	1.774	1.796	1.662	1.712	1.651	1.690	1.696	1.769	1.778	1.766
AMERICAN WATER WORKS C	1.374	1.345	1.343	1.325	1.278	1.277	1.239	1.304	1.328	1.326	1.323	1.352
AQUA AMERICA INC	1.522	1.505	1.479	1.418	1.374	1.379	1.354	1.427	1.447	1.431	1.432	1.456
ARTESIAN RESOURCES -CL A	0.894	0.867	0.826	0.834	0.791	0.775	0.774	0.781	0.784	0.795	0.801	0.809
CALIFORNIA WATER SERVICE	0.975	0.954	0.949	0.968	0.924	0.950	0.993	1.024	1.023	1.049	1.077	1.050
CONNECTICUT WATER SVC IN	1.147	1.112	1.121	1.129	1.091	1.075	1.099	1.122	1.137	1.137	1.152	1.128
MIDDLESEX WATER CO	1.228	1.198	1.200	1.144	1.107	1.105	1.111	1.086	1.118	1.134	1.151	1.102
SJW GROUP	0.933	0.947	0.972	0.973	0.934	0.954	0.977	0.966	0.949	0.999	1.045	1.053
YORK WATER CO	1.553	1.501	1.474	1.373	1.383	1.388	1.381	1.457	1.596	1.556	1.522	1.522

Company Name	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap
AMERICAN STATES WATER C	2.287	2.281	2.258	2.270	2.101	2.164	2.021	2.069	2.076	2.131	2.142	2.128
AMERICAN WATER WORKS C	1.474	1.443	1.440	1.414	1.364	1.362	1.336	1.405	1.432	1.441	1.439	1.470
AQUA AMERICA INC	2.011	1.989	1.954	1.865	1.807	1.814	1.791	1.888	1.914	1.913	1.914	1.947
ARTESIAN RESOURCES -CL A	1.470	1.426	1.358	1.355	1.285	1.260	1.262	1.273	1.278	1.263	1.272	1.286
CALIFORNIA WATER SERVICE	1.351	1.322	1.315	1.350	1.289	1.326	1.380	1.423	1.423	1.464	1.503	1.466
CONNECTICUT WATER SVC IN	1.463	1.418	1.431	1.453	1.404	1.384	1.407	1.437	1.455	1.473	1.493	1.461
MIDDLESEX WATER CO	1.603	1.562	1.565	1.493	1.444	1.442	1.447	1.415	1.457	1.463	1.485	1.422
SJW GROUP	1.292	1.311	1.346	1.333	1.280	1.308	1.340	1.324	1.301	1.351	1.413	1.423
YORK WATER CO	2.085	2.014	1.978	1.843	1.858	1.864	1.850	1.951	2.137	2.086	2.041	2.041

Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2015	11/30/2015	10/31/2015	9/30/2015	8/31/2015	7/31/2015	6/30/2015	5/31/2015	4/30/2015	3/31/2015	2/28/2015	1/31/2015	
-24	-25	-26	-27	-28	-29	-30	-31	-32	-33	-34	-35	

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Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2015	11/30/2015	10/31/2015	9/30/2015	8/31/2015	7/31/2015	6/30/2015	5/31/2015	4/30/2015	3/31/2015	2/28/2015	1/31/2015	
-24	-25	-26	-27	-28	-29	-30	-31	-32	-33	-34	-35	

Company Name	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE
AMERICAN STATES WATER C	0.854	0.852	0.844	0.854	0.790	0.814	0.785	0.804	0.807	0.841	0.845	0.840
AMERICAN WATER WORKS C	0.837	0.820	0.818	0.807	0.779	0.778	0.755	0.794	0.809	0.807	0.806	0.824
AQUA AMERICA INC	0.890	0.880	0.864	0.829	0.803	0.806	0.792	0.834	0.846	0.837	0.837	0.852
ARTESIAN RESOURCES -CL A	0.863	0.837	0.797	0.804	0.763	0.748	0.747	0.754	0.756	0.767	0.773	0.781
CALIFORNIA WATER SERVICE	0.667	0.652	0.649	0.662	0.632	0.650	0.679	0.700	0.699	0.717	0.736	0.718
CONNECTICUT WATER SVC IN	0.811	0.786	0.793	0.798	0.771	0.760	0.777	0.794	0.804	0.804	0.815	0.797
MIDDLESEX WATER CO	0.818	0.798	0.799	0.762	0.737	0.736	0.740	0.723	0.745	0.755	0.766	0.734
SJW GROUP	0.680	0.690	0.708	0.708	0.680	0.695	0.712	0.704	0.691	0.728	0.761	0.767
YORK WATER CO	0.852	0.823	0.808	0.753	0.758	0.761	0.757	0.799	0.875	0.853	0.835	0.835

Company Name	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap
AMERICAN STATES WATER C	0.822	0.820	0.812	0.816	0.755	0.778	0.726	0.744	0.746	0.766	0.770	0.765
AMERICAN WATER WORKS C	0.809	0.792	0.790	0.776	0.749	0.748	0.733	0.771	0.786	0.791	0.789	0.807
AQUA AMERICA INC	0.891	0.881	0.865	0.826	0.800	0.803	0.793	0.836	0.847	0.847	0.848	0.862
ARTESIAN RESOURCES -CL A	0.815	0.790	0.753	0.751	0.712	0.698	0.699	0.705	0.708	0.700	0.705	0.712
CALIFORNIA WATER SERVICE	0.670	0.656	0.652	0.670	0.640	0.658	0.685	0.706	0.706	0.727	0.746	0.727
CONNECTICUT WATER SVC IN	0.873	0.846	0.853	0.867	0.838	0.825	0.840	0.857	0.868	0.878	0.891	0.872
MIDDLESEX WATER CO	0.776	0.756	0.757	0.722	0.699	0.698	0.700	0.685	0.705	0.708	0.718	0.688
SJW GROUP	0.663	0.673	0.691	0.684	0.657	0.672	0.688	0.680	0.668	0.693	0.726	0.731
YORK WATER CO	0.823	0.795	0.781	0.727	0.733	0.736	0.730	0.770	0.843	0.823	0.805	0.805

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Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2015	11/30/2015	10/31/2015	9/30/2015	8/31/2015	7/31/2015	6/30/2015	5/31/2015	4/30/2015	3/31/2015	2/28/2015	1/31/2015	
Enterprise value to Net PPE	84%	82%	80%	80%	76%	76%	75%	79%	80%	80%	81%	80%
Enterprise value to Inv Cap	81%	79%	78%	75%	73%	74%	73%	74%	75%	77%	77%	76%

	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
	12/31/2014	11/30/2014	10/31/2014	9/30/2014	8/31/2014	7/31/2014	6/30/2014	5/31/2014	4/30/2014	3/31/2014	2/28/2014	1/31/2014
	-36	-37	-38	-39	-40	-41	-42	-43	-44	-45	-46	-47
Company Name	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE
AMERICAN STATES WATER C	1.713	1.606	1.652	1.448	1.522	1.456	1.596	1.479	1.482	1.574	1.485	1.420
AMERICAN WATER WORKS C	1.327	1.323	1.327	1.276	1.314	1.268	1.300	1.287	1.237	1.244	1.235	1.197
AQUA AMERICA INC	1.476	1.471	1.458	1.371	1.433	1.381	1.502	1.467	1.454	1.446	1.449	1.396
ARTESIAN RESOURCES -CL A	0.815	0.793	0.808	0.770	0.792	0.803	0.821	0.818	0.808	0.823	0.806	0.822
CALIFORNIA WATER SERVICE	1.050	1.064	1.093	1.009	1.069	1.020	1.072	1.005	1.019	1.062	1.048	1.041
CONNECTICUT WATER SVC IN	1.154	1.122	1.173	1.080	1.090	1.065	1.124	1.083	1.092	1.129	1.097	1.117
MIDDLESEX WATER CO	1.170	1.134	1.149	1.058	1.092	1.081	1.110	1.085	1.080	1.143	1.083	1.072
SJW GROUP	1.025	0.981	1.021	0.927	0.937	0.926	0.938	0.935	0.939	0.986	0.985	0.965
YORK WATER CO	1.508	1.355	1.447	1.370	1.379	1.328	1.418	1.395	1.380	1.398	1.381	1.391

Company Name	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap
AMERICAN STATES WATER C	2.061	1.933	1.987	1.731	1.819	1.739	1.842	1.708	1.712	1.874	1.767	1.690
AMERICAN WATER WORKS C	1.419	1.415	1.419	1.343	1.382	1.335	1.374	1.360	1.307	1.314	1.305	1.265
AQUA AMERICA INC	1.947	1.940	1.924	1.799	1.881	1.812	1.966	1.919	1.903	1.927	1.931	1.861
ARTESIAN RESOURCES -CL A	1.317	1.280	1.306	1.236	1.272	1.290	1.321	1.315	1.301	1.317	1.290	1.315
CALIFORNIA WATER SERVICE	1.471	1.491	1.532	1.404	1.487	1.418	1.507	1.412	1.432	1.479	1.460	1.450
CONNECTICUT WATER SVC IN	1.477	1.436	1.500	1.364	1.377	1.345	1.409	1.357	1.369	1.411	1.371	1.396
MIDDLESEX WATER CO	1.468	1.423	1.442	1.327	1.368	1.355	1.405	1.373	1.366	1.436	1.361	1.347
SJW GROUP	1.384	1.325	1.379	1.304	1.318	1.302	1.328	1.324	1.329	1.403	1.402	1.373
YORK WATER CO	2.018	1.813	1.937	1.820	1.832	1.765	1.845	1.815	1.796	1.817	1.795	1.809

Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2014	11/30/2014	10/31/2014	9/30/2014	8/31/2014	7/31/2014	6/30/2014	5/31/2014	4/30/2014	3/31/2014	2/28/2014	1/31/2014	
-36	-37	-38	-39	-40	-41	-42	-43	-44	-45	-46	-47	

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Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2014	11/30/2014	10/31/2014	9/30/2014	8/31/2014	7/31/2014	6/30/2014	5/31/2014	4/30/2014	3/31/2014	2/28/2014	1/31/2014	
-36	-37	-38	-39	-40	-41	-42	-43	-44	-45	-46	-47	

Company Name	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE
AMERICAN STATES WATER C	0.815	0.764	0.786	0.689	0.724	0.692	0.759	0.704	0.705	0.749	0.706	0.675
AMERICAN WATER WORKS C	0.808	0.806	0.808	0.777	0.800	0.773	0.792	0.784	0.753	0.758	0.752	0.729
AQUA AMERICA INC	0.863	0.860	0.853	0.802	0.838	0.807	0.878	0.857	0.850	0.845	0.847	0.816
ARTESIAN RESOURCES -CL A	0.787	0.765	0.780	0.743	0.764	0.775	0.793	0.789	0.780	0.794	0.778	0.794
CALIFORNIA WATER SERVICE	0.718	0.727	0.747	0.690	0.731	0.697	0.733	0.687	0.696	0.726	0.716	0.712
CONNECTICUT WATER SVC IN	0.816	0.794	0.829	0.764	0.771	0.753	0.795	0.766	0.772	0.799	0.776	0.790
MIDDLESEX WATER CO	0.779	0.755	0.766	0.705	0.727	0.720	0.740	0.723	0.719	0.761	0.721	0.714
SJW GROUP	0.747	0.715	0.744	0.675	0.682	0.674	0.683	0.681	0.684	0.718	0.718	0.703
YORK WATER CO	0.827	0.743	0.793	0.751	0.756	0.728	0.778	0.765	0.757	0.766	0.757	0.763

Company Name	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap
AMERICAN STATES WATER C	0.741	0.695	0.714	0.622	0.654	0.625	0.662	0.614	0.615	0.673	0.635	0.607
AMERICAN WATER WORKS C	0.779	0.776	0.779	0.737	0.759	0.733	0.754	0.746	0.717	0.721	0.716	0.694
AQUA AMERICA INC	0.862	0.859	0.852	0.797	0.833	0.802	0.871	0.850	0.843	0.853	0.855	0.824
ARTESIAN RESOURCES -CL A	0.730	0.710	0.723	0.685	0.705	0.715	0.732	0.729	0.721	0.730	0.715	0.729
CALIFORNIA WATER SERVICE	0.730	0.740	0.760	0.697	0.738	0.704	0.748	0.701	0.711	0.734	0.724	0.719
CONNECTICUT WATER SVC IN	0.881	0.857	0.895	0.814	0.821	0.803	0.841	0.810	0.816	0.842	0.818	0.832
MIDDLESEX WATER CO	0.710	0.689	0.698	0.642	0.662	0.656	0.680	0.664	0.661	0.695	0.659	0.652
SJW GROUP	0.710	0.680	0.708	0.670	0.676	0.668	0.682	0.679	0.682	0.720	0.720	0.705
YORK WATER CO	0.796	0.715	0.764	0.718	0.723	0.696	0.728	0.716	0.709	0.717	0.709	0.714

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	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
	12/31/2014	11/30/2014	10/31/2014	9/30/2014	8/31/2014	7/31/2014	6/30/2014	5/31/2014	4/30/2014	3/31/2014	2/28/2014	1/31/2014
Enterprise value to Net PPE	81%	76%	79%	74%	76%	73%	78%	76%	75%	76%	75%	73%
Enterprise value to Inv Cap	74%	72%	76%	70%	72%	70%	73%	72%	71%	72%	72%	71%

	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
	12/31/2013	11/30/2013	10/31/2013	9/30/2013	8/31/2013	7/31/2013	6/30/2013	5/31/2013	4/30/2013	3/31/2013	2/28/2013	1/31/2013
	-48	-49	-50	-51	-52	-53	-54	-55	-56	-57	-58	-59
Company Name	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE
AMERICAN STATES WATER C	1.468	1.486	1.457	1.472	1.420	1.654	1.439	1.428	1.477	1.549	1.449	1.399
AMERICAN WATER WORKS C	1.203	1.205	1.212	1.215	1.206	1.237	1.215	1.194	1.226	1.218	1.182	1.162
AQUA AMERICA INC	1.416	1.437	1.483	1.493	1.474	1.592	1.518	1.511	1.529	1.542	1.458	1.391
ARTESIAN RESOURCES -CL A	0.838	0.853	0.836	0.830	0.821	0.855	0.837	0.833	0.862	0.846	0.840	0.848
CALIFORNIA WATER SERVICE	1.025	1.018	0.984	0.966	0.954	1.013	0.938	0.945	0.956	1.015	0.951	0.935
CONNECTICUT WATER SVC IN	1.224	1.206	1.142	1.146	1.105	1.102	1.084	1.075	1.078	1.093	1.082	1.077
MIDDLESEX WATER CO	1.128	1.166	1.118	1.148	1.099	1.138	1.090	1.066	1.079	1.102	1.097	1.092
SJW GROUP	0.992	0.943	0.958	0.962	0.922	0.956	0.963	0.982	0.945	0.947	0.946	0.959
YORK WATER CO	1.434	1.485	1.420	1.403	1.374	1.459	1.353	1.356	1.339	1.350	1.327	1.351

Company Name	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap
AMERICAN STATES WATER C	1.729	1.750	1.716	1.739	1.679	1.954	1.678	1.665	1.721	1.798	1.683	1.624
AMERICAN WATER WORKS C	1.275	1.277	1.285	1.264	1.255	1.287	1.272	1.250	1.283	1.284	1.247	1.226
AQUA AMERICA INC	1.850	1.877	1.938	1.953	1.928	2.083	1.968	1.959	1.982	1.987	1.879	1.792
ARTESIAN RESOURCES -CL A	1.342	1.367	1.339	1.313	1.298	1.352	1.318	1.313	1.359	1.322	1.313	1.326
CALIFORNIA WATER SERVICE	1.415	1.406	1.359	1.325	1.309	1.390	1.202	1.211	1.224	1.403	1.314	1.292
CONNECTICUT WATER SVC IN	1.496	1.474	1.396	1.413	1.363	1.359	1.328	1.317	1.320	1.332	1.318	1.312
MIDDLESEX WATER CO	1.398	1.444	1.385	1.428	1.366	1.415	1.368	1.338	1.354	1.349	1.343	1.336
SJW GROUP	1.420	1.349	1.371	1.380	1.322	1.371	1.394	1.421	1.368	1.346	1.345	1.363
YORK WATER CO	1.869	1.936	1.851	1.835	1.796	1.907	1.758	1.762	1.740	1.755	1.726	1.757

Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2013	11/30/2013	10/31/2013	9/30/2013	8/31/2013	7/31/2013	6/30/2013	5/31/2013	4/30/2013	3/31/2013	2/28/2013	1/31/2013
-48	-49	-50	-51	-52	-53	-54	-55	-56	-57	-58	-59

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Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2013	11/30/2013	10/31/2013	9/30/2013	8/31/2013	7/31/2013	6/30/2013	5/31/2013	4/30/2013	3/31/2013	2/28/2013	1/31/2013
-48	-49	-50	-51	-52	-53	-54	-55	-56	-57	-58	-59

Company Name

Company Name	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE
AMERICAN STATES WATER C	0.698	0.707	0.693	0.700	0.675	0.786	0.685	0.679	0.702	0.736	0.689	0.665
AMERICAN WATER WORKS C	0.733	0.734	0.738	0.740	0.735	0.754	0.740	0.727	0.747	0.742	0.720	0.708
AQUA AMERICA INC	0.828	0.840	0.867	0.873	0.862	0.931	0.888	0.884	0.894	0.902	0.853	0.813
ARTESIAN RESOURCES -CL A	0.808	0.823	0.806	0.801	0.792	0.825	0.807	0.804	0.832	0.816	0.810	0.818
CALIFORNIA WATER SERVICE	0.701	0.696	0.673	0.660	0.652	0.692	0.641	0.646	0.653	0.694	0.650	0.639
CONNECTICUT WATER SVC IN	0.865	0.853	0.807	0.810	0.782	0.779	0.766	0.760	0.762	0.773	0.765	0.761
MIDDLESEX WATER CO	0.752	0.777	0.744	0.765	0.732	0.758	0.726	0.710	0.718	0.734	0.731	0.727
SJW GROUP	0.723	0.687	0.698	0.701	0.672	0.696	0.701	0.715	0.688	0.690	0.689	0.698
YORK WATER CO	0.786	0.814	0.778	0.769	0.753	0.800	0.742	0.743	0.734	0.740	0.728	0.741

Company Name

Company Name	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap
AMERICAN STATES WATER C	0.621	0.629	0.617	0.625	0.603	0.702	0.603	0.598	0.619	0.646	0.605	0.584
AMERICAN WATER WORKS C	0.700	0.701	0.705	0.694	0.689	0.706	0.698	0.686	0.704	0.705	0.684	0.673
AQUA AMERICA INC	0.819	0.831	0.858	0.865	0.854	0.923	0.872	0.867	0.878	0.880	0.832	0.793
ARTESIAN RESOURCES -CL A	0.743	0.757	0.742	0.727	0.719	0.749	0.730	0.727	0.753	0.733	0.728	0.735
CALIFORNIA WATER SERVICE	0.702	0.698	0.674	0.657	0.649	0.690	0.596	0.601	0.608	0.696	0.652	0.641
CONNECTICUT WATER SVC IN	0.893	0.879	0.833	0.843	0.813	0.811	0.792	0.786	0.788	0.795	0.787	0.783
MIDDLESEX WATER CO	0.677	0.699	0.670	0.691	0.661	0.685	0.662	0.647	0.655	0.653	0.650	0.647
SJW GROUP	0.729	0.693	0.704	0.709	0.679	0.704	0.716	0.730	0.702	0.691	0.690	0.700
YORK WATER CO	0.738	0.764	0.730	0.724	0.709	0.753	0.694	0.695	0.687	0.693	0.681	0.693

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Enterprise value to Net PPE
Enterprise value to Inv Cap

Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2013	11/30/2013	10/31/2013	9/30/2013	8/31/2013	7/31/2013	6/30/2013	5/31/2013	4/30/2013	3/31/2013	2/28/2013	1/31/2013	
75%	78%	74%	76%	73%	78%	74%	73%	73%	74%	73%	73%	
73%	70%	70%	71%	69%	71%	70%	70%	70%	70%	68%	69%	

	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
	12/31/2012	11/30/2012	10/31/2012	9/30/2012	8/31/2012	7/31/2012	6/30/2012	5/31/2012	4/30/2012	3/31/2012	2/29/2012	1/31/2012
	-60	-61	-62	-63	-64	-65	-66	-67	-68	-69	-70	-71
Company Name	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE
AMERICAN STATES WATER C	1.341	1.289	1.244	1.285	1.267	1.203	1.203	1.145	1.137	1.141	1.151	1.137
AMERICAN WATER WORKS C	1.155	1.173	1.147	1.185	1.181	1.170	1.153	1.152	1.152	1.196	1.200	1.190
AQUA AMERICA INC	1.348	1.353	1.346	1.327	1.335	1.354	1.382	1.311	1.296	1.293	1.290	1.282
ARTESIAN RESOURCES -CL A	0.851	0.815	0.852	0.865	0.841	0.827	0.837	0.774	0.782	0.787	0.792	0.788
CALIFORNIA WATER SERVICE	0.900	0.890	0.902	0.941	0.930	0.936	0.926	0.894	0.915	0.928	0.958	0.935
CONNECTICUT WATER SVC IN	1.236	1.138	1.131	1.174	1.152	1.138	1.128	1.103	1.108	1.125	1.134	1.172
MIDDLESEX WATER CO	1.096	1.065	1.088	1.087	1.072	1.069	1.082	1.053	1.065	1.084	1.064	1.081
SJW GROUP	0.947	0.901	0.896	0.937	0.894	0.893	0.910	0.891	0.912	0.919	0.913	0.909
YORK WATER CO	1.286	1.279	1.273	1.345	1.309	1.326	1.326	1.278	1.301	1.299	1.298	1.323

Company Name	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap
AMERICAN STATES WATER C	1.542	1.482	1.430	1.505	1.484	1.408	1.430	1.360	1.352	1.361	1.373	1.356
AMERICAN WATER WORKS C	1.201	1.220	1.193	1.210	1.207	1.195	1.179	1.178	1.177	1.167	1.172	1.161
AQUA AMERICA INC	1.752	1.758	1.749	1.723	1.734	1.759	1.766	1.676	1.657	1.647	1.643	1.634
ARTESIAN RESOURCES -CL A	1.334	1.278	1.336	1.344	1.308	1.286	1.294	1.198	1.210	1.206	1.214	1.207
CALIFORNIA WATER SERVICE	1.271	1.257	1.274	1.302	1.287	1.294	1.319	1.274	1.303	1.289	1.331	1.299
CONNECTICUT WATER SVC IN	1.543	1.420	1.411	1.467	1.439	1.422	1.388	1.357	1.363	1.469	1.482	1.531
MIDDLESEX WATER CO	1.357	1.319	1.347	1.349	1.331	1.327	1.357	1.321	1.336	1.341	1.316	1.338
SJW GROUP	1.355	1.290	1.283	1.327	1.266	1.264	1.273	1.246	1.276	1.260	1.252	1.246
YORK WATER CO	1.676	1.666	1.659	1.746	1.699	1.721	1.714	1.653	1.683	1.678	1.677	1.710

Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2012	11/30/2012	10/31/2012	9/30/2012	8/31/2012	7/31/2012	6/30/2012	5/31/2012	4/30/2012	3/31/2012	2/29/2012	1/31/2012
-60	-61	-62	-63	-64	-65	-66	-67	-68	-69	-70	-71

12/31/2017

Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2012	11/30/2012	10/31/2012	9/30/2012	8/31/2012	7/31/2012	6/30/2012	5/31/2012	4/30/2012	3/31/2012	2/29/2012	1/31/2012
-60	-61	-62	-63	-64	-65	-66	-67	-68	-69	-70	-71

Company Name

	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE	Enterprise value to Net PPE
AMERICAN STATES WATER C	0.638	0.613	0.592	0.611	0.603	0.572	0.572	0.544	0.541	0.542	0.547	0.541
AMERICAN WATER WORKS C	0.703	0.714	0.699	0.722	0.720	0.713	0.703	0.702	0.702	0.728	0.731	0.725
AQUA AMERICA INC	0.788	0.791	0.787	0.776	0.781	0.792	0.808	0.767	0.758	0.756	0.754	0.750
ARTESIAN RESOURCES -CL A	0.821	0.787	0.822	0.834	0.812	0.798	0.807	0.747	0.755	0.759	0.764	0.760
CALIFORNIA WATER SERVICE	0.615	0.608	0.617	0.643	0.636	0.640	0.633	0.611	0.626	0.634	0.655	0.639
CONNECTICUT WATER SERVICE	0.874	0.804	0.799	0.830	0.814	0.805	0.798	0.780	0.784	0.795	0.802	0.829
MIDDLESEX WATER CO	0.730	0.709	0.725	0.724	0.714	0.712	0.720	0.701	0.709	0.722	0.709	0.720
SIJ GROUP	0.690	0.656	0.653	0.683	0.652	0.650	0.663	0.649	0.665	0.669	0.665	0.662
YORK WATER CO	0.705	0.701	0.698	0.737	0.717	0.727	0.727	0.701	0.713	0.712	0.712	0.725

Company Name

	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap	Enterprise value to Inv Cap
AMERICAN STATES WATER C	0.554	0.533	0.514	0.541	0.533	0.506	0.514	0.489	0.486	0.489	0.494	0.487
AMERICAN WATER WORKS C	0.659	0.669	0.655	0.664	0.662	0.656	0.647	0.646	0.646	0.641	0.643	0.637
AQUA AMERICA INC	0.776	0.778	0.774	0.763	0.768	0.779	0.782	0.742	0.734	0.729	0.728	0.723
ARTESIAN RESOURCES -CL A	0.739	0.708	0.740	0.745	0.725	0.712	0.717	0.664	0.671	0.668	0.672	0.669
CALIFORNIA WATER SERVICE	0.631	0.624	0.632	0.646	0.639	0.642	0.654	0.632	0.647	0.640	0.661	0.645
CONNECTICUT WATER SERVICE	0.921	0.847	0.842	0.875	0.859	0.848	0.828	0.810	0.813	0.877	0.884	0.913
MIDDLESEX WATER CO	0.657	0.638	0.652	0.653	0.644	0.642	0.657	0.639	0.647	0.649	0.637	0.647
SIJ GROUP	0.696	0.662	0.659	0.681	0.650	0.649	0.653	0.639	0.655	0.647	0.643	0.640
YORK WATER CO	0.661	0.657	0.655	0.689	0.670	0.679	0.677	0.652	0.664	0.662	0.662	0.675

12/31/2017

Enterprise value to Net PPE
Enterprise value to Inv Cap

Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End	Month End
12/31/2012	11/30/2012	10/31/2012	9/30/2012	8/31/2012	7/31/2012	6/30/2012	5/31/2012	4/30/2012	3/31/2012	2/29/2012	1/31/2012	
71%	71%	70%	72%	72%	71%	72%	70%	71%	72%	71%	72%	
66%	66%	65%	68%	66%	66%	66%	65%	65%	65%	66%	65%	

Pennsylvania-American Water
(Company Name)

For the Year Ended December 31, 2016

402. OPERATING REVENUES SUPPORTING SCHEDULE - CUSTOMER DATA

Customers should be reported on the basis of number of meters, (except where multiple customers have one meter) plus number of flat rate accounts. Where separate meter readings are added for billing purposes, one customer shall be counted for each group of meters so added.

Line No.	Customer Classes (a)	Customers End of Current Year (b)	Customers End of Previous Year (c)	Increase/ (Decrease) (d)
1	Unmetered Charges	XXX	XXX	XXX
2	Residential	4,193	4,055	138
3	Commercial	63	95	(32)
4	Industrial	4	1	3
5	Public Authorities	5	4	1
6	Multiple Family Dwellings*			
7	Availability			
8	Other			
9				
10	Total Unmetered Charges	4,265	4,155	110
11				
12	Measured Sales	XXX	XXX	XXX
13	Residential	46,211	15,983	30,228
14	Commercial	4,051	1,004	3,047
15	Industrial	33	6	27
16	Public Authority	127	64	63
17	Multiple Family Dwellings*			
18	Other	4	4	-
19	Other Systems			
20	Interdepartmental			
21	Other Systems-Interdepartmental			
22				
23	Total Measured Sales	50,426	17,061	33,365

* Use number of Individual Dwelling Units

Index Name: S&P Municipal Bond Revenue Ir

As of: Mar 27, 2018

Effective date	Yield To Maturity
12/22/2017	3.48%
12/26/2017	3.46%
12/27/2017	3.44%
12/28/2017	3.42%
12/29/2017	3.41%
1/2/2018	3.42%

Aqua Pennsylvania Wastewater, Inc.

For the Year Ended December 31, 2016

(Company Name)

402. OPERATING REVENUES SUPPORTING SCHEDULE - CUSTOMER DATA

Customers should be reported on the basis of number of meters, (except where multiple customers have one meter) plus number of flat rate accounts. Where separate meter readings are added for billing purposes, one customer shall be counted for each group of meters so added.

Line No.	Customer Classes (a)	Customers End of Current Year (b)	Customers End of Previous Year (c)	Increase/ (Decrease) (d)
1	Unmetered Charges	XXX	XXX	XXX
2	Residential	5,712	5,312	400
3	Commercial	475	474	1
4	Industrial			-
5	Public Authorities			-
6	Multiple Family Dwellings*			-
7	Availability			-
8	Other			-
9				
10	Total Unmetered Charges	6,187	5,786	401
11				
12	Measured Sales	XXX	XXX	XXX
13	Residential	13,105	12,935	170
14	Commercial	1,109	1,024	85
15	Industrial	1	1	-
16	Public Authority	38	38	-
17	Multiple Family Dwellings*			-
18	Other			-
19	Other Systems			
20	Interdepartmental			
21	Other Systems-Interdepartmental			
22				
23	Total Measured Sales	14,253	13,998	255

* Use number of Individual Dwelling Units,

	2016		
	Sewer	Water	Total
Operating Revenues			
Retail Sewer Service	43,421,110	0	43,421,110
Wholesale Sewer Service	14,897,563	0	14,897,563
Retail Water Service	0	11,916,548	11,916,548
Wholesale Water Service	0	12,191,561	12,191,561
Improvement & Tapping Fees	0	110,550	110,550
Other Revenues	3,349,413	1,132,070	4,481,483
Total Operating Revenues	61,668,086	25,350,729	87,018,815
Expenses			
Operating Expenses			
Sewage Treatment and Water Procurement			
Sewage Treatment	16,253,379	0	16,253,379
Water Procurement	0	8,547,084	8,547,084
Total Sewage and Water	16,253,379	8,547,084	24,800,463
Plant Operations			
Payroll and Related Costs	1,755,388	0	1,755,388
Repairs and Maintenance	968,414	0	968,414
Electricity	470,001	0	470,001
Water and Sewage Testing	165,530	0	165,530
Total Plant Operations	3,359,333	0	3,359,333
Collection, Transmission and Distribution Service			
Payroll and related costs	6,208,174	2,012,591	8,220,765
Repairs and maintenance	1,285,585	182,886	1,468,471
Electricity	701,563	172,561	874,124
Other related costs	115,387	62,801	178,188
Total Service Expense	8,310,709	2,430,839	10,741,548
Total Operating Expense	27,923,421	10,977,923	38,901,344
General and Administrative Expenses			
Payroll and related costs	2,733,698	609,538	3,343,236
Professional fees	935,169	198,228	1,133,397
Insurance	377,173	94,016	471,189
Bad Debt	0	0	0
Other	3,387,257	456,978	3,844,235
Total General and Administrative Expenses	7,433,297	1,358,760	8,792,057
Income from Operations before depreciation	26,311,368	13,014,046	39,325,414
Depreciation	-13,224,646	-2,759,219	-15,983,865
Operating Income	13,086,722	10,254,827	23,341,549
Non-Operating Revenue (Expense)			
Interest Expense, net of Amounts Capitalized	-7,511,679	-3,429,385	-10,941,064
Investment Income	1,080,168	261,381	1,341,549
Improvement and Tapping Fees	4,048,410	-	4,048,410
Amortization	-385,545	0	-385,545
Total Non-Operating Expense	-2,768,646	-3,168,004	-5,936,650
Increase in Net Position, Before Dedication Fees	10,318,076	7,086,823	17,404,899
Dedication Fees	0	0	0
Increase in Net Position	10,318,076	7,086,823	17,404,899
Net Position , Beginning of Year	161,510,459	83,141,814	244,652,273
Cumulative Change			
Net Position, Beginning of Year, Restated			
Net Position, End of Year	171,828,535	90,228,637	262,057,172
pay	1,755,388	0	1,755,388
pay	6,208,174	2,012,591	8,220,765
pay	2,733,698	609,538	3,343,236
	10,697,260	2,622,129	13,319,389

	2016		
	Sewer	Water	Total
Customers	59,566	18,058	77,624
Pay / Customers	\$179.59	\$145.21	\$171.59

East Bradford Township

	# of Customers	Annual Gallons Treated (2017)
Residential- Single Family	399	23,783,560
Residential- Townhomes	814	36,390,635
Commercial		
Bradford Retail - The Bistro		112,800
Bradford Retail - Strip Stores		688,000
Brookworth Plaza - Dunkin Donuts		147,200
Brookworth Plaza - CVS		35,300
Brookworth Plaza - empty building		-
Brookworth Plaza - Strip Stores		142,000
Brookworth Plaza - PNC Bank		17,000
Countryside Food Mart		52,700
Antique Ice Museum		3,600
Mrs. Mike's Restaurant		103,110
Brandywine Hall Nursing Home		8,281,000
Daily Local News - now empty building		24,400
Bradford Plaza - Strip Stores		1,991,430
Bradford Plaza - Giant Food Store		2,527,700
Bradford Plaza - Walgreens		47,000
Bradford Plaza - Giant Gas Station		6,200
Chester County Art Association		120,100
Industrial		
Diesel Systems		66,300
Chem Service		173,400
Other Class(?)*		
Goddard School		252,800
Hillsdale Elementary School		649,700
WCU S Campus Apts - 144		24,200
WCU S Campus Apts - 167		583,900
WCU S Campus Apts - 168		500,900
WCU S Campus Apts - 169		441,900
WCU S Campus Apts - 170		570,900
WCU S Campus Apts - 171		318,900
WCU S Campus Apts - 172		422,000
WCU S Campus Apts - 173		306,400
WCU S Campus Apts - 174		424,500
WCU S Campus Apts - 175		323,400
WCU S Campus Apts - 176		340,000
WCU S Campus Apts - 177		356,000
University Student Housing 1		4,463,500
University Student Housing 2		5,429,000
Total		90,121,435

*May include church, school, public, etc... (please insert a line for each)

U.S. States :

State	1790	1800	1810	1820	1830	1840	1850
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	-	-	-	-	-	-	-
Total - States & D.C.	3,929,214	5,308,483	7,239,881	9,638,993	12,860,702	17,063,353	23,192,576

and District of Columbia Population Censu

State	1860	1870	1880	1890	1900	1910
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
Total - States & D.C.	31,443,321	38,558,371	50,189,209	62,979,766	76,212,168	92,228,496

is Counts: 1790 to 2010

State	1920	1930	1940	1950	1960	1970
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
Total - States & D.C.	106,021,537	123,202,624	132,164,569	151,325,798	179,323,175	203,211,926

State	1980	1990	2000	2010
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
Total - States & D.C.	226,545,805	248,709,873	281,424,603	308,745,538

**Township Of East Bradford
Data & Demographics (As of
July 1, 2017)**

POPULATION	
Total Population	10,009
Population in Households	9,387
Population in Families	7,757
Population in Group Qtrs	622
Population Density ¹	670
Diversity Index ²	21

HOUSEHOLDS	
Total Households	3,389
Average Household Size	2.77
Family Households	2,449
Average Family Size	3

HOUSING	
Total Housing Units	3,481 (100%)
Owner Occupied HU	2,977 (85.5%)
Renter Occupied HU	412 (11.8%)
Vacant Housing Units	92 (2.6%)
Median Home Value	\$481,121
Average Home Value	\$525,966

INCOME	
Median Household Income	\$130,617
Average Household Income	\$177,756
Per Capita Income	\$61,551

(Compound Annual Growth Rates)

GROWTH RATES	2010-2014	2014-2019
Population	0.09%	0.17%
Households	0.08%	0.18%
Families	-0.03%	0.10%
Median Household Income		0.99%
Per Capita Income		1.76%

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.



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, may be translated into multiple languages. Publications and other public documents can be made available in alternative languages and formats, if requested.

DVRPC public meetings are always held in ADA-accessible facilities and in transit-accessible locations when possible. Auxiliary services can be provided to individuals who submit a request at least seven days prior to a meeting. Requests made within seven days will be accommodated to the greatest extent possible. Any person who believes they have been aggrieved by an unlawful discriminatory practice by DVRPC under Title VI has a right to file a formal complaint. Any such complaint may be in writing and filed with DVRPC's Title VI Compliance Manager and/or the appropriate state or federal agency within 180 days of the alleged discriminatory occurrence. For more information on DVRPC's Title VI program, or to obtain a Title VI Complaint Form, please call (215) 592-1800 or email public_affairs@dvrpc.org.

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	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	2015-2045	
									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%
Five Pennsylvania Counties	4,008,994	4,093,907	4,188,255	4,279,333	4,374,837	4,457,645	4,523,322	4,577,771	483,864	11.8%
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%
Four New Jersey Counties	1,618,190	1,624,026	1,658,444	1,692,697	1,725,811	1,754,530	1,778,179	1,798,296	174,270	10.7%
Nine-County DVRPC Region	5,627,184	5,717,933	5,846,699	5,972,030	6,100,648	6,212,175	6,301,501	6,376,067	658,134	11.5%

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**

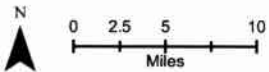
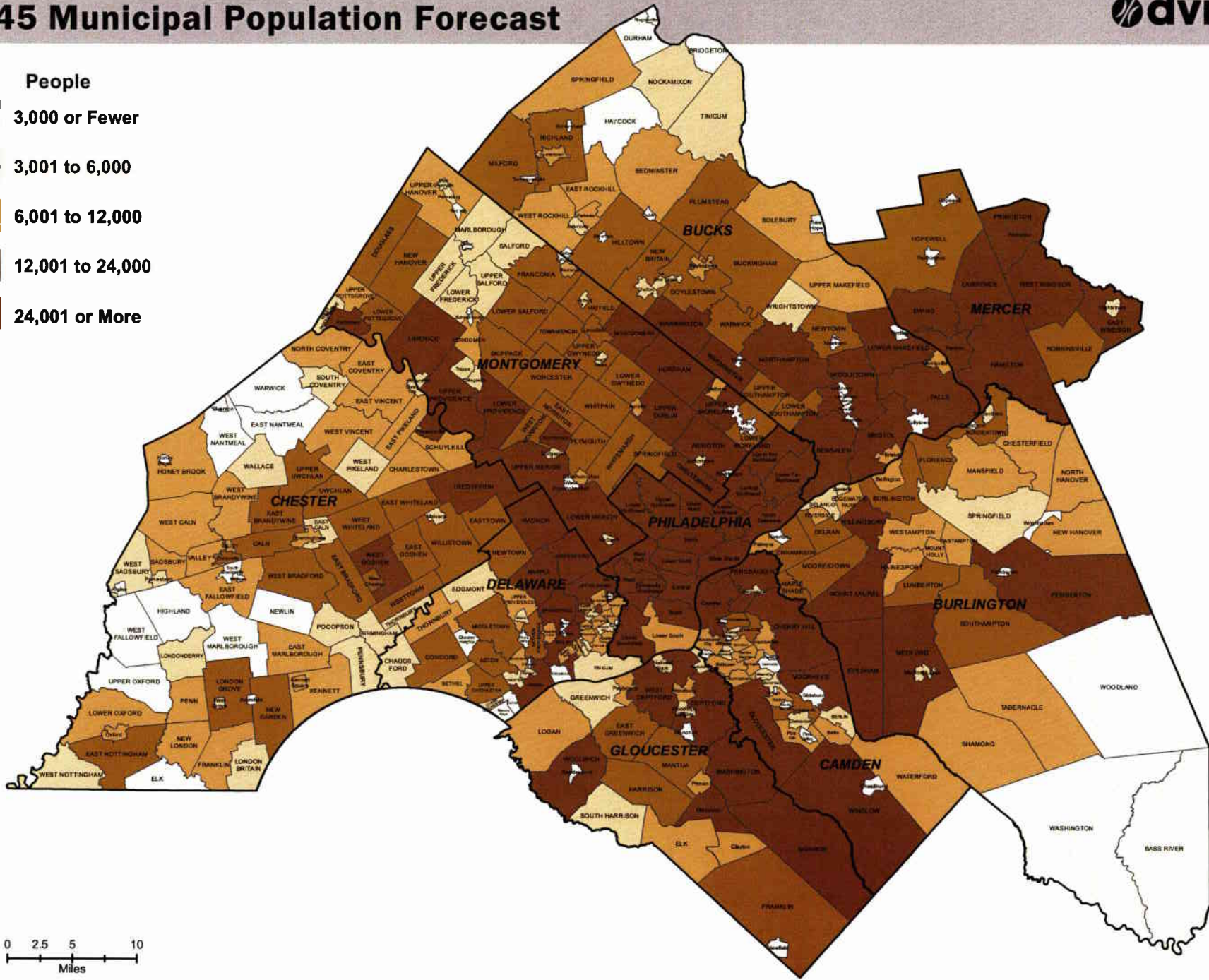
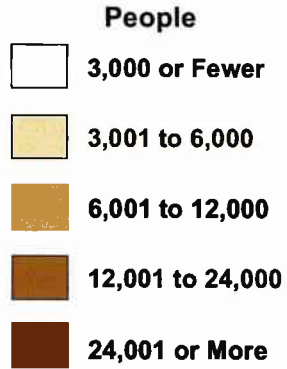


Figure 2:
2045 Municipal Population Forecast
Absolute Change: 2015–2045

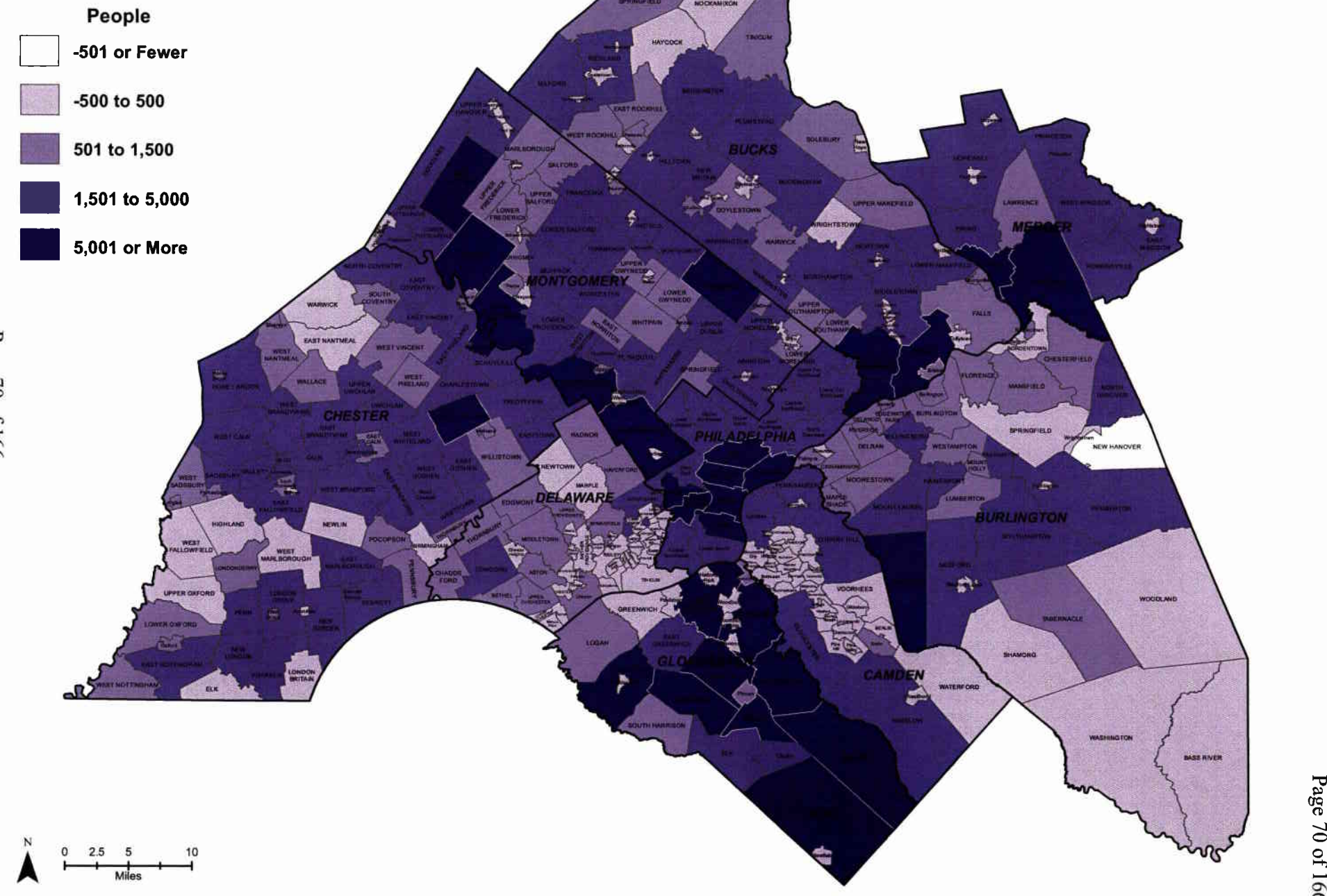


Figure 3:
2045 Municipal Population Forecast
 Percentage Change: 2015–2045



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

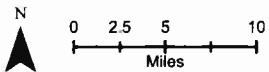
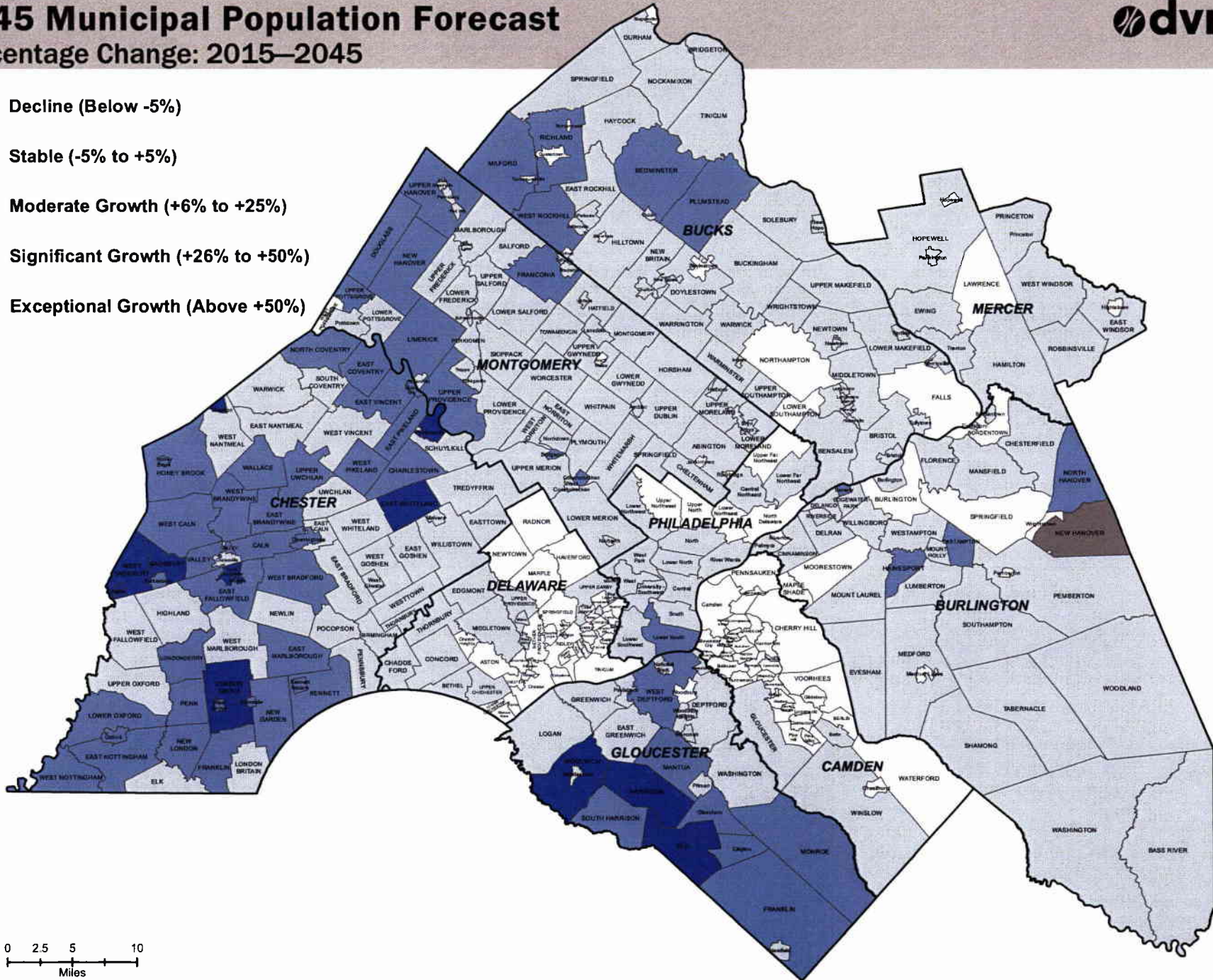





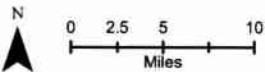
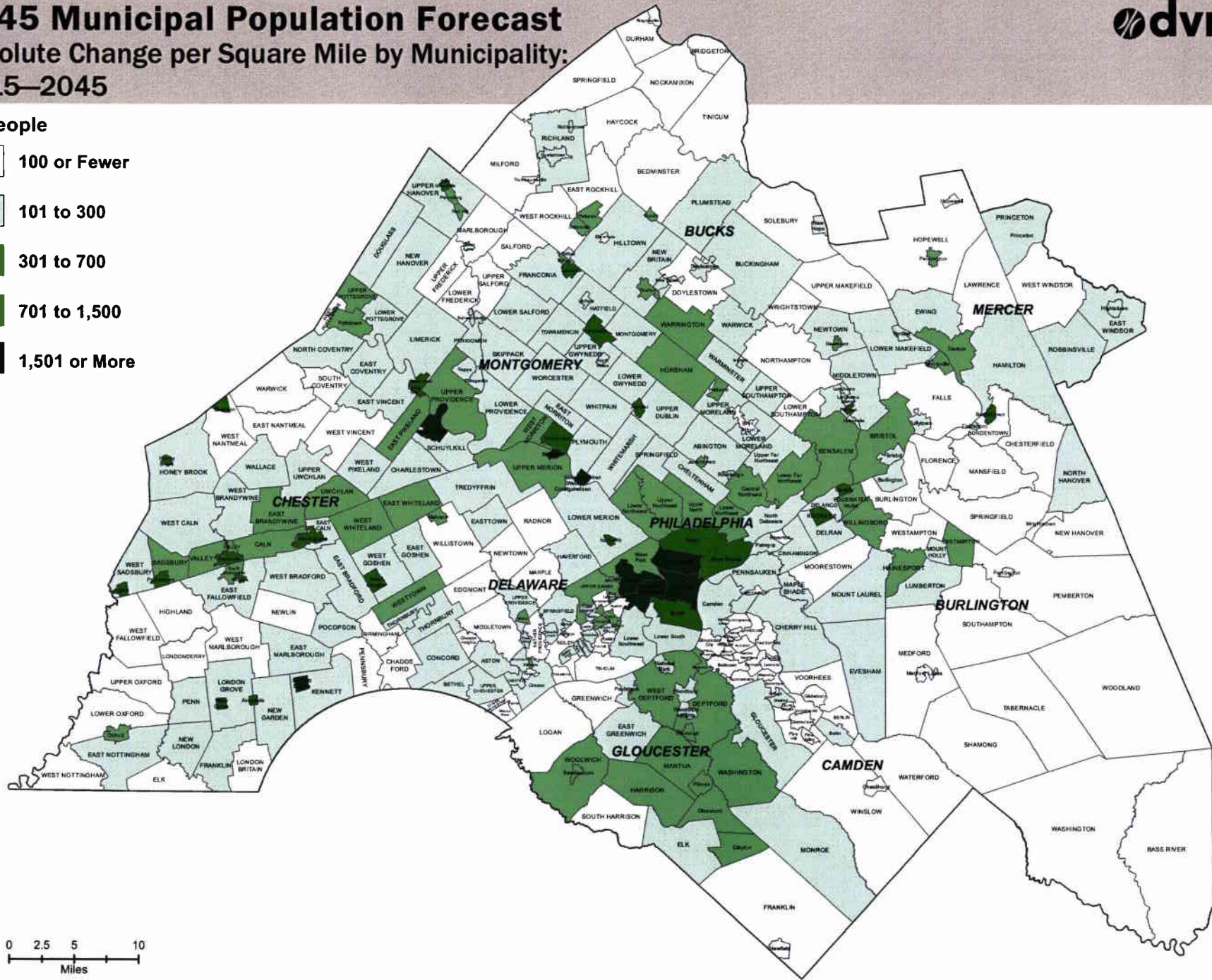


Figure 4:
2045 Municipal Population Forecast
Absolute Change per Square Mile by Municipality:
2015–2045



People

-  100 or Fewer
-  101 to 300
-  301 to 700
-  701 to 1,500
-  1,501 or More



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									2015-2045	
	2000 Census	2010 Census	Estimate	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	Absolute Change	Percentage Change
Bucks County	597,636	625,249	627,367	640,495	654,792	669,299	681,273	691,111	699,498	72,131	11.5%
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%
Ivyland 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	2000 Census	2010 Census	2015 Census							2015-2045	
			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%
Chester County	433,512	498,886	515,939	543,702	571,641	599,932	624,832	645,562	662,283	146,344	28.4%
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%
Caln 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 Caln 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	2000 Census	2010 Census	2015 Census							2015-2045	
			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	2015-2045									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
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 Caln 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 Pikeland 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%
Delaware County	561,989	558,979	563,894	568,337	572,758	577,248	581,136	584,329	587,037	23,143	4.1%
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	2015-2045									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
Marcus Hook Borough	2,315	2,397	2,397	2,415	2,433	2,451	2,466	2,479	2,490	93	3.9%
Marple 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%
Montgomery County	748,978	799,874	819,264	840,934	863,327	884,387	903,114	918,918	932,820	113,556	13.9%
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%
Bridgeport 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%
Collegedale 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%
Douglass 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	2000 Census	2010 Census	2015 Census					2015-2045		Absolute Change	Percentage Change
			Estimate	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast		
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	29,383	29,745	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	2000 Census	2010 Census	2015 Census							2015-2045	
			Estimate	2020 Forecast	2025 Forecast	2030 Forecast	2035 Forecast	2040 Forecast	2045 Forecast	Absolute Change	Percentage Change
Upper Gwynedd Township	14,245	15,552	15,928	16,116	16,304	16,492	16,679	16,866	17,053	1,125	7.1%
Upper Hanover Township	4,885	6,464	7,287	7,696	8,103	8,516	8,874	9,168	9,417	2,130	29.2%
Upper Merion Township	26,863	28,395	28,620	30,147	31,668	32,607	33,393	34,003	34,491	5,871	20.5%
Upper Moreland Township	24,990	24,015	24,231	24,522	24,812	25,107	25,362	25,572	25,749	1,518	6.3%
Upper Pottsgrove Township	4,105	5,315	5,483	5,774	6,065	6,357	6,649	6,941	7,233	1,750	31.9%
Upper Providence Township	15,395	21,219	23,460	24,622	25,777	26,951	27,967	28,802	29,510	6,050	25.8%
Upper Salford Township	3,025	3,299	3,378	3,507	3,636	3,765	3,894	4,024	4,154	776	23.0%
West Conshohocken Borough	1,445	1,320	1,381	1,411	1,442	1,472	1,499	1,521	1,539	158	11.4%
West Norriton Township	14,900	15,663	15,779	16,145	16,509	16,878	17,198	17,461	17,684	1,905	12.1%
West Pottsgrove Township	3,815	3,874	3,884	3,915	3,945	3,976	4,003	4,025	4,044	160	4.1%
Whitemarsh Township	16,702	17,349	17,663	18,503	19,040	19,486	19,859	20,197	20,476	2,813	15.9%
Whitpain Township	18,562	18,875	19,180	19,464	19,747	20,034	20,283	20,487	20,661	1,481	7.7%
Worcester Township	7,789	9,750	10,435	10,917	11,396	11,882	12,304	12,650	12,943	2,508	24.0%
Philadelphia County	1,517,550	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%
Central	100,188	117,132	126,629	132,848	137,233	143,015	148,841	153,321	157,035	30,406	24.0%
Central Northeast	72,179	78,266	79,870	81,333	82,568	83,813	84,123	84,490	84,713	4,843	6.1%
Lower Far Northeast	71,657	70,340	70,596	71,526	72,319	73,060	73,588	74,087	74,502	3,906	5.5%
Lower North	95,139	95,176	101,692	105,069	108,227	111,507	114,601	116,878	118,052	16,360	16.1%
Lower Northeast	93,471	100,232	102,654	103,621	104,301	104,837	105,110	105,080	105,424	2,770	2.7%
Lower Northwest	51,869	50,799	52,319	53,241	54,072	54,730	55,162	55,406	55,811	3,492	6.7%
Lower South	4,318	5,150	5,499	5,747	5,998	6,501	6,749	7,001	7,335	1,836	33.4%
Lower Southwest	41,642	42,117	42,462	43,288	43,711	44,054	44,854	45,183	45,439	2,977	7.0%
North	141,061	137,849	138,049	138,663	140,022	142,561	144,724	145,520	146,656	8,607	6.2%
North Delaware	96,005	100,631	101,251	102,210	102,553	102,944	102,909	103,041	103,280	2,029	2.0%
River Wards	66,321	68,489	70,385	72,380	73,004	74,203	75,613	76,270	76,951	6,566	9.3%
South	131,616	132,904	137,110	138,842	140,432	141,898	143,712	144,223	144,877	7,767	5.7%
University/Southwest	83,639	81,746	87,719	92,546	94,735	97,599	99,607	101,667	102,305	14,586	16.6%
Upper Far Northeast	64,469	66,605	67,986	68,387	69,071	69,893	69,943	70,370	70,660	2,674	3.9%
Upper North	154,560	144,381	145,913	146,533	147,898	149,046	149,501	150,207	150,422	4,509	3.1%
Upper Northwest	89,851	85,093	85,633	86,048	87,079	88,209	89,309	89,432	89,915	4,282	5.0%
West	111,973	105,642	106,922	107,403	108,060	109,844	112,163	114,009	115,200	8,278	7.7%
West Park	47,592	43,454	44,754	45,102	45,533	46,257	46,781	47,217	47,556	2,802	6.3%
Burlington County	423,397	448,734	450,226	459,344	468,428	475,978	482,560	488,026	492,709	42,483	9.4%
Bass River Township	1,510	1,443	1,449	1,483	1,516	1,550	1,580	1,604	1,624	175	12.1%
Beverly City	2,660	2,577	2,559	2,710	2,859	3,011	3,143	3,251	3,343	784	30.6%
Bordentown City	3,970	3,924	3,882	4,012	4,141	4,273	4,387	4,480	4,559	677	17.4%
Bordentown Township	8,375	11,367	11,935	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	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%
Camden County	508,929	513,657	510,923	514,006	517,073	520,189	522,886	525,101	526,997	16,074	3.1%
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	
	2000 Census	2010 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%
Woodlynne Borough	2,795	2,978	2,944	2,943	2,941	2,940	2,939	2,938	2,937	-7	-0.2%
Gloucester County	255,719	288,288	291,479	307,766	323,969	340,425	354,677	366,383	376,308	84,829	29.1%
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	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	1,351	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%
Mercer County	320,527	367,511	371,398	377,328	383,227	389,219	394,407	398,669	402,283	30,885	8.3%
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	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

Publication No.: ADR 022

Date Published: July 2016

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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	Handy-Whitman	Handy-Whitman	Handy-Whitman	Handy-Whitman	Handy-Whitman	Handy-Whitman	Handy-Whitman	Handy-Whitman
	Line #	Line #	Line #	Line #	Line #	Line #	Line #	Line #
	8	9	16	34	38	39	40	
1968	1968	1968						
1978	1978	1978	69	77				
0					113			
1986	1986							
1987	1987							
1988	1988							
1989	1989							
1990	1990	1990	271	349	295	211	262	159
1991	1991	1991						
1992	1992	1992						
1993	1993	1993	294	386	321	193		
1994	1994	1994	308	428	327			
1995	1995	1995	316	442	357		307	
1996	1996	1996	321	450	367			207
1997	1997	1997	331	473	380			
1998	1998	1998	337	489	391			197
1999	1999	1999	343	505	401			
2000	2000	2000	362	530	413			
2001	2001	2001	378	527	428	0	354	NA
2002	2002	2002	389	529	443	0	89	NA
2003	2003	2003	394	543	452	0	0	NA
2004	2004	2004	421	572	466	0	0	NA
2005	2005	2005	448	612	486	0	105	NA
2006	2006	2006	466	624	504	0	454	248
2007	2007	2007	496	634	537	0	120	NA
2008	2008	2008	538	663	586	0	0	NA
2009	2009	2009	544	691	619	0	0	NA
2010	2010	2010	560	704	637	0	0	NA
2011	2011	2011	584	752	654	0	0	379
2012	2012	2012	604	788	680	0	0	NA
2013	2013	2013	614	836	699	0	0	NA
2014	2014	2014	631	896	725	0	0	NA
2015	2015	2015	647	945	741	0	0	402
2016	2016	2016	661	1017	761	0	0	403
2017	2017	2017	671	1114	782	290	488	415
SPOT	SPOT	2018	671	1135	785	387	651	418

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

Year

1968		
1978		
0		
1986		
1987		
1988		
1989	1989	105.775
1990	1990	107.475
1991	1991	108.5
1992	1992	109.7417
1993	1993	111.6833
1994	1994	113.325
1995	1995	113.9083
1996	1996	114.9833
1997	1997	115.7083
1998	1998	114.9833
1999	1999	112.975
2000	2000	110.4083
2001	2001	108.625
2002	2002	105.0333
2003	2003	101.7167
2004	2004	98.35833
2005	2005	97.04167
2006	2006	95.88333
2007	2007	95.78333
2008	2008	97.08333
2009	2009	97.2
2010	2010	96.925
2011	2011	96.34167
2012	2012	95.625
2013	2013	95.36667
2014	2014	95.625
2015	2015	95.825
2016	2016	95.20833
2017	2017	93.75833
SPOT	SPOT	93.5



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.

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.

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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%
Five Pennsylvania Counties	2,255,680	2,310,874	2,364,147	2,419,171	2,467,523	2,506,728	2,538,789	283,109	12.6%
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%
Four New Jersey Counties	912,557	930,545	948,431	965,698	979,816	991,943	1,002,261	89,704	9.8%
Nine DVRPC Counties	3,168,237	3,241,419	3,312,578	3,384,869	3,447,339	3,498,671	3,541,050	372,813	11.8%

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

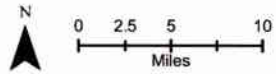
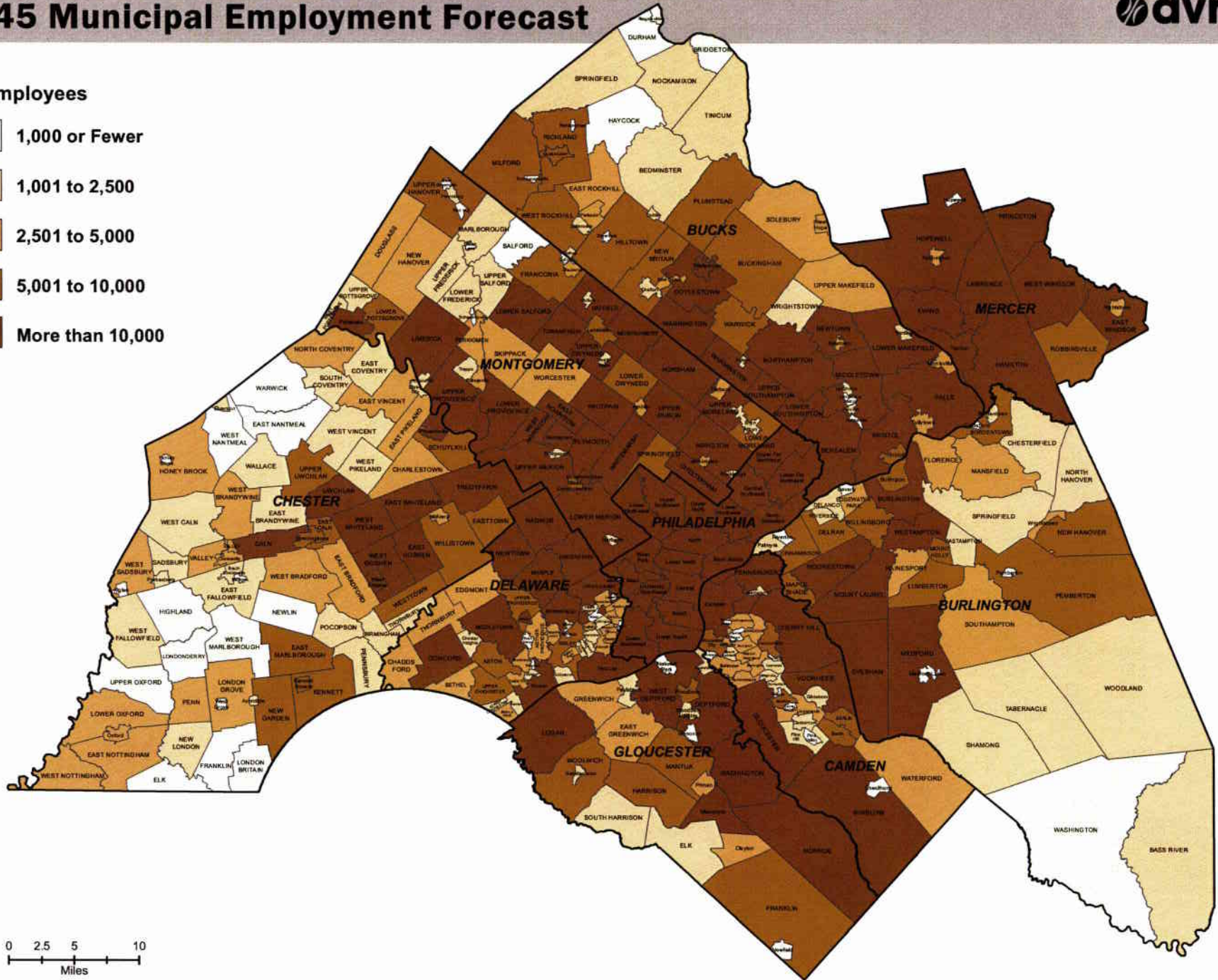


Figure 2:
2045 Municipal Employment Forecast
Absolute Change: 2015–2045

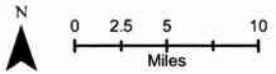
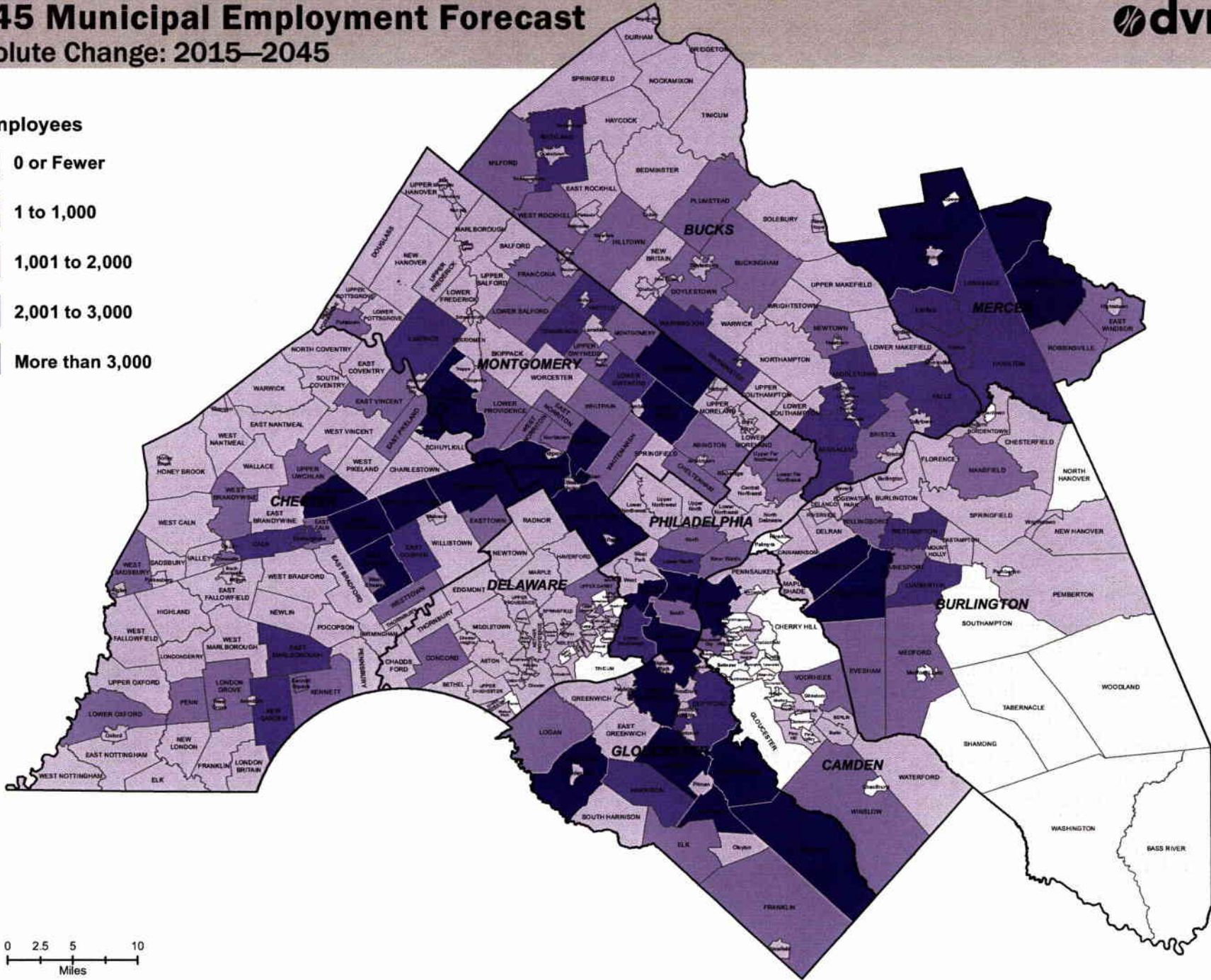


Figure 3:
2045 Municipal Employment Forecast
Percentage Change: 2015–2045



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

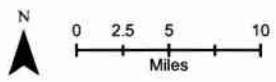
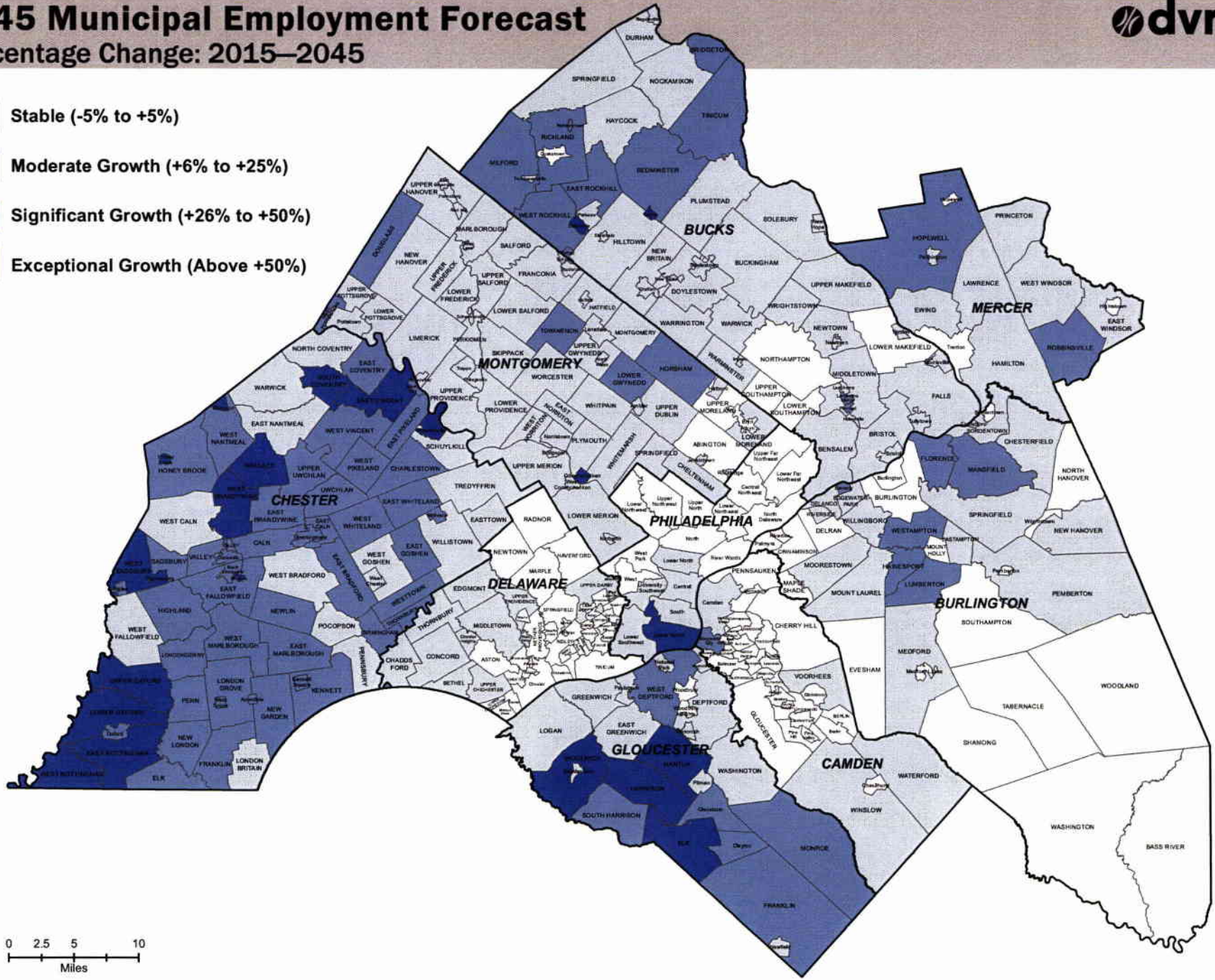
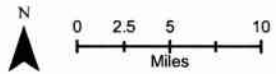
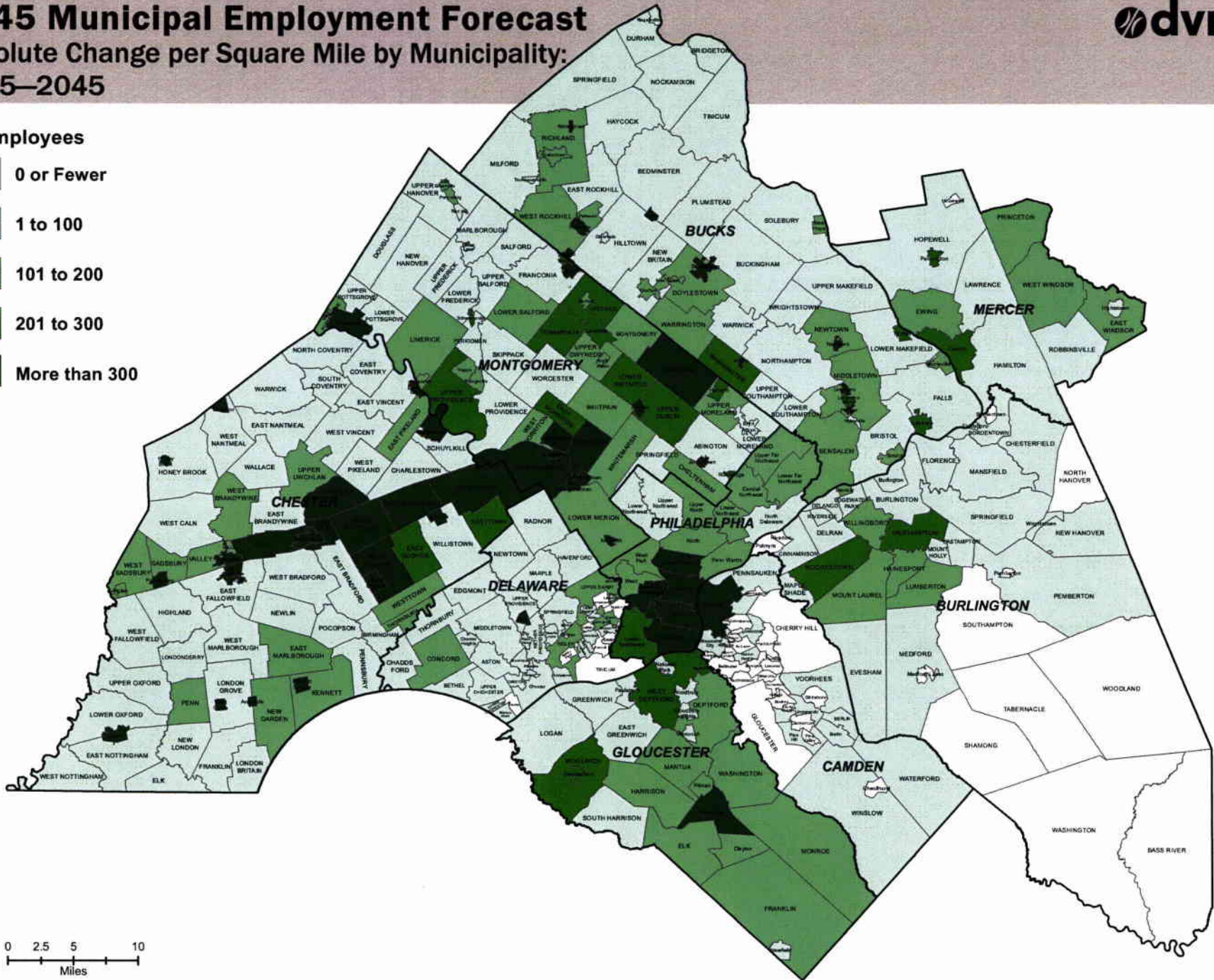
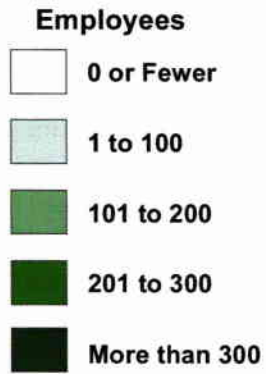


Figure 4:
2045 Municipal Employment Forecast
Absolute Change per Square Mile by Municipality:
2015–2045



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

County / Municipality	2015 Employment Estimate	2020 Employment Forecast	2025 Employment Forecast	2030 Employment Forecast	2035 Employment Forecast	2040 Employment Forecast	2045 Employment Forecast	Absolute Change, 2015-2045	Percentage Change 2015-2045
Bucks County	322,731	329,645	337,203	344,859	351,310	356,671	361,124	38,393	11.9%
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 Employment Estimate	2020 Employment Forecast	2025 Employment Forecast	2030 Employment Forecast	2035 Employment Forecast	2040 Employment Forecast	2045 Employment Forecast	Absolute Change, 2015-2045	Percentage Change 2015-2045
Northampton Township	14,669	14,801	14,953	15,113	15,233	15,310	15,299	630	4.3%
Penndel 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%
Chester County	309,605	326,320	343,050	359,774	374,967	387,391	397,405	87,800	28.4%
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%
Caln 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 Employment Estimate	2020 Employment Forecast	2025 Employment Forecast	2030 Employment Forecast	2035 Employment Forecast	2040 Employment Forecast	2045 Employment Forecast	Absolute Change, 2015-2045	Percentage Change 2015-2045
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%
Parkeburg Borough	671	734	811	888	948	997	1,065	394	58.7%

County / Municipality	2015 Employment Estimate	2020 Employment Forecast	2025 Employment Forecast	2030 Employment Forecast	2035 Employment Forecast	2040 Employment Forecast	2045 Employment Forecast	Absolute Change, 2015-2045	Percentage Change 2015-2045
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 Employment Estimate	2020 Employment Forecast	2025 Employment Forecast	2030 Employment Forecast	2035 Employment Forecast	2040 Employment Forecast	2045 Employment Forecast	Absolute Change, 2015-2045	Percentage Change 2015-2045
Delaware County	268,054	270,167	272,269	274,401	276,248	277,763	279,050	10,996	4.1%
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%
Chadds 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 Employment Estimate	2020 Employment Forecast	2025 Employment Forecast	2030 Employment Forecast	2035 Employment Forecast	2040 Employment Forecast	2045 Employment Forecast	Absolute Change, 2015-2045	Percentage Change 2015-2045
Norwood Borough	1,140	1,145	1,146	1,146	1,151	1,156	1,152	12	1.1%
Parkside Borough	328	330	332	334	336	337	338	10	3.0%
Prospect Park Borough	1,726	1,736	1,742	1,747	1,756	1,764	1,764	38	2.2%
Radnor Township	25,694	25,861	25,978	26,099	26,239	26,371	26,407	713	2.8%
Ridley Township	2,809	2,814	2,795	2,776	2,777	2,786	2,757	-52	-1.9%
Ridley Park Borough	9,411	9,463	9,483	9,505	9,546	9,591	9,580	169	1.8%
Rose Valley Borough	297	302	310	318	323	326	333	36	12.1%
Rutledge Borough	131	132	132	132	133	133	133	2	1.5%
Sharon Hill Borough	2,985	3,003	3,014	3,026	3,041	3,056	3,058	73	2.4%
Springfield Township	14,177	14,292	14,411	14,532	14,633	14,715	14,791	614	4.3%
Swarthmore Borough	2,660	2,677	2,688	2,700	2,714	2,727	2,730	70	2.6%
Thornbury Township	2,366	2,418	2,514	2,610	2,661	2,687	2,780	414	17.5%
Tinicum Township	12,489	12,531	12,495	12,461	12,488	12,537	12,457	-32	-0.3%
Trainer Borough	1,799	1,799	1,779	1,760	1,757	1,762	1,735	-64	-3.6%
Upland Borough	1,222	1,227	1,228	1,228	1,232	1,237	1,233	11	0.9%
Upper Chichester Township	6,648	6,710	6,786	6,862	6,918	6,959	7,016	368	5.5%
Upper Darby Township	25,058	25,282	25,543	25,806	26,007	26,159	26,346	1,288	5.1%
Upper Providence Township	5,055	5,114	5,198	5,283	5,338	5,373	5,445	390	7.7%
Yeadon Borough	2,782	2,791	2,784	2,776	2,783	2,794	2,776	-6	-0.2%
Montgomery County	582,443	598,434	614,469	629,563	642,996	654,966	664,385	81,942	14.1%
Abington Township	30,656	31,098	31,327	31,512	31,899	32,371	32,156	1,500	4.9%
Ambler Borough	3,185	3,248	3,322	3,392	3,450	3,501	3,537	352	11.1%
Bridgeport Borough	2,180	2,248	2,298	2,345	2,399	2,455	2,480	300	13.8%
Bryn Athyn Borough	1,427	1,440	1,452	1,463	1,474	1,484	1,477	50	3.5%
Cheltenham Township	18,189	18,517	18,725	18,906	19,201	19,546	19,489	1,300	7.1%
Collegeville Borough	2,626	2,668	2,705	2,738	2,775	2,814	2,815	189	7.2%
Conshohocken Borough	9,368	10,531	11,292	12,036	12,854	13,522	14,368	5,000	53.4%
Douglass Township	3,661	3,820	4,038	4,249	4,380	4,431	4,661	1,000	27.3%
East Greenville Borough	651	663	675	687	697	707	711	60	9.2%
East Norriton Township	10,682	10,999	11,317	11,617	11,813	11,880	12,182	1,500	14.0%
Franconia Township	7,630	7,696	8,004	8,297	8,439	8,497	8,745	1,115	14.6%
Green Lane Borough	183	186	187	189	191	193	193	10	5.5%

County / Municipality	2015 Employment Estimate	2020 Employment Forecast	2025 Employment Forecast	2030 Employment Forecast	2035 Employment Forecast	2040 Employment Forecast	2045 Employment Forecast	Absolute Change, 2015-2045	Percentage Change 2015-2045
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 Employment Estimate	2020 Employment Forecast	2025 Employment Forecast	2030 Employment Forecast	2035 Employment Forecast	2040 Employment Forecast	2045 Employment Forecast	Absolute Change, 2015-2045	Percentage Change 2015-2045
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%
Philadelphia County	772,847	786,308	797,156	810,574	822,002	829,937	836,825	63,978	8.3%
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%

County / Municipality	2015 Employment Estimate	2020 Employment Forecast	2025 Employment Forecast	2030 Employment Forecast	2035 Employment Forecast	2040 Employment Forecast	2045 Employment Forecast	Absolute Change, 2015-2045	Percentage Change 2015-2045
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%
Burlington County	241,298	246,351	251,368	255,562	258,363	261,195	263,622	22,324	9.3%
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%

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

County / Municipality	2015 Employment Estimate	2020 Employment Forecast	2025 Employment Forecast	2030 Employment Forecast	2035 Employment Forecast	2040 Employment Forecast	2045 Employment Forecast	Absolute Change, 2015-2045	Percentage Change 2015-2045
Hi-Nella Borough	201	201	201	201	201	202	201	0	0.0%
Laurel Springs Borough	468	468	465	463	463	464	460	-8	-1.7%
Lawnside Borough	1,916	1,911	1,894	1,877	1,872	1,874	1,850	-66	-3.4%
Lindenwold Borough	3,140	3,147	3,152	3,158	3,163	3,172	3,168	28	0.9%
Magnolia Borough	1,064	1,063	1,058	1,052	1,051	1,053	1,043	-21	-2.0%
Merchantville Borough	1,408	1,409	1,406	1,404	1,404	1,407	1,400	-8	-0.6%
Mount Ephraim Borough	1,137	1,137	1,133	1,129	1,128	1,131	1,123	-14	-1.2%
Oaklyn Borough	991	990	986	981	980	982	974	-17	-1.7%
Pennsauken Township	25,712	25,798	25,799	25,816	25,889	26,018	25,945	233	0.9%
Pine Hill Borough	1,618	1,625	1,627	1,629	1,634	1,643	1,640	22	1.4%
Pine Valley Borough	185	185	185	184	184	184	183	-2	-1.1%
Runnemede Borough	3,101	3,099	3,084	3,070	3,066	3,072	3,047	-54	-1.7%
Somerdale Borough	2,376	2,377	2,375	2,372	2,373	2,378	2,367	-9	-0.4%
Stratford Borough	6,353	6,354	6,335	6,318	6,315	6,329	6,289	-64	-1.0%
Tavistock Borough	50	50	50	50	50	50	50	0	0.0%
Voorhees Township	20,328	20,474	20,749	21,028	21,161	21,258	21,479	1,151	5.7%
Waterford Township	3,606	3,637	3,698	3,760	3,789	3,808	3,860	254	7.0%
Winslow Township	10,976	11,147	11,510	11,875	12,038	12,124	12,466	1,490	13.6%
Woodlynne Borough	406	406	406	406	406	407	406	0	0.0%
Gloucester County	121,382	128,161	134,902	141,752	147,682	152,554	156,686	35,304	29.1%
Clayton Borough	2,236	2,380	2,549	2,718	2,847	2,947	3,076	840	37.6%
Deptford Township	14,845	15,536	16,047	16,583	17,165	17,692	17,824	2,979	20.1%
East Greenwich Township	2,593	2,718	2,817	2,920	3,027	3,121	3,155	562	21.7%
Elk Township	1,106	1,240	1,465	1,684	1,813	1,894	2,126	1,020	92.2%
Franklin Township	4,372	4,642	4,944	5,247	5,488	5,676	5,895	1,523	34.8%
Glassboro Borough	7,359	7,860	8,475	9,089	9,543	9,883	10,380	3,021	41.1%
Greenwich Township	2,436	2,516	2,524	2,539	2,600	2,670	2,601	165	6.8%
Harrison Township	3,492	3,812	4,291	4,762	5,063	5,266	5,724	2,232	63.9%
Logan Township	9,726	10,183	10,529	10,892	11,277	11,624	11,726	2,000	20.6%
Mantua Township	5,333	5,786	6,436	7,078	7,501	7,792	8,396	3,063	57.4%

County / Municipality	2015 Employment Estimate	2020 Employment Forecast	2025 Employment Forecast	2030 Employment Forecast	2035 Employment Forecast	2040 Employment Forecast	2045 Employment Forecast	Absolute Change, 2015-2045	Percentage Change 2015-2045
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%
Mercer County	286,295	290,864	295,408	300,025	304,021	307,302	310,084	23,789	8.3%
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

Publication No.: ADR023

Date Published: October 2016

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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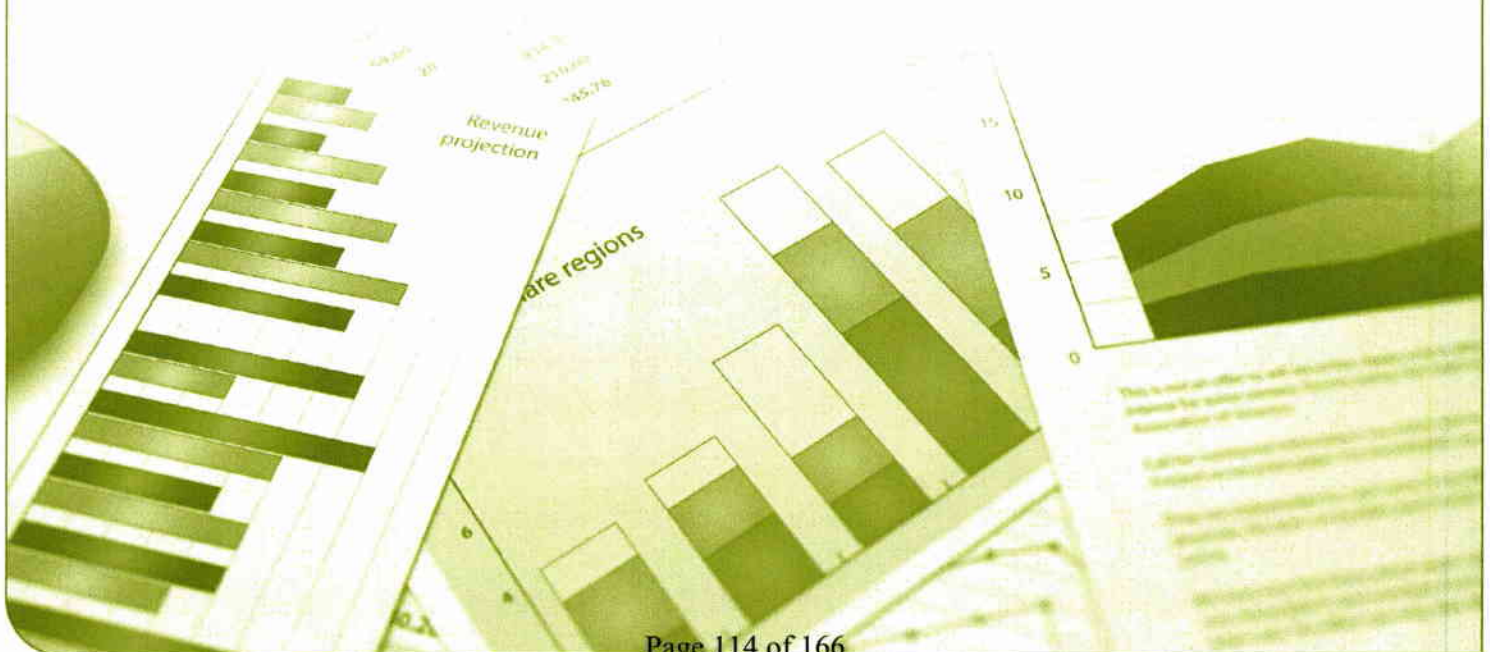
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	WORKING NOTES									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	
GROSS Property, plant and equipment	-	-	-	-	8,294,930	8,294,930	8,426,026	8,557,975	8,692,001	
Accumulated Depreciation	-	-	-	-	2,820,983	2,983,331	3,123,600	3,266,292	3,411,217	
NET PPE	-	-	-	-	5,473,947	5,311,599	5,302,426	5,291,683	5,280,784	
Total Debt	-	-	-	-	-	-	-	-	-	
Net Equity	-	-	-	-	-	-	-	-	-	
Investor Provided Capital	-	-	-	-	-	-	-	-	-	

Depreciation / GROSS PPE	#DIV/0!	#DIV/0!	#DIV/0!	1.96%	1.96%	1.96%			
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	Muni CAPX	0	0	154,231	155,234	157,678
IOU savings	0%			100%	100%	100%

CAPX/Prior Yr. GROSS PPE						
CAPX	0	0	154,231	155,234	157,678	
Dep rate	1.96%	1.96%	1.96%	1.96%	1.96%	
Half yr. Dep	0.98%	0.98%	0.98%	0.98%	0.98%	
Dep on CAPX	-	-	1,509	1,519	1,543	
Rate of retirement	15.0%	15.0%	15.0%	15.0%	15.0%	
Retired property	-	-	23,135	23,285	23,652	
Dep on Retired property	-	-	453	456	463	
Dep on Prior yr. GROSS	-	-	162,348	162,348	164,914	
Total Dep	-	-	162,348	163,404	165,977	

Depreciation Expense

NET PPE	PURTA	0.001527765
Rev	Reg Assessment Fee	0.005652534

CIP	2,017	2,017	based on % of Dep	based on % of Dep	based on % of Dep
	0	0	154,231	155,234	157,678

2016 Oc adds
2017-2020 CIP

	2017		2018						
	33,250.00	1,154,250.00	133,000.00	285,000.00					
Sewer Rental Charges	0	1,110,112	1,076,961	1,062,631	1,112,143	1,070,000	776,710	839,040	859,280
EDUs	0	0	0	0	1560	1567	1810	1838	1898
		0	0	0	0	7	243	28	60
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	712.9121795	1563.5	1688.5	1824	1868
		#DIV/0!	#DIV/0!	#DIV/0!	1425.824359	684.3620083			
					C	1,248			
					E	1,560			
						0.80			
					1742000				

	WORKING NOTES									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
GROSS Property, plant and equipment	8,828,127	8,966,384	9,106,807	9,249,429	9,395,662	9,544,207	9,695,101	9,848,381	10,004,084	10,162,249
Accumulated Depreciation	3,558,411	3,707,911	3,859,753	4,013,971	4,170,374	4,329,248	4,490,635	4,654,573	4,821,104	4,990,267
NET PPE	5,269,716	5,258,473	5,247,054	5,235,458	5,225,288	5,214,959	5,204,466	5,193,808	5,182,980	5,171,982
Total Debt										
Net Equity										
Investor Provided Capital										

Depreciation / GROSS PPE

	160,148	162,655	165,203	167,791						
	100%	100%	100%	100%						
	1.86%	1.86%	1.86%	1.86%	1.86%	1.86%	1.86%	1.86%	1.86%	1.86%
	160,148	162,655	165,203	167,791	172,039	174,759	177,522	180,329	183,180	186,076
	1.96%	1.96%	1.96%	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%	0.98%	0.98%	0.98%
	1,567	1,592	1,617	1,642	1,684	1,710	1,737	1,765	1,793	1,821
	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
	24,022	24,398	24,780	25,169	25,806	26,214	26,628	27,049	27,477	27,911
	470	478	485	493	505	513	521	529	538	546
	170,119	172,784	175,490	178,238	181,029	183,891	186,799	189,752	192,752	195,799
	171,216	173,898	176,622	179,387	182,208	185,088	188,015	190,988	194,007	197,074

Depreciation Expense

based on % of Dep based on % of Dep based on % of Dep based on % of Dep
160,148 162,655 165,203 167,791

	304,000.00	66,500.00	66,500.00	66,500.00	66,500.00	66,500.00	66,500.00	66,500.00	66,500.00	71,250.00
Sewer Rental Charges	887,800									
EDUs	1962	1976	1990	2004	2018	2032	2046	2060	2074	2089
	64	14	14	14	14	14	14	14	14	15
	1930									
\$	460.00									

WORKING NOTES									
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Customer Growth						7	243	28	60
Delivered to Customer	-			1,395.83	1,396	1,402	1,620	1,645	1,698
Customers	1,248	1,248		1,248	1,248	1,254	1,448	1,470	1,518
Total Revenue (Less TAP)	1,110,016	1,090,810		1,134,273	1,134,273	1,095,000	1,204,903	1,239,223	1,741,048
avg CUST rev	889.44	874.05		908.87	908.87	873.48	832.12	842.78	1,146.63
avg CUST flow	-	1		1	1	1	1	1	1
avg EDU rev	#DIV/0!	#DIV/0!		727.10	727.10	698.79	665.69	674.22	917.31
avg EDU flow	#DIV/0!	#DIV/0!		1	1	1	1	1	1
Rev Calculated						1,139,363	1,179,903	1,214,223	1,259,450
						Change			
					\$ 908.87	\$ 873.48	\$ 832.12	\$ 832.12	\$ 1,148.32
								\$ -	\$ 316.20
						2,545	84,903	9,320	1,716,048
						1,136,818	1,179,903	1,214,223	1,243,513
									472,535
Prior yr									
NET PURTA		0.1432%				7,839	7,606	7,593	7,578
REV Reg Assessment		0.5690%				6,454	6,231	7,409	7,115
						14,293	13,837	15,002	14,693

East Bradford Township Wastewater System Assets

Investor Provide	-
Gross PP&E	8,294,930
Net PP&E	5,473,947
Revenues	1,134,273
EBITDA	60,421
EBIT	60,421
Customers	1,248
Population	10,009

G PPE - - 8,294,930 8,294,930

WORKING NOTES									
2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
64	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
1,756	1,768	1,780	1,793	1,805	1,818	1,831	1,843	1,856	1,869
1,570	1,581	1,592	1,603	1,614	1,625	1,637	1,648	1,660	1,671
1,798,005	1,833,710	1,846,371	1,895,803	1,908,899	1,922,086	1,992,677	2,006,450	2,020,321	2,074,474
99.90%			101.96%						
1,145.52	1,160.14	1,160.03	1,182.81	1,182.70	1,182.60	1,217.51	1,217.40	1,217.29	1,241.23
1	1	1	1	1	1	1	1	1	1
916.41	927.99	927.82	946.01	945.94	945.91	973.94	974.00	974.12	993.05
1	1	1	1	1	1	1	1	1	1
1,770,402	1,804,298	1,840,128	1,852,833	1,902,438	1,915,580	1,928,813	1,999,651	2,013,473	2,027,392
3rd									
2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
			2.0%			3.0%			2.0%
\$ 1,148.32	\$ 1,148.32	\$ 1,148.32	\$ 1,171.29	\$ 1,171.29	\$ 1,171.29	\$ 1,206.42	\$ 1,206.42	\$ 1,206.42	\$ 1,230.55
\$ -	\$ -	\$ -	\$ 22.97	\$ -	\$ -	\$ 35.14	\$ -	\$ -	\$ 24.13
29,354	6,293	6,418	6,462	6,635	6,681	6,727	6,974	7,023	7,071
1,773,005	1,808,710	1,821,371	1,834,121	1,883,899	1,897,086	1,910,366	1,981,450	1,995,321	2,009,288
-	-	-	36,682	-	-	57,311	-	-	40,186
7,562	7,546	7,530	7,514	7,497	7,483	7,468	7,453	7,438	7,422
10,043	10,376	10,466	10,538	10,819	10,893	10,969	11,370	11,449	11,527
17,605	17,922	17,996	18,052	18,316	18,376	18,437	18,823	18,887	18,949

WORKING NOTES									
	2013	2014	2015	2016	2017	2018	2019	2020	2021
		NPPE	-	-	5,473,947	5,311,599			
		Cust	1,248	1,248	1,248	1,254			
	2013	2014	2015	2016	2017	2018			
ADD: EOS - Wages & Benefits	0	0	0	0	0	223,794			0.15
LESS: EOS - Professional Services	0	5585	7046	71,265	60,027	5500			0.5
LESS: EOS - Utilities	0	17570	16506	16,805	15,622	23000			
LESS: EOS - Transfers	0	15520	44683	42,545	20,000	564680			
LESS: EOS - Tapping Fees WWTP	0	2332	0	0	0	0			
ADD: EOS - Wages & Benefits					Wages	223,794			
						1,254			
						0.02			
		IOU		71.33	72.76	74.21			
		MUNI		171.59	175.02	178.52			

E.Bradsfor		0.052037237				
Electric	Windon PECO 4E	4,838	4,081	3,981	3,943	6,500
Electric	Plum Tree PECO	3,351	3,649	3,785	3,319	4,000
Electric	Strode's Mill PEC	4,761	3,940	3,941	4,089	4,500
Electric	Kenmara PECO 0	1,904	2,202	2,268	1,644	2,500
Electric	East Bradford Pa	938	716	933	1,050	1,000
Electric	Mercer's Mill	1,592	1,468	1,447	1,328	2,500
Fuel	All Pump Station	186	450	450	249	2,000
		<u>17,570</u>	<u>16,506</u>	<u>16,805</u>	<u>15,622</u>	<u>23,000</u>
Services	Consulting Engin	3,855	1,792	1,694	21,540	2,500
Services	Township Engine	65	65	125	65	0
Services	Act 537 Plan Upc	0	0	0	0	0
Services	Other Sewer Rel:	0	5,189	68,497	0	0
Services	Legal Services	853	0	0	37,744	1,000
Services	Third Party Colle	812	0	949	678	2,000
		<u>5,585</u>	<u>7,046</u>	<u>71,265</u>	<u>60,027</u>	<u>5,500</u>
Transfer	CAPITAL RESERV	520	22,683	27,545	0	544,680
Transfer	Transfer to Gene	15,000	22,000	15,000	20,000	20,000
		<u>15,520</u>	<u>44,683</u>	<u>42,545</u>	<u>20,000</u>	<u>564,680</u>
Treatment	Sewer User Fees	655,167	659,867	658,727	659,146	658,727
Treatment	Sewer User Fees	204,415	200,104	196,449	207,682	200,000
		<u>859,582</u>	<u>859,971</u>	<u>855,176</u>	<u>866,828</u>	<u>858,727</u>

WORKING NOTES						2028	2029	2030	2031
	2022	2023	2024	2025	2026	2027			

ADD: EOS - Wages & Benefits	ADD: EOS - Wages Wages & Benefits	Add "Wages"	0%	0.15
LESS: EOS - Professional Services	LESS: EOS - Profes Net Professional Services	50% savings	50%	0.5
LESS: EOS - Utilities	LESS: EOS - Utiliti Electric & Power	10% savings	10%	0.1
LESS: EOS - Transfers	LESS: EOS - Trans Transfers	100% savings	100%	0.1
LESS: EOS - Tapping Fees WWTP	LESS: EOS - Tapp WWTP TAP	100% savings	100%	0.1
ADD: EOS - Wages & Benefits				

E.Bradsfor
Electric
Electric
Electric
Electric
Electric
Electric
Fuel
Services
Services
Services
Services
Services
Services
Transfer
Transfer
Treatment
Treatment

WORKING NOTES										
	2013	2014	2015	2016	2017	2018	2019	2020	2021	
out Sewer Connectic	2,332	0	0	0	0	0	0			
	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>					
GROSS Property, plant and equipment	-	-	-	-	8,294,930			OC Study	Per Books	
Accumulated Depreciation	-	-	-	-	2,820,983			8,294,930	-	
NET PPE	-	-	-	-	5,473,947			2,820,983	-	
								5,473,947	-	
Total Debt	-	-	-	-	-			162,348		
Net Equity	-	-	-	-	-					
Investor Provided Capital	-	-	-	-	-					
Depreciation Rate	0.00%	0.00%	0.00%	#DIV/0!	1.96%					
Depreciation Expense	-	-	-		162,348.00					

	WORKING NOTES										
out	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	

Difference

GROSS Property, plant and equipment
Accumulated Depreciation
NET PPE

5,473,947

Total Debt
Net Equity
Investor Provided Capital

Depreciation Rate

Depreciation Expense

FED H.15

		10-yr T- bond	20-yr T- bond	30-yr T- bond
Spot	2017-12-28	2.43	2.6	2.75

FED H.15

		AAA Corp	BAA CORP
Spot	2017-12-28	3.48	4.19

Moody's Daily Long-term Corporate Bond Yield Averages

	12/28/2017	Utilities	Industrial	Corporate
Spot	Aaa	NA	3.48	3.48
	Aa	3.59	3.56	3.58
	A	3.77	3.75	3.76
	Baa	4.11	4.26	4.19
	Avg	3.82	3.76	3.79

S&P Municipal Bond Revenue Index

12/29/2017 3.41%

Utilities

Aa	
A	3.77
Baa	

	Decade Spread	Annual Spread
10-Year	2.43	
20-Year	2.6	0.17
30-Year	2.75	0.15

REVENUE BOND INDEX	3.41
10-20 Yr	0.09
20-30 Yr	0.15

3.65

30-Yr Rev Bond Est. 3.65

2016 Lt Debt	4.1	3.77
Prf Stk	5.4	132%
Pref Stock Est.	132%	4.97

12/31/2017	
A-Rated Rev Bonds	3.65
A-Rated PU Bonds	3.77
A-Rated PU Pref Stk	4.97
30-yr T-bond	2.75

	DELCORA			BCWSA			
	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	
NET Property, plant and equipment	163,200,336	182,422,188	190,825,742	391,815,659	410,247,204	443,437,532	
Operating Income	7,235,196	9,093,800	12,314,939	22,919,169	21,101,777	23,341,549	
ROR/N PPE	4.43%	4.99%	6.45%	5.85%	5.14%	5.26%	5.2%
3-Year Average			5.29%			5.42%	5.4%

WORKING NOTES									
	2013	2014	2015	2016	2017	2018	2019	2020	2021
GROSS Property, plant and equipment	-	-	-	-	8,294,930	8,294,930	8,426,026	8,557,975	8,692,001
Accumulated Depreciation	-	-	-	-	2,820,983	2,983,331	3,123,600	3,266,292	3,411,217
NET PPE	-	-	-	-	5,473,947	5,311,599	5,302,426	5,291,683	5,280,784
Total Debt	-	-	-	-	-	-	-	-	-
Net Equity	-	-	-	-	-	-	-	-	-
Investor Provided Capital	-	-	-	-	-	-	-	-	-
Depreciation / GROSS PPE	#DIV/0!	#DIV/0!	#DIV/0!	1.96%	1.96%	1.96%			

Muni CAPX	0	0	154,231	155,234	157,678
IOU savings	0%		100%	100%	100%
CAPX/Prior Yr. GROSS PPE					
CAPX	0	0	154,231	155,234	157,678
Dep rate	1.96%	1.96%	1.96%	1.96%	1.96%
Half yr. Dep	0.98%	0.98%	0.98%	0.98%	0.98%
Dep on CAPX	-	-	1,509	1,519	1,543
Rate of retirement	15.0%	15.0%	15.0%	15.0%	15.0%
Retired property	-	-	23,135	23,285	23,652
Dep on Retired property	-	-	453	456	463
Dep on Prior yr. GROSS	-	-	162,348	162,348	167,496
Total Dep	-	-	162,348	163,404	168,576

Depreciation Expense

- - - - -

NET PPE
Rev

PURTA 0.001527765
Reg Assessment Fee 0.005652534

CIP

	2,017	2,017	based on % of Dep	based on % of Dep	based on % of Dep
	0	0	154,231	155,234	157,678

2016 Oc adds
2017-2020 CIP

	2017	2018	2019	2020	2021
	33,250.00	1,154,250.00	133,000.00	285,000.00	
Sewer Rental Charges	0	1,110,112	1,076,961	1,062,631	1,112,143
EDUs	0	0	0	0	1567
	0	0	0	0	243
	0	0	0	0	1838
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	60
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1868
					1810
					7
					243
					1824
					1688.5
					1563.5
					780
					712.9121795
					\$ 460.00
					\$ 460.00
					\$ 460.00
					\$ 460.00
					1,248
					1,560
					0.80
					1742000

WORKING NOTES									
2013	2014	2015	2016	2017	2018	2019	2020	2021	
	Customer Growth				7	243	28	60	
	Delivered to Customer	-	1,395.83	1,396	1,402	1,620	1,645	1,698	
	Customers	1,248	1,248	1,248	1,254	1,448	1,470	1,518	
	Total Revenue (Less TAP)	1,110,016	1,090,810	1,134,273	1,095,000	1,204,903	1,239,223	1,865,399	
	avg CUST rev	889.44	874.05	908.87	873.48	832.12	842.78	1,228.53	
	avg CUST flow	-	1	1	1	1	1	1	
	avg EDU rev	#DIV/0!	#DIV/0!	727.10	698.79	665.69	674.22	982.82	
	avg EDU flow	#DIV/0!	#DIV/0!	1	1	1	1	1	
	Rev Calculated				1,139,363	1,179,903	1,214,223	1,259,450	
					Change			48.0%	
				\$ 908.87	\$ 873.48	\$ 832.12	\$ 832.12	\$ 1,231.53	
							\$ -	\$ 399.42	
					2,545	84,903	9,320	1,840,399	
					1,136,818	1,179,903	1,214,223	1,243,513	
					-	-	-	596,886	

Prior yr				
NET PURTA	0.1432%	7,839	7,606	7,593
REV Reg Assessment	0.5690%	6,454	6,231	6,856
		14,293	13,837	14,449
				14,629

East Bradford Township Wastewater System Assets

Investor Provide	-
Gross PP&E	8,294,930
Net PP&E	5,473,947
Revenues	1,134,273
EBITDA	60,421
EBIT	60,421
Customers	1,248
Population	10,009

G PPE - - 8,294,930 8,294,930

WORKING NOTES									
2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
64	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
1,756	1,768	1,780	1,793	1,805	1,818	1,831	1,843	1,856	1,869
1,570	1,581	1,592	1,603	1,614	1,625	1,637	1,648	1,660	1,671
1,926,483	1,964,776	2,017,422	2,031,369	2,045,413	2,100,247	2,114,774	2,129,402	2,186,516	2,201,646
99.91%			99.99%						
1,227.37	1,243.07	1,267.50	1,267.39	1,267.28	1,292.21	1,292.11	1,292.00	1,317.43	1,317.33
1	1	1	1	1	1	1	1	1	1
981.90	994.32	1,013.78	1,013.66	1,013.58	1,033.59	1,033.61	1,033.69	1,054.25	1,053.92
1	1	1	1	1	1	1	1	1	1
1,896,849	1,933,226	1,971,653	2,024,483	2,038,479	2,052,572	2,107,598	2,122,176	2,136,855	2,194,169
3rd									
2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
		2.0%			2.0%			2.0%	
\$ 1,231.53	\$ 1,231.53	\$ 1,256.16	\$ 1,256.16	\$ 1,256.16	\$ 1,281.28	\$ 1,281.28	\$ 1,281.28	\$ 1,306.91	\$ 1,306.91
\$ -	\$ -	\$ 24.63	\$ -	\$ -	\$ 25.12	\$ -	\$ -	\$ 25.63	\$ -
31,450	6,743	6,877	7,061	7,110	7,159	7,351	7,402	7,453	7,653
1,901,483	1,939,776	1,953,355	2,006,369	2,020,413	2,034,556	2,089,774	2,104,402	2,119,133	2,176,646
-	-	39,067	-	-	40,691	-	-	42,383	-
7,562	7,546	7,530	7,514	7,497	7,483	7,468	7,453	7,438	7,422
10,614	10,962	11,180	11,479	11,558	11,638	11,950	12,033	12,116	12,441
18,176	18,508	18,710	18,993	19,055	19,121	19,418	19,486	19,554	19,863

WORKING NOTES										
	2013	2014	2015	2016	2017	2018	2019	2020	2021	
		NPPE	-	-	5,473,947	5,311,599				
		Cust	1,248	1,248	1,248	1,254				
	2013	2014	2015	2016	2017	2018				
ADD: EOS - Wages & Benefits	0	0	0	0	0	93,035				0.15
LESS: EOS - Professional Services	0	5585	7046	71,265	60,027	5500				0.5
LESS: EOS - Utilities	0	17570	16506	16,805	15,622	23000				
LESS: EOS - Transfers	0	15520	44683	42,545	20,000	564680				
LESS: EOS - Tapping Fees WWTP	0	2332	0	0	0	0				
ADD: EOS - Wages & Benefits					Wages	93,035				
						1,254				
						0.02				
		IOU		71.33	72.76	74.21				
		MUNI		171.59	175.02	178.52				

E. Bradfor		0.052037237				
Electric	Windon PECO 4¢	4,838	4,081	3,981	3,943	6,500
Electric	Plum Tree PECO	3,351	3,649	3,785	3,319	4,000
Electric	Strode's Mill PEC	4,761	3,940	3,941	4,089	4,500
Electric	Kenmara PECO 0	1,904	2,202	2,268	1,644	2,500
Electric	East Bradford Pa	938	716	933	1,050	1,000
Electric	Mercer's Mill	1,592	1,468	1,447	1,328	2,500
Fuel	All Pump Station	186	450	450	249	2,000
		<u>17,570</u>	<u>16,506</u>	<u>16,805</u>	<u>15,622</u>	<u>23,000</u>
Services	Consulting Engin	3,855	1,792	1,694	21,540	2,500
Services	Township Engine	65	65	125	65	0
Services	Act 537 Plan Upc	0	0	0	0	0
Services	Other Sewer Rel.	0	5,189	68,497	0	0
Services	Legal Services	853	0	0	37,744	1,000
Services	Third Party Colle	812	0	949	678	2,000
		<u>5,585</u>	<u>7,046</u>	<u>71,265</u>	<u>60,027</u>	<u>5,500</u>
Transfer	CAPITAL RESERV	520	22,683	27,545	0	544,680
Transfer	Transfer to Gene	15,000	22,000	15,000	20,000	20,000
		<u>15,520</u>	<u>44,683</u>	<u>42,545</u>	<u>20,000</u>	<u>564,680</u>
Treatment	Sewer User Fees	655,167	659,867	658,727	659,146	658,727
Treatment	Sewer User Fees	204,415	200,104	196,449	207,682	200,000
		<u>859,582</u>	<u>859,971</u>	<u>855,176</u>	<u>866,828</u>	<u>858,727</u>

WORKING NOTES							2028	2029	2030	2031
2022	2023	2024	2025	2026	2027					

ADD: EOS - Wages & Benefits	ADD: EOS - Wages & Benefits	Add "Wages"	0%	0.15
LESS: EOS - Professional Services	LESS: EOS - Professional Services	50% savings	50%	0.5
LESS: EOS - Utilities	LESS: EOS - Utilities	10% savings	10%	0.1
LESS: EOS - Transfers	LESS: EOS - Transfers	100% savings	100%	0.1
LESS: EOS - Tapping Fees WWTP	LESS: EOS - Tapping Fees WWTP	100% savings	100%	0.1
ADD: EOS - Wages & Benefits				

E. Bradford
Electric
Electric
Electric
Electric
Electric
Electric
Fuel
Services
Services
Services
Services
Services
Services
Transfer
Transfer
Treatment
Treatment

WORKING NOTES										
	2013	2014	2015	2016	2017	2018	2019	2020	2021	
out Sewer Connectic		2,332	0	0	0	0	0			

	2013	2014	2015	2016	2017	OC Study	Per Books
GROSS Property, plant and equipment	-	-	-	-	8,294,930	8,294,930	-
Accumulated Depreciation	-	-	-	-	2,820,983	2,820,983	-
NET PPE	-	-	-	-	5,473,947	5,473,947	-
Total Debt	-	-	-	-	-	162,348	-
Net Equity	-	-	-	-	-	-	-
Investor Provided Capital	-	-	-	-	-	-	-
Depreciation Rate	0.00%	0.00%	0.00%	#DIV/0!	1.96%		
Depreciation Expense	-	-	-		162,348.00		

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
out										

Difference

GROSS Property, plant and equipment
 Accumulated Depreciation
 NET PPE 5,473,947

Total Debt
 Net Equity
 Investor Provided Capital

Depreciation Rate

Depreciation Expense

Pennsylvania-American Water
(Company Name)

For the Year Ended December 31, 2016

407. WASTEWATER OPERATION AND MAINTENANCE EXPENSE ACCOUNTS

Line No.	Account Number and Title (a)	Schedule No (b)	Amount of Operating Expenses		
			Current Year (c)	Previous Year (d)	Increase (Decrease) (e)
1	Salaries and Wages		XXX	XXX	XXX
2	701.0 Employees	409	1,892,139	1,517,257	374,882
3	703.0 Officers, Directors and Majority Stockholders	409			-
4	Total Salaries and Wages		1,892,139	1,517,257	374,882
5	704.0 Employee Pensions and Benefits	409-A	740,281	594,210	146,071
6	710.0 Purchased Wastewater Treatment				-
7	711.0 Sludge Removal Expense				-
8	715.0 Purchased Power		1,176,832	728,453	448,379
9	716.0 Fuel for Power Production		389	6,707	(6,318)
10	718.0 Chemicals		433,875	428,304	5,571
11	720.0 Materials and Supplies				-
12	Contractual Services		XXX	XXX	XXX
13	731.0 Engineering	411-A		2,031	(2,031)
14	732.0 Accounting	411-A	106		106
15	733.0 Legal	411-A			-
16	734.0 Management Fees	411-B			-
17	735.0 Testing	411-B	117,707	72,142	45,565
18	736.0 Other - Maintenance	411-B	1,450,237	1,059,744	390,493
19	Total Contractual Services		1,568,050	1,133,917	434,133
20	741.0 Rental of Building/Real Property			1,733	(1,733)
21	742.0 Rental of Equipment		3,372	2,025	1,347
22	750.0 Transportation Expenses		156,181	133,647	22,534
23	Insurance		XXX	XXX	XXX
24	756.0 Vehicle				-
25	757.0 General Liability				-
26	758.0 Workman's Compensation		50,334	32,860	17,474
27	759.0 Other				-
28	Total Insurance		50,334	32,860	17,474
29	760.0 Advertising Expense - Other than Conservation	412			-
30	766.0 Regulatory Commission Expenses-Amort. of Rate Case Expense		74,513	74,513	-
31	767.0 Regulatory Commission Expenses-Other				-
32	770.0 Bad Debt Expense				-
33	Miscellaneous Expenses		XXX	XXX	XXX
34	775.0 Miscellaneous Other	413	487,061	338,061	149,000
35	775.1 Membership Dues		652	525	127
36	775.2 Registration Fees for Conventions & Meetings of Industry	413-A			-
37	775.3 Communication Services	413-B	102,193	69,955	32,238
38	775.4 Trustee Fees and Bank Charges				-
39	775.5 Stockholders Expenses	413-C			-
40	775.6 Office Expenses and Utilities	413-D	99,330	275,318	(175,988)
41	775.7 Uniforms		11,753	6,817	4,936
42	775.8 Director's Fees and Expenses	413-E			-
43	775.9 Mailing		2,060	4,997	(2,937)
44	775.10 Subscriptions	413-F			-
45	775.11 Write off of expenditures for preliminary surveys, plans,				-
46	investigations etc., included in Account 183.0 - Preliminary Survey				-
47	and Investigation Charges, relative to abandoned projects				-
48	775.12 Travel	416			-
49	775.13 Education				-
50	775.14 Charitable Contributions	413-G			-
51	Total Miscellaneous Expenses		703,049	695,673	7,376
52	Total Wastewater Operation and Maintenance Expense Accounts		6,799,015	5,349,299	1,449,716

	SBBI	SBBI
Equity Risk Premium	6.93	6.93
Beta (Value Line Med.)	<u>0.75</u>	<u>0.75</u>
Risk Adjusted Equity Premium	5.20	5.20
Yield (RF)	2.75	2.75
Size Premium	<u>1.75</u>	<u>0.00</u>
	<u>9.70</u>	<u>7.95</u>

High 9.70
Low 7.95

VL Beta - 10/13/17

0.75

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

2.75 30-yr T-bond

	Recent Market Value (Mill \$)	Market Quartile Name	Market Quartile	Quartile Size Premium	Value Line Beta
American States Water Co	2,124.08	Low-Cap	3	1.75	0.8
American Water Works Co Inc	16,319.53	Large-Cap	1	0	0.65
Aqua America Inc	6,970.82	Mid-Cap	2	1.02	0.7
Artesian Resources -CI A	353.55	Mico-Cap	4	3.67	0.74
California Water Service Gp	2,177.48	Low-Cap	3	1.75	0.8
Connecticut Water Svc Inc	692.82	Low-Cap	3	1.75	0.65
Middlesex Water Co	652.37	Low-Cap	3	1.75	0.8
SJW Corp	1,309.86	Low-Cap	3	1.75	0.75
York Water Co	435.95	Mico-Cap	4	3.67	0.8
Average	3,448.50	Low-Cap	3	1.8	0.74
Median	1,309.86	Low-Cap	3	1.75	0.75

Daily Bond Yields and Key

Updated by 11 am ET Data as of 28-Dec-17

Moody's Daily Long- term Corporate Bond Yield Averages

	Utilities	Industrial	Corporate
Aaa	NA	3.48	3.48
Aa	3.59	3.56	3.58
A	3.77	3.75	3.76
Baa	4.11	4.26	4.19
Avg	3.82	3.76	3.79

Moody's Daily Treasury Yield

Averages

Short-Term
(3-5 yrs) 1.94

Medium-
Term (5-10
yrs) 2.29

Long-Term
(10+ yrs) 2.64

Moody's Daily Public Utility Common Stock Yield Averages

Price 402.71

Yield 3.81

New 15.34

Dividend

Moody's Commodit y and Scrap Price Indexes

Spot 5,840.89

Commodity

Index

Industrial 2,139.32

Metals

Index

* 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 universe

**HANDY-WHITMAN INDEX
OF PUBLIC UTILITY
CONSTRUCTION COSTS**

WHITMAN, REQUARDT AND ASSOCIATES

Bulletin No. 186

1912 to July 1, 2017

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



Trends of Construction Costs

COMPILED & PUBLISHED BY
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Engineers, Architects and Planners
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Baltimore, Maryland 21231
410-235-3450

BUCKS COUNTY WATER AND SEWER AUTHORITY
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)
DECEMBER 31, 2016 AND 2015

NOTE 6: SEGMENT INFORMATION (CONTINUED)

	2016		
	Sewer System	Water System	Totals
Operating Revenues			
Retail Sewer Service	\$ 43,421,110	\$ -	\$ 43,421,110
Wholesale Sewer Service	14,897,563	-	14,897,563
Retail Water Service	-	11,916,548	11,916,548
Wholesale Water Service	-	12,191,561	12,191,561
Improvement & Tapping Fees	-	110,550	110,550
Other Revenues	3,349,413	1,132,070	4,481,483
Total Operating Revenues	61,668,086	25,350,729	87,018,815
Expenses			
Operating Expenses			
Sewage Treatment and Water Procurement			
Sewage Treatment	16,253,379	-	16,253,379
Water Procurement	-	8,547,084	8,547,084
Total Sewage and Water	16,253,379	8,547,084	24,800,463
Plant Operations			
Payroll and Related Costs	1,755,388	-	1,755,388
Repairs and Maintenance	968,414	-	968,414
Electricity	470,001	-	470,001
Water and Sewage Testing	165,530	-	165,530
Total Plant Operations	3,359,333	-	3,359,333
Collection, Transmission and Distribution Service			
Payroll and related costs	6,208,174	2,012,591	8,220,765
Repairs and maintenance	1,285,585	182,886	1,468,471
Electricity	701,563	172,561	874,124
Other related costs	115,387	62,801	178,188
Total Service Expense	8,310,709	2,430,839	10,741,548
Total Operating Expense	27,923,421	10,977,923	38,901,344
General and Administrative Expenses			
Payroll and related costs	2,733,698	609,538	3,343,236
Professional fees	935,169	198,228	1,133,397
Insurance	377,173	94,016	471,189
Bad Debt	-	-	-
Other	3,387,257	456,978	3,844,235
Total General and Administrative Expenses	7,433,297	1,358,760	8,792,057
Income from Operations before depreciation	26,311,368	13,014,046	39,325,414
Depreciation	(13,224,646)	(2,759,219)	(15,983,865)
Operating Income	13,086,722	10,254,827	23,341,549
Non-Operating Revenue (Expense)			
Interest Expense, net of Amounts Capitalized	(7,511,679)	(3,429,385)	(10,941,064)
Investment Income	1,077,156	261,381	1,338,537
Other	3,012	-	3,012
Improvement and Tapping Fees	4,048,410	-	4,048,410
Amortization	(385,545)	-	(385,545)
Total Non-Operating Expense	(2,768,646)	(3,168,004)	(5,936,650)
Increase in Net Position, Before Dedication Fees	10,318,076	7,086,823	17,404,899
Dedication Fees	-	-	-
Increase in Net Position	10,318,076	7,086,823	17,404,899
Net Position, Beginning of Year	161,510,459	83,141,814	244,652,273
Net Position, End of Year	\$ 171,828,535	\$ 90,228,637	\$ 262,057,172

	1968	1978	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
8			271			294	308	316	321	331	337	343
9			349			386	428	442	450	473	489	505

	1968	1978	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
16	69							357	367	380	391	401
34	77		295			321	327	332	339	347	355	361
38		113	211			193						
39			262					307				
40			159						207		197	

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	2000	2001 jan	2001 Jul	2002 jan	2002 Jul	2003 jan	2003 Jul	2004 jan	2004 Jul	2005 jan	2005 Jul	2006 jan	2006 Jul
8	362	370	380	382	390	393	388	405	418	442	447	456	464
9	530	531	531	516	533	534	546	547	569	604	611	620	619

	2000	2001 jan	2001 Jul	2002 jan	2002 Jul	2003 jan	2003 Jul	2004 jan	2004 Jul	2005 jan	2005 Jul	2006 jan	2006 Jul
16	413	419	429	435	445	448	449	461	462	480	482	499	500
34	377	383	392	395	406	407	403	415	426	462	464	485	494
38													
39		352	355	354								421	459
40												235	248

8	378	389	394	421	448	466
9	527	529	543	572	612	624
16	428	443	452	466	486	504
34	391	404	407	432	469	499
38	0	0	0	0	0	0
39	354	89	0	0	105	454
40	0	0	0	0	NA	248

	2007 jan	2007 Jul	2008 jan	2008 Jul	2009 jan	2009 Jul	2010 jan	2010 Jul	2011 jan	2011 Jul	2012 jan	2012 Jul	2013 jan
8	481	494	516	543	551	536	552	558	571	583	597	600	618
9	639	628	640	666	679	688	707	701	708	760	780	785	800

	2007 jan	2007 Jul	2008 jan	2008 Jul	2009 jan	2009 Jul	2010 jan	2010 Jul	2011 jan	2011 Jul	2012 jan	2012 Jul	2013 jan
16	516	533	566	582	614	616	631	638	642	653	669	680	689
34	524	523	550	588	624	608	617	623	633	644	669	690	698
38													
39	478												
40	260								379	379	379		

8	496		538		544		560		584		604		614
9	634		663		691		704		752		788		836

16	537		586		619		637		654		680		699
34	530		588		614		624		648		687		701
38	0		0		0		0		0		0		0
39	120		0		0		0		0		0		0
40	NA		0		0		NA		379		NA		0

	2013 Jul	2014 jan	2014 Jul	2015 jan	2015 Jul	2016 jan	2016 Jul	2017 jan	2017 Jul	2018 jan	2018 Jul
8	608	621	630	642	646	655	659	672	671		
9	844	856	900	928	931	990	1013	1052	1135		

	2013 Jul	2014 jan	2014 Jul	2015 jan	2015 Jul	2016 jan	2016 Jul	2017 jan	2017 Jul
16	697	713	725	736	737	755	758	774	785
34	693	720	733	736	738	747	750	774	772
38									387
39									651
40				400	403	403	403	404	418

8	631	647	661	671	671
9	896	945	1017	1114	1135

16	725	741	761	782	785
34	731	740	755	773	772
38	0	0	0	290	387
39	0	0	0	488	651
40	NA	402	403	415	418

	2016 PAAM Sewer	2016 AQUA Sewer	
Employee Salary & Wage	1,892,139.00	1,209,837.00	
Pension & Benefits	740,281.00	722,403.00	
Customers	54,691.00	20,440.00	
	48.13	94.53	71.33

CPI-All Urban Consumers (Current Series)

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](#)

CUSR0000SA0												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	212.174	212.687	213.448	213.942	215.208	217.463	219.016	218.69	218.877	216.995	213.153	211.398
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	235.347	235.522	235.956	236.463	236.867	237.188	237.485	237.439	237.452	237.447	237.042	236.27
2015	234.836	235.274	235.956	236.165	236.952	237.618	237.993	237.989	237.467	237.764	238.072	237.827
2016	237.99	237.532	238.022	238.843	239.439	240.074	240.058	240.569	241.017	241.667	242.081	242.784
2017	244.028	244.102	243.717	244.087	243.911	244.032	244.236	245.262	246.392	246.583	247.411	247.91
2018	249.245	249.619	249.462									

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](#)

CUUR0000SA0												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	211.08	211.693	213.528	214.823	216.632	218.815	219.964	219.086	218.783	216.573	212.425	210.228
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
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
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
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
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
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
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
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
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
2018	247.867	248.991	249.554									

2/14/2018

Company Name	Ticker Symb	9/30/17			December-17		
		LT Debt-Totl Qlty	Preferred S	Minority In Common Equity-Totl-Qlty	Invested Capital-Totl Qlty	Market Value-Mnthly	
AMERICAN ST. AWR		320.949	0.000	0.000	525.812	846.761	2,124.081
AMERICAN W/ AWK		6,681.000	0.000	0.000	5,518.000	12,199.000	16,319.528
AQUA AMERIC WTR		1,952.473	0.000	0.000	1,938.265	3,890.738	6,970.818
ARTESIAN RES ARTNA		105.860	0.000	0.000	144.584	250.444	353.548
CALIFORNIA WCWT		519.700	0.000	0.000	687.723	1,207.423	2,177.480
CONNECTICUT CTWS		255.193	0.772	0.000	294.405	550.370	692.824
MIDDLESEX WMSEX		135.806	2.433	0.000	227.029	365.268	652.369
SJW GROUP SJW		431.009	0.000	0.000	452.471	883.480	1,309.855
YORK WATER YORW		88.930	0.000	0.000	117.573	206.503	435.954

	Book Ratios			Market Ratios				
	LTD	Pref	Equity	LTD	Pref	Equity		
AMERICA	0.379	0.000	0.621	1.000	0.131	0.000	0.869	1.000
AMERICA	0.548	0.000	0.452	1.000	0.290	0.000	0.710	1.000
AQUA AN	0.502	0.000	0.498	1.000	0.219	0.000	0.781	1.000
ARTESIAI	0.423	0.000	0.577	1.000	0.230	0.000	0.770	1.000
CALIFORJ	0.430	0.000	0.570	1.000	0.193	0.000	0.807	1.000
CONNECT	0.464	0.001	0.535	1.000	0.269	0.001	0.730	1.000
MIDDLES	0.372	0.006	0.622	1.000	0.172	0.003	0.825	1.000
SJW GROI	0.488	0.000	0.512	1.000	0.248	0.000	0.752	1.000
YORK WA	0.431	0.000	0.569	1.000	0.169	0.000	0.831	1.000
					Avg	0.213	0.000	0.786
					Med	0.219	0.000	0.781

Assumptions: 12/31/2017

Debt Cost	3.77
Pref. Stock Cost	4.97
Equity Cost	9.70
Equity Cost	7.95

Ratio	Cost	Wt	Shield	Overall	
21.90%	3.770	0.83	0.72	0.5944536	
0.00%	4.970	0.00	1	0	
78.10%	9.700	7.58	1	7.5757	
		8.40		8.17	<<<<ANSWER
21.90%	3.770	0.83	0.72	0.5944536	
0.00%	4.970	0.00	1	0	
78.10%	7.948	6.21	1	6.2069975	
		7.03		6.80	<<<<ANSWER

Legal Company Name	Enterprise Value	Sales-Net 12MM	EBITDA 12MM	EBIT 12MM	PP&E Total Gross-Qty	PP&E Total Net-Qty	Invested Capital-Total 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	Enterprise value to Population	Enterprise value to Customers	population	Customers	EBIT 2 AVG INV CAP	TAX RATE 12MM		
American Stati	2484.701778	443.22299	158.05096	118.89496	1714.457	1181.616	846.76099	1.4492645	2.1027998	2.782128	5.6059858	15.72089	20.898293	Dec17	2484.7018	8720.0265	1000000	284942	2016 10-K	13.246381	37.035868
American Wate	23669.52832	3338	1733	1235	19682	14417	12199	1.2025977	1.641779	1.8222749	7.0909312	13.658124	19.16561	Dec17	1940.1253	7146.5967	12200000	3312000	2016 10-K	9.8050891	39.794755
Aqua America	9024.845772	803.01199	458.806	323.95602	6857.0898	5276.4727	3890.738	1.3161335	1.7103937	2.2582258	11.238743	19.670287	27.858243	Dec17	2955.2838	9282.2901	3053800	972265	2016 10-K	8.4527401	6.3305696
Artesian Resou	468.0911875	81.463959	36.425	27.048002	567.35889	451.68384	250.444	0.8250354	1.0363249	1.804675	5.7459912	12.850822	17.305943	Dec17	1489.3134	5506.9551	314300	85000	2016 10-K	10.697533	38.854409
California Wat	2898.854187	655.82899	201.02797	127.55101	2892.666	1981.9238	1207.4229	1.0021393	1.4626466	2.0151393	4.4201373	14.420154	22.727019	Dec17	1449.4271	5667.3591	2000000	511500	2016 10-K	9.4196367	34.262821
Connecticut W	967.0119006	103.74498	45.704994	30.046996	921.31885	683.73779	550.36987	1.0495953	1.4143023	1.6763173	9.3210476	21.157686	32.183314	Dec17	2417.5298	7738.0762	400000	124968	2016 10-K	5.9863981	-0.884104
Middlesex Wat	818.9538937	131.12698	51.51099	37.995992	688.72998	545.46094	365.26782	1.1890783	1.5013979	2.0664226	6.2455024	15.898625	21.553692	Dec17	2047.3847	7492.7163	400000	109300	2016 10-K	9.9936448	34.178787
SJW Group	1746.295136	375.002	143.60698	96.25398	1814.855	1271.9648	883.47998	0.962223	1.3729115	1.9479466	4.6567622	12.160239	18.142576	Dec17	1598.2932	7203.5638	1092600	242421	2016 10-K	11.111115	39.911859
York Water Co	525.9260024	48.121	28.788	22.098001	361.927	288.35986	206.50301	1.4531273	1.823853	2.5340091	10.929241	18.268932	23.799709	Dec17	2683.2959	7843.5543	196000	67052	2016 10-K	10.993552	27.388353
	1746.295136	375.002	143.60698	96.25398	1714.457	1181.616	846.76099	1.1890783	1.5013979	2.0151393	6.2455024	15.72089	21.553692		2047.3847	7492.7163	1000000	242421		9.9936448	34.262821

observation_da	DAAA_20171229	DBAA_20171229	DGS10_20171229	DGS20_20171229	DGS30_20171229
2017-12-01	3.52	4.24	2.37	2.58	2.76
2017-12-04	3.52	4.24	2.37	2.58	2.77
2017-12-05	3.48	4.20	2.36	2.55	2.73
2017-12-06	3.48	4.19	2.33	2.53	2.71
2017-12-07	3.53	4.25	2.37	2.58	2.76
2017-12-08	3.54	4.25	2.38	2.59	2.77
2017-12-11	3.52	4.24	2.39	2.59	2.77
2017-12-12	3.52	4.24	2.40	2.60	2.79
2017-12-13	3.48	4.19	2.36	2.56	2.74
2017-12-14	3.46	4.17	2.35	2.53	2.71
2017-12-15	3.43	4.15	2.35	2.52	2.68
2017-12-18	3.48	4.20	2.39	2.57	2.74
2017-12-19	3.56	4.27	2.46	2.66	2.82
2017-12-20	3.60	4.31	2.49	2.71	2.88
2017-12-21	3.55	4.27	2.48	2.68	2.84
2017-12-22	3.55	4.27	2.48	2.68	2.83
2017-12-25	#N/A	#N/A	#N/A	#N/A	#N/A
2017-12-26	3.53	4.25	2.47	2.66	2.82
2017-12-27	3.47	4.18	2.42	2.59	2.75
2017-12-28	3.48	4.19	2.43	2.60	2.75

Aqua Pennsylvania Wastewater, Inc.
(Company Name)

For the Year Ended December 31, 2016

407. WASTEWATER OPERATION AND MAINTENANCE EXPENSE ACCOUNTS

Line No.	Account Number and Title (a)	Schedule No. (b)	Amount of Operating Expenses		
			Current Year (c)	Previous Year (d)	Increase (Decrease) (e)
1	Salaries and Wages		XXX	XXX	XXX
2	701.0 Employees	409	1,199,896	897,185	302,711
3	703.0 Officers, Directors and Majority Stockholders	409	9,941	42,329	(32,388)
4	Total Salaries and Wages		1,209,837	939,514	270,323
5	704.0 Employee Pensions and Benefits	409-A	722,403	556,003	166,400
6	710.0 Purchased Wastewater Treatment		575,689	565,253	10,436
7	711.0 Sludge Removal Expense		1,039,066	939,890	99,176
8	715.0 Purchased Power		872,789	1,010,357	(137,567)
9	716.0 Fuel for Power Production		13,572	5,140	8,431
10	718.0 Chemicals		492,572	475,538	17,035
11	720.0 Materials and Supplies		89,558	92,553	(2,996)
12	Contractual Services		XXX	XXX	XXX
13	731.0 Engineering	411-A	-	-	-
14	732.0 Accounting	411-A	17,024	15,921	1,103
15	733.0 Legal	411-A	607	-	607
16	734.0 Management Fees	411-B	625,447	628,900	(3,453)
17	735.0 Testing	411-B	210,574	168,448	42,126
18	736.0 Other - Maintenance	411-B	948,080	1,393,193	(445,113)
19	Total Contractual Services		1,801,732	2,206,463	(404,730)
20	741.0 Rental of Building/Real Property		91,565	94,980	(3,415)
21	742.0 Rental of Equipment		-	-	-
22	750.0 Transportation Expenses		85,087	51,710	33,377
23	Insurance		XXX	XXX	XXX
24	756.0 Vehicle		-	-	-
25	757.0 General Liability		44,189	48,518	(4,329)
26	758.0 Workman's Compensation		1,014	956	57
27	759.0 Other		1,477	(23,302)	24,779
28	Total Insurance		46,680	26,172	20,508
29	760.0 Advertising Expense - Other than Conservation	412	-	1,300	(1,300)
30	766.0 Regulatory Commission Expenses-Amort. of Rate Case Expense		-	-	-
31	767.0 Regulatory Commission Expenses-Other		-	-	-
32	770.0 Bad Debt Expense		130,251	143,136	(12,885)
33	Miscellaneous Expenses		XXX	XXX	XXX
34	775.0 Miscellaneous Other	413	-	-	-
35	775.1 Membership Dues		1,780	1,300	480
36	775.2 Registration Fees for Conventions & Meetings of Industry	413-A	-	-	-
37	775.3 Communication Services	413-B	102,679	106,512	(3,832)
38	775.4 Trustee Fees and Bank Charges		-	-	-
39	775.5 Stockholders Expenses	413-C	-	-	-
40	775.6 Office Expenses and Utilities	413-D	174,850	74,224	100,626
41	775.7 Uniforms		2,539	4,304	(1,764)
42	775.8 Director's Fees and Expenses	413-E	-	-	-
43	775.9 Mailing		2,010	815	1,194
44	775.10 Subscriptions	413-F	7,010	13,726	(6,716)
45	775.11 Write off of expenditures for preliminary surveys, plans, investigations etc., included in Account 183.0 - Preliminary Survey		-	-	-
46	775.11 and Investigation Charges, relative to abandoned projects		-	-	-
47	775.12 Travel	416	8,602	7,718	884
48	775.13 Education		-	-	-
49	775.14 Charitable Contributions	413-G	-	-	-
50	Total Miscellaneous Expenses		299,470	208,598	90,871
51	Total Wastewater Operation and Maintenance Expense Accounts		7,470,272	7,316,607	153,664



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
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	93.8	93.5
2018	93.0(P)	93.7(P)										

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

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.⁷⁷

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

<u>Decile</u>	<u>Historic Average Percentage of Total Capitalization</u>	<u>Recent Number of Companies</u>	<u>Recent Decile Market Capitalization (in \$thousands)</u>	<u>Recent Percentage of Total Capitalization</u>
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.

⁷⁷ 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). 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

Decile	Company Name	Recent Market Capitalization (in \$thousands)
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®). 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.^{7B}

^{7B} 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%
Breakdown of Deciles 1–10					
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%	11.95%	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
4202900000	Chester County	498,886	3.9%	-	433,501	3.5%	-	65,385	-	15.1%	-
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

NEW ACCT ACCT NAME

	YEAR	OC by Vintage	Vintage Index	Spot Index	Original Cost	Index Factor	RCN Balances
353.3 LAND AND LAND RIGHTS - PUMPING	1992	1.00	1.00	1.00	\$1.00	1.00	\$1.00
353.3 LAND AND LAND RIGHTS - PUMPING	1999	63,548.00	1.00	1.00	\$63,548.00	1.00	\$63,548.00
353.3 LAND AND LAND RIGHTS - PUMPING	2012	2.00	1.00	1.00	\$2.00	1.00	\$2.00
354.3 STRUCTURES AND IMPROVEMENTS - PUMPING	1990	52,236.00	271.00	671	\$52,236.00	2.48	\$129,337.11
354.3 STRUCTURES AND IMPROVEMENTS - PUMPING	1995	125,803.00	316.00	671	\$125,803.00	2.12	\$267,132.32
354.3 STRUCTURES AND IMPROVEMENTS - PUMPING	2001	145,626.00	378.00	671	\$145,626.00	1.78	\$258,505.41
354.3 STRUCTURES AND IMPROVEMENTS - PUMPING	2006	171,142.00	466.00	671	\$171,142.00	1.44	\$246,429.79
354.4 STRUCTURES AND IMPROVEMENTS - TREATMENT	2011	2,156,532.00	584.00	671	\$2,156,532.00	1.15	\$2,477,796.18
355.3 POWER GENERATION EQUIPMENT	1995	24,197.00	442.00	1135	\$24,197.00	2.57	\$62,134.83
355.3 POWER GENERATION EQUIPMENT	2001	24,374.00	527.00	1135	\$24,374.00	2.15	\$52,494.29
355.3 POWER GENERATION EQUIPMENT	2006	28,858.00	624.00	1135	\$28,858.00	1.82	\$52,490.11
355.3 POWER GENERATION EQUIPMENT	2015	55,955.00	945.00	1135	\$55,955.00	1.20	\$67,205.21
360.21 FORCE MAINS - 4-INCH AND UNDER PVC	1978	17,327.50	113.00	387	\$17,327.50	3.42	\$59,342.85
360.21 FORCE MAINS - 4-INCH AND UNDER PVC	1993	15,308.00	193.00	387	\$15,308.00	2.01	\$30,695.32
360.22 FORCE MAINS - 4-INCH AND UNDER DIP	1995	246,160.00	332.00	772	\$246,160.00	2.33	\$572,396.14
360.22 FORCE MAINS - 4-INCH AND UNDER DIP	2001	80,560.00	391.00	772	\$80,560.00	1.97	\$159,059.64
360.22 FORCE MAINS - 4-INCH AND UNDER DIP	2006	83,412.00	499.00	772	\$83,412.00	1.55	\$129,046.22
360.23 FORCE MAINS - 6 TO 8 INCH DIP	1990	293,454.00	295.00	772	\$293,454.00	2.62	\$767,954.20
360.24 FORCE - MAINS - AIR RELEASE VALVES	2001	893.00	391.00	772	\$893.00	1.97	\$1,763.16
360.24 FORCE - MAINS - AIR RELEASE VALVES	2006	1,140.00	499.00	772	\$1,140.00	1.55	\$1,763.69
360.25 FORCE - MAINS - VALVES	1990	1,964.00	295.00	772	\$1,964.00	2.62	\$5,139.69
360.25 FORCE - MAINS - VALVES	1995	1,086.00	332.00	772	\$1,086.00	2.33	\$2,525.28
360.25 FORCE - MAINS - VALVES	2001	1,276.00	391.00	772	\$1,276.00	1.97	\$2,519.37
360.25 FORCE - MAINS - VALVES	2006	816.00	499.00	772	\$816.00	1.55	\$1,262.43
361.21 GRAVITY - MAINS - 6 TO 8 INCH PVC	1990	3,077,890.05	211.00	387	\$3,077,890.05	1.83	\$5,645,229.62
361.22 GRAVITY - MANHOLES	1993	897,306.00	321.00	772	\$897,306.00	2.40	\$2,158,006.95
361.22 GRAVITY - MANHOLES	1998	20,062.96	355.00	772	\$20,062.96	2.17	\$43,629.87
361.22 GRAVITY - MANHOLES	2001	2,582.00	391.00	772	\$2,582.00	1.97	\$5,097.96
361.22 GRAVITY - MANHOLES	2006	3,527.00	499.00	772	\$3,527.00	1.55	\$5,456.60
361.22 GRAVITY - MANHOLES	2012	53,366.50	687.00	772	\$53,366.50	1.12	\$59,969.34
361.22 GRAVITY - MANHOLES	2014	59,225.18	731.00	772	\$59,225.18	1.06	\$62,546.98
363.2 SERVICES TO CUSTOMERS	1990	381,295.00	262.00	651	\$381,295.00	2.48	\$947,416.20
363.2 SERVICES TO CUSTOMERS	1995	21,913.00	307.00	651	\$21,913.00	2.12	\$46,466.98
363.2 SERVICES TO CUSTOMERS	2001	37,870.00	354.00	651	\$37,870.00	1.84	\$69,642.29
363.2 SERVICES TO CUSTOMERS	2006	19,880.00	454.00	651	\$19,880.00	1.43	\$28,506.34
364.2 FLOW MEASURING DEVICES	1990	2,074.00	159.00	418	\$2,074.00	2.63	\$5,452.40
364.2 FLOW MEASURING DEVICES	2006	3,241.00	248.00	418	\$3,241.00	1.69	\$5,462.65
364.2 FLOW MEASURING DEVICES	2015	17,692.00	402.00	418	\$17,692.00	1.04	\$18,396.16
371.3 PUMPING EQUIPMENT	1990	30,265.00	349.00	1135	\$30,265.00	3.25	\$98,426.29
371.3 PUMPING EQUIPMENT	1995	36,131.00	442.00	1135	\$36,131.00	2.57	\$92,779.83
371.3 PUMPING EQUIPMENT	2001	9,202.00	527.00	1135	\$9,202.00	2.15	\$19,818.35
371.3 PUMPING EQUIPMENT	2006	10,473.00	624.00	1135	\$10,473.00	1.82	\$19,049.45
396.7 COMMUNICATION EQUIPMENT	1990	8,562.00	107.48	93.5	\$8,562.00	0.87	\$7,448.68
396.7 COMMUNICATION EQUIPMENT	1995	4,109.00	113.91	93.5	\$4,109.00	0.82	\$3,372.81
396.7 COMMUNICATION EQUIPMENT	2001	3,394.00	108.63	93.5	\$3,394.00	0.86	\$2,921.42
396.7 COMMUNICATION EQUIPMENT	2006	3,199.00	95.88	93.5	\$3,199.00	0.98	\$3,119.48
					\$8,294,930.19		\$14,758,760.89

October 13, 2017

WATER UTILITY INDUSTRY

INDUSTRY TIMELINESS: 79 (of 97)

Stocks in the Water Utility Industry have performed well of late. This is unusual as the equities in the group have historically been considered defensive investments. Demand would mostly come from conservative, income-oriented accounts seeking high yields, low volatility, well-defined earnings, and healthy dividend growth prospects. Typically, shares of these companies would lag the broader market averages during bull markets and outperform when equities were under pressure. We attribute part of the strong showing to the small market capitalization of the industry as a whole. There are only nine members of this group and four of the companies are very small. Hence, we think demand for these stocks outweighs the supply. Consequently, investors have to pay a premium to be owners of water equities.

The Industry is ranked in the bottom quartile of the almost 100 industries followed by *Value Line*.

Are Water Stocks Still A Yield Play?

Much like electric utilities, water utility stocks have long drawn the interest of investors seeking high current income and the potential for dividend growth. (This is an attraction held by equities that traditional bonds with fixed coupons do not possess.) Over the past few years, however, the value of the stocks in this industry have performed well, despite the bull market. Indeed, the yield on the eight regulated water utilities (excludes *Consolidated Water*) has declined to such an extent that the average yield is now less than the *Value Line* median. Treasury notes and bonds compete with stocks that pay good dividends for funds from income-oriented investors. Shorter maturities on the yield curve have seen their yields rise steadily as the Federal Reserve seeks to end its nearly decade-long accommodative monetary policy. The yield on the longer-maturities bonds has also been moving up. Though the 10-year bond has backed up almost 30 basis points in the last month alone, it still remains at a low historical level of about 2.35%. We urge investors to monitor this bond as high-yielding stocks may not perform well should the rate on this bond move higher.

Profits And Dividends

Water companies are posting decent annual increases in share earnings and what they are paying out to investors. While the current yields have plummeted, cash generation should be sufficient to support yearly dividend hikes from 4% to 10%, with the average somewhere around 6%-7%.

Growth Through Acquisition

The water utility industry in the U.S. is extremely fragmented. There are over 100,000 different entities providing water services to Americans. Almost all of these districts are municipally owned. For the most part, they are also undercapitalized and inefficient. With the condition of the country's water infrastructure being considered poor, many of these water districts don't have the financial wherewithal required to replace old pipes and other equipment. This benefits the major publicly traded companies, namely *American Water Works* and

Aqua America. All of the larger concerns will most likely continue to absorb many small water authorities. There are a great amount of redundancies in this sector and many of the smaller players are inefficient. By purchasing these entities, the bigger companies are able to expand their customer base and wring more profits from the acquired assets.

Constructive Regulatory Treatment

One of the most positive attributes of the water industry is that companies and regulatory authorities usually work together reasonably well. This isn't always the case in other domestic regulated markets, such as electricity. In general, regulators realize that the U.S. went decades without plowing enough capital back into the pipelines and wastewater facilities. Now they realize that a huge amount of funds have to be directed toward fixing their systems.

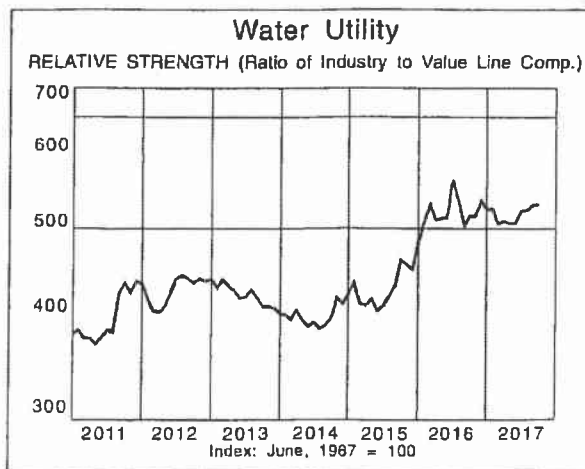
We cannot underestimate the importance of a positive regulatory climate. Essentially, they determine a utility's allowed return on equity. Should there be a sea change in this area, it would greatly impact this group, in our opinion.

Conclusion

The only stock in this sector expected to outperform the broader market averages in the year ahead is *California Water*. All of the remaining equities are either neutrally ranked or untimely. There are no stocks that have attractive total return potential out to 2020-2022, even on a risk-adjusted basis. True, the regulated companies have very predictable earnings, but it appears that all of the good news is currently priced into the stocks. The sole exception remains *Consolidated Water*. A proposed new desalination plant in Mexico offers great promise. However, we have seen the can't miss facility built in the water-deprived island of Bali fail. Thus, despite its attractive return potential, its prospects remain hazy.

As always, we advise all subscribers to read each individual report before investing to have a better understanding of the risks associated with each particular company.

James A. Flood

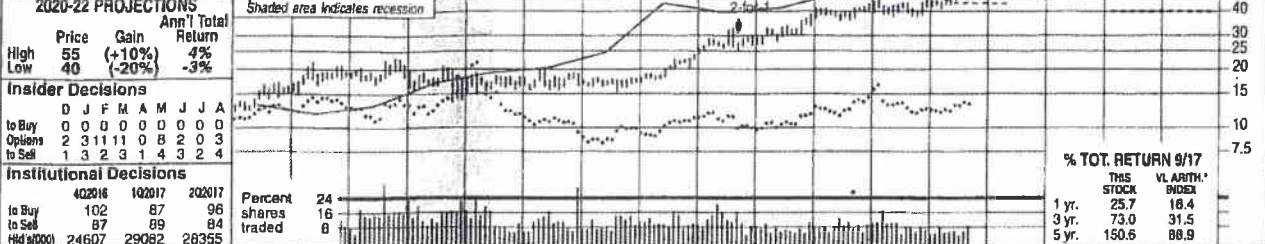


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AMER. STATES WATER NYSE-AWR

RECENT PRICE 51.11	P/E RATIO 26.9 (Trailing: 27.6 Median: 20.0)	RELATIVE P/E RATIO 1.35	DIV'D YLD 2.0%	EXHIBIT 15 VALUE LINE 1783
TIMELINESS 3 Lowered 8/11/17	SAFETY 2 Raised 7/20/12	TECHNICAL 2 Raised 9/29/17	BETA .80 (1.00 = Market)	Target Price Range 2020 2021 2022



2020-22 PROJECTIONS	Ann'l Total Return	Price	Gain
High	55	+10%	4%
Low	40	-20%	-3%

Insider Decisions	Institutional Decisions	Percent shares traded																
<table border="1"> <tr><th colspan="2">2020-22</th></tr> <tr><th>2020</th><th>2021</th></tr> <tr><td>to Buy</td><td>0</td></tr> <tr><td>to Sell</td><td>0</td></tr> </table>	2020-22		2020	2021	to Buy	0	to Sell	0	<table border="1"> <tr><th colspan="2">2020-22</th></tr> <tr><th>2020</th><th>2021</th></tr> <tr><td>to Buy</td><td>102</td></tr> <tr><td>to Sell</td><td>87</td></tr> </table>	2020-22		2020	2021	to Buy	102	to Sell	87	24
2020-22																		
2020	2021																	
to Buy	0																	
to Sell	0																	
2020-22																		
2020	2021																	
to Buy	102																	
to Sell	87																	

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
6.53	6.89	6.99	6.81	7.03	7.88	8.75	9.21	9.74	10.71	11.12	12.12	12.19	12.17	12.56	11.92	12.40	12.65
1.26	1.27	1.04	1.11	1.32	1.45	1.65	1.69	1.70	2.11	2.13	2.48	2.65	2.67	2.81	2.70	2.85	3.05
.67	.67	.39	.53	.66	.67	.81	.78	.81	1.11	1.12	1.41	1.61	1.57	1.60	1.62	1.85	1.85
.43	.44	.44	.44	.45	.46	.48	.50	.51	.52	.55	.64	.76	.83	.87	.91	.98	1.05
1.59	1.34	1.88	2.51	2.12	1.95	1.45	2.23	2.09	2.12	2.13	1.77	2.52	1.89	2.39	3.55	3.15	3.15
6.61	7.02	6.98	7.51	7.66	8.32	8.77	8.97	9.70	10.13	10.84	11.80	12.72	13.24	12.77	13.52	14.20	14.85
30.24	30.36	30.42	33.50	33.60	34.10	34.46	34.60	37.06	37.26	37.70	38.53	38.72	38.29	36.50	36.57	36.70	36.80
16.7	16.3	31.9	23.2	21.9	27.7	24.0	22.6	21.2	15.7	15.4	14.3	17.2	20.1	24.6	25.5	20.1	24.6
1.86	1.00	1.82	1.23	1.17	1.50	1.27	1.36	1.41	1.00	.97	.91	.97	1.06	1.24	1.35	1.24	1.35
3.9%	3.6%	3.5%	3.6%	3.1%	2.5%	2.5%	2.9%	2.9%	3.0%	3.2%	3.1%	2.7%	2.6%	2.2%	2.2%	2.2%	2.2%

CAPITAL STRUCTURE as of 6/30/17		2014	2015	2016	2017	2018	2019	2020	2021	2022			
Total Debt	\$365.9 mil.	301.4	318.7	361.0	398.9	419.3	466.9	472.1	485.8	458.6	436.1	465	470
LT Debt	\$321.0 mil.	28.0	26.8	29.5	41.4	42.0	54.1	62.7	61.1	60.5	59.7	62.0	66.0
Leases, Uncapitalized	Annual rentals \$2.5 mil.	42.6%	37.8%	38.9%	43.2%	41.7%	39.9%	35.3%	38.4%	38.4%	36.8%	35.5%	35.0%
Pension Assets	12/16 \$150.9 mil.	8.5%	6.9%	3.2%	5.8%	2.0%	2.5%	-	-	2.5%	.5%	1.5%	2.0%
Pld Stock None.	Oblig. \$180.4 mil.	46.9%	46.2%	45.9%	44.3%	45.4%	42.2%	39.8%	39.1%	41.1%	39.4%	40.0%	42.0%
Common Stock	36,644,758 shs. as of 7/31/17	53.1%	53.8%	54.1%	55.7%	54.6%	57.8%	60.2%	60.9%	58.9%	60.6%	60.0%	58.0%
MARKET CAP: \$1.9 billion (Mid Cap)		569.4	577.0	665.0	677.4	748.1	787.0	818.4	832.6	791.5	870	935	1100
CURRENT POSITION (\$MILL)		776.4	825.3	866.4	855.0	896.5	917.8	981.5	1003.5	1060.8	1150.9	1200	1250
Cash Assets		6.7%	6.4%	5.9%	7.6%	7.1%	8.3%	8.9%	8.6%	9.0%	8.6%	8.5%	8.5%
Accts Receivable		9.3%	8.6%	8.2%	11.0%	10.3%	11.9%	12.7%	12.0%	13.0%	12.1%	12.0%	12.0%
Other		9.3%	8.6%	8.2%	11.0%	10.3%	11.9%	12.7%	12.0%	13.0%	12.1%	12.0%	12.0%
Current Assets		3.9%	3.1%	3.2%	5.8%	5.3%	6.6%	6.8%	5.7%	6.0%	5.3%	5.0%	5.5%
Accts Payable		58%	64%	61%	47%	49%	45%	47%	53%	54%	55%	58%	58%
Debt Due													
Other													
Current Liab.													

AMERICAN STATES WATER was forced to divest an operation for a profit. The water utility's California-based Golden States Water subsidiary sold its Ojai Water System this summer to the municipal district of Casitas for \$34.3 million. Ultimately, the company didn't have a choice, as Casitas was using eminent domain to acquire the assets. In any case, the sale resulted in a second-quarter pretax gain of \$8.3 million, or about \$0.13 a share.

The nonutility sector is performing well. Responsible for about 20% of the company's normalized profits, the ASUS subsidiary provides water services to U.S. military installations. The government is in the midst of privatizing the water systems on many domestic bases. Earlier this year, ASUS snagged a 50-year contract with the Elgin Air Force Base that is expected to generate \$510 million in revenues. On October 2nd, the company announced that it was awarded another 50-year contract worth \$601 million to service Ft. Riley in Kansas. We expect the company to continue to win a fair share of this business. Since these operations are un-

regulated, ASUS's return on equity is not limited, however, the business also carries more risk.

Overall, earnings and dividend growth prospects are good. Due mostly to the aforementioned sale of assets, we have raised our 2017 share-earnings estimate for the company \$0.15, to \$1.85. This represents a hefty 14% year-over-year gain. In 2018, we think that the company will manage to post the same strong share earnings as the nonregulated sector contribution to the bottom line rises. We think both short- and long-term investors can find better alternatives elsewhere. Shares of AWR have been on a nice run of late. Historically, water utility stocks have been defensive income plays because of their low volatility, high dividend yields, and good dividend growth prospects. At its recent price, AWR's 2.0% yield is only on par with the Value Line median. In our opinion, most of the good news associated with the stock appears to be reflected in the recent price. Hence, this neutrally ranked equity has subpar total return prospects through 2020-2022.

James A. Flood
October 13, 2017

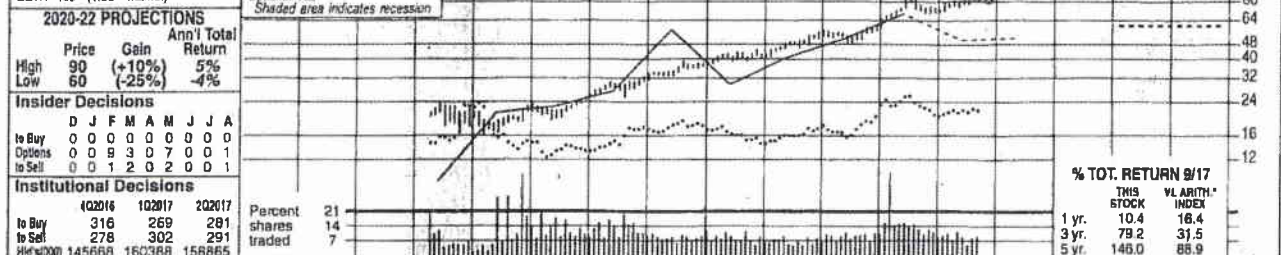
(A) Primary earnings. Excludes nonrecurring gains/losses: '04, 7¢; '05, 13¢; '06, 3¢; '08, 14¢; '10, 23¢; '11, 10¢. Next earnings report due mid-November. (B) Dividends historically paid in early March, June, September, and December. (C) In millions, adjusted for split.

Company's Financial Strength A
Stock's Price Stability 75
Price Growth Persistence 70
Earnings Predictability 85

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AMERICAN WATER NYSE-AWK

RECENT PRICE	81.75	P/E RATIO	27.7	Trailing: 30.8 Median: NMF	RELATIVE P/E RATIO	1.39	DIV'D YLD	2.1%	VALUE LINE	1784
High: 23.7	23.0	25.8	32.8	39.4	45.1	56.2	61.2	85.2	83.1	
Low: 16.5	16.2	19.4	25.2	31.3	37.0	41.1	48.4	58.9	70.0	



2020-22 PROJECTIONS	Price	Gain	Ann'l Total Return
High	90	(+10%)	5%
Low	60	(-25%)	-4%

Insider Decisions	D	J	F	M	A	M	J	J	A
To Buy	0	0	0	0	0	0	0	0	0
Options	0	0	9	3	0	7	0	0	1
To Sell	0	0	1	2	0	0	0	0	1

Institutional Decisions	10/2016	10/2017	20/2017	Percent shares traded
To Buy	316	269	281	21
To Sell	278	302	291	14
Net Buy	145668	160368	158865	7

Year	2001	2002	2003	2004	2005	2006	2007 ^E	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	20-22
Revenues per sh	13.08	13.84	14.61	13.98	15.49	15.18	16.25	16.28	16.78	17.72	18.54	19.25	20.10	23.05					
"Cash Flow" per sh	6.5	d.47	2.87	2.89	3.56	3.73	4.27	4.36	4.75	5.13	5.26	5.60	6.15	7.45					
Earnings per sh ^A	d.97	d2.14	1.10	1.25	1.53	1.72	2.11	2.06	2.39	2.64	2.62	2.85	3.25	4.15					
Div'd Decl'd per sh ^B			40	82	86	90	1.21	.84	1.21	1.33	1.47	1.62	1.76	2.35					
Cap'l Spending per sh	4.31	4.74	6.31	4.50	4.38	5.27	5.25	5.50	5.33	6.51	7.35	6.75	6.70	6.40					
Book Value per sh ^D	23.86	28.39	25.64	22.91	23.59	24.11	25.11	26.52	27.39	28.25	29.24	30.90	32.40	39.45					
Common Shs Outst'g ^C	160.00	160.00	160.00	174.63	175.00	175.66	176.99	178.25	179.46	178.28	178.10	178.50	179.00	187.50					
Avg Ann'l P/E Ratio	18.9	15.6	16.8	16.7	19.9	20.0	20.5	27.7											
Relative P/E Ratio	1.14	1.04	.93	1.05	1.06	1.12	1.05	1.03	1.46										
Avg Ann'l Div'd Yield	1.9%	4.2%	3.8%	3.1%	3.4%	2.0%	2.5%	2.5%	2.0%										

CAPITAL STRUCTURE as of 6/30/17	2214.2	2336.9	2440.7	2710.7	2666.2	2876.9	2901.9	3011.3	3159.0	3302.0	3440	3600	Revenues (\$mil)	4325	
Total Debt \$7453.0 mil, Due in 5 Yrs \$1698.0 mil.	d342.3	187.2	209.9	267.8	304.9	374.3	369.3	429.8	476.0	468.0	510	580	Net Profit (\$mil)	720	
LT Debt \$5650.0 mil. LT Interest \$300.0 mil. (51% of Cap'l)			37.4%	37.9%	40.4%	39.5%	40.7%	39.1%	39.4%	39.1%	39.2%	41.0%	38.0%	Income Tax Rate	36.5%
Lessee, Uncapitalized: Annual rentals \$14.0 mil.	50.9%	53.1%	56.9%	56.8%	55.7%	53.9%	52.4%	52.4%	53.7%	52.4%	53.5%	55.0%	55.0%	Long-Term Debt Ratio	54.0%
Pension Assets 12/16 \$1443.0 mil	49.1%	46.9%	43.1%	43.2%	44.2%	46.1%	47.6%	47.4%	46.2%	47.5%	46.5%	45.0%	45.0%	Common Equity Ratio	46.0%
Obliq. \$1864.0 mil	9245.7	8750.2	9289.0	9561.3	9560.3	9635.5	9940.7	10364	10911	10967	11600	12850	Total Capital (\$mil)	16000	
Pfd Div'd \$5 mil	9318.0	9991.8	10524	11059	11021	11739	12391	12900	13933	14992	15675	16400	Net Plant (\$mil)	18000	
Common Stock 178,282,329 shs. as of 7/27/17	NMF 3.7%	3.8%	4.4%	4.8%	5.4%	5.1%	5.5%	5.7%	6.0%	6.0%	6.0%	6.0%	Return on Total Cap'l	6.6%	
	NMF 4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	9.5%	10.0%	10.0%	Return on Shr. Equity	10.6%	
	NMF 4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	9.5%	10.0%	10.0%	Return on Com Equity	10.5%	
	NMF 3.0%	1.8%	2.8%	3.5%	3.6%	4.7%	4.3%	4.7%	4.0%	4.5%	4.5%	4.5%	Retained to Com Eq	4.5%	
	--	34%	65%	56%	52%	57%	40%	50%	50%	50%	56%	57%	55%	All Div's to Net Prof	57%

BUSINESS: American Water Works Company, Inc. is the largest investor-owned water and wastewater utility in the U.S., providing services to over 15 million people in over 47 states and Canada. (Regulated presence in 16 states.) Nonregulated business assists municipalities and military bases with the maintenance and upkeep as well. Regulated operations made up 86.5% of 2016 revenues.

A court has granted preliminary approval to a settlement in a legal suit against American Water Works. In January of 2014, the wholly owned West Virginia-based subsidiary of the water utility was sued over the Freedom Industries chemical spill into the Elk River. According to the proposed deal, American Water would have to pay approximately \$126 million to resolve all claims against it. Net of insurance proceeds, management believes that the final aftertax hit to earnings will be about \$26 million, or \$0.14 a share.

The bottom line has also been hurt by a couple of other factors. A recent ruling in the state of New York, which indicated that water utilities do not qualify for the manufacturer tax break, resulted in a one-time noncash charge of around \$7 million in the second quarter. Also, during the same period, operating income from the company's nonutility business declined 30% due largely to reduced capital spending at U.S. military bases.

Still, on the whole, the utility's earning prospects are relatively bright. Even with the penalty from the West Virginia settlement (we have taken it out of this year's fourth quarter), we estimate that American Water's share earnings will rise 9% over 2016's mediocre figure. What's more, with the company earning a return on more assets and demand for the military expected to pick up (there are several military bases seeking bids to privatize their water systems), share earnings can probably climb a hefty 14% in 2018. The company's continued strategy of making many small acquisitions and using economies of scale to make the operations more efficient will also play a major part.

The long-term outlook for dividend growth is excellent. We think that the annual payout can rise 10% over the next 3- to 5-year period. This is the highest of any member of this group.

These shares do not hold any great appeal at this time, however. Despite being the largest and possibly best-run publicly owned water utility in the country, the premium demanded by the market for this group of stocks seems excessive, in our opinion. Hence, investors can probably do better elsewhere.

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	679.0	754.8	846.1	731.4	3011.3
2015	698.0	782.0	896.0	783.0	3159.0
2016	743.0	827.0	930.0	802.0	3302.0
2017	756.0	844.0	985	855	3440
2018	770	895	1040	895	3600

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.39	.62	.86	.52	2.39
2015	.44	.68	.96	.56	2.64
2016	.46	.77	.83	.57	2.62
2017	.52	.73	1.02	.58	2.85
2018	.62	.83	1.09	.71	3.25

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.28	.31	.31	.31	1.21
2015	.31	.34	.34	.34	1.33
2016	.34	.375	.375	.375	1.47
2017	.375	.415	.415		

(A) Diluted earnings. Excludes nonrecurring losses: '08, \$4.62; '09, \$2.63; '11, \$0.07. Discontinued operations: '06, \$(0.04); '11, \$0.03; '12, \$(0.10); '13, \$(0.01). GAAP used as of 2014. Next earnings report due mid-November. (C) In m. Quarterly earnings do not sum '16 due to rounding. (B) Dividends paid in March, June, September, and December. = Div. reinvest. '07. (D) Includes in-\$1.373 billion numbers for '06 & '07. (E) Pro for

Company's Financial Strength
 Stock's Price Stability 8+
 Price Growth Persistence 85
 Earnings Predictability 90

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AQUA AMERICA NYSE-WTR

TIMELINESS 3 Lowered 8/20/16
SAFETY 2 Raised 4/20/12
TECHNICAL 1 Raised 10/13/17
BETA .70 (1.00 = Market)

2020-22 PROJECTIONS

Price	Gain	Return
High 45	(+35%)	10%
Low 35	(+5%)	4%

Insider Decisions

D	J	F	M	A	M	J	J	A
to Buy	0	0	0	0	0	0	0	0
to Sell	0	0	0	0	0	0	0	0

Institutional Decisions

4Q2016	1Q2017	2Q2017	
to Buy	182	179	172
to Sell	171	180	155
Net Buy	11	-1	17

RECENT PRICE 33.77 **P/E RATIO** 24.3 (Trailing: 25.8 Median: 22.0) **RELATIVE P/E RATIO** 1.21 **DIVD YLD** 2.5% **PERFORMANCE** 1785

LEGENDS
 - 1.60 x Dividends p sh divided by Interest Rate
 - Relative Price Strength
 - 4-for-3 split 12/05
 - 5-for-4 split 9/13
 - Options: Yes
 - Shaded area indicates recession

High: 23.8, 21.3, 17.6, 17.2, 18.4, 19.0, 21.5, 28.1, 28.2, 31.1, 35.8, 34.7
Low: 16.1, 15.1, 9.8, 12.3, 13.2, 15.4, 16.8, 20.6, 22.4, 24.4, 28.0, 29.4

Target Price Range
 2020: 45, 2021: 50, 2022: 60

% TOT. RETURN 9/17
 THIS STOCK: 11.5, 11.6, 18.4
 1 yr: 11.5, 11.6, 18.4
 3 yr: 51.9, 31.5
 5 yr: 89.6, 88.9

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	20-22
Revenues per sh	2.16	2.28	2.38	2.70	3.08	3.23	3.61	3.71	3.93	4.21	4.10	4.32	4.32	4.61	4.61	4.62	4.65	4.95	6.05
"Cash Flow" per sh	.69	.76	.77	.87	.97	1.01	1.10	1.14	1.29	1.42	1.45	1.51	1.82	1.89	1.87	2.07	2.15	2.25	2.75
Earnings per sh	.41	.43	.46	.51	.57	.56	.57	.58	.62	.72	.83	.87	1.16	1.20	1.14	1.32	1.36	1.45	1.85
Div'd Dec'd per sh	.24	.26	.28	.29	.32	.35	.36	.41	.44	.47	.50	.54	.58	.63	.69	.74	.80	.85	1.15
Cap'l Spending per sh	.87	.96	1.06	1.23	1.47	1.64	1.43	1.58	1.66	1.89	1.90	1.98	1.73	1.84	2.07	2.16	2.55	2.45	2.25
Book Value per sh	3.32	3.49	4.27	4.71	5.04	5.57	5.65	6.26	6.50	6.81	7.21	7.90	8.63	9.27	9.78	10.43	11.10	11.75	14.85
Common Shs Outst'g	142.47	141.49	154.31	158.97	161.21	165.41	166.75	169.21	170.61	172.46	173.60	175.43	177.93	178.59	176.54	177.39	178.00	178.50	180.00
Avg Ann'l P/E Ratio	23.6	23.6	24.5	25.1	31.8	34.7	32.0	24.9	23.1	21.1	21.3	21.2	20.8	23.5	23.9	23.9	23.9	23.5	21.0
Relative P/E Ratio	1.21	1.29	1.40	1.33	1.69	1.87	1.70	1.50	1.54	1.34	1.34	1.39	1.19	1.09	1.18	1.26	1.26	1.26	1.30
Avg Ann'l Div'd Yield	2.5%	2.5%	2.5%	2.3%	1.8%	1.8%	2.1%	2.8%	3.1%	3.1%	2.8%	2.8%	2.4%	2.5%	2.6%	2.3%	2.3%	2.3%	2.9%

CAPITAL STRUCTURE as of 6/30/17

Total Debt \$2093.6 mill. Due in 5 Yrs \$430.5 mill.
 LT Debt \$1882.6 mill. LT Interest \$76.3 mill.
 (51% of Cap'l)

Pension Assets: 12/16 \$242.4 mill. Oblig. \$308.2 mill.

Common Stock: 177,651,543 shares

MARKET CAP: \$6.0 billion (Large Cap)

Current Position	2015	2016	6/30/17
Cash Assets	3.2	3.7	7.8
Receivables	99.1	97.4	98.9
Inventory (AvgCst)	12.4	13.0	16.8
Other	13.7	14.6	14.6
Current Assets	128.4	128.7	138.1
Accs Payable	56.5	59.9	46.4
Debt Due	52.3	157.2	221.0
Other	84.4	84.4	65.1
Current Liab.	193.2	301.5	332.5

ANNUAL RATES

of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	4.0%	2.0%	5.0%
"Cash Flow"	7.5%	7.0%	6.0%
Earnings	8.5%	11.0%	7.0%
Dividends	8.0%	8.0%	9.0%
Book Value	7.0%	7.5%	6.5%

Calendar	QUARTERLY REVENUES (\$ mill.)				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2014	182.7	195.3	210.5	191.4	779.9
2015	190.3	205.8	221.0	197.1	814.2
2016	192.6	203.9	226.6	196.8	819.9
2017	187.8	203.4	233.0	205	830
2018	200	220	245	215	880

Calendar	EARNINGS PER SHARE				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2014	.24	.31	.38	.27	1.20
2015	.27	.32	.38	.17	1.14
2016	.29	.34	.41	.28	1.32
2017	.28	.34	.43	.31	1.36
2018	.31	.36	.47	.31	1.45

Calendar	QUARTERLY DIVIDENDS PAID				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2013	.14	.14	.152	.152	.58
2014	.152	.152	.165	.165	.63
2015	.165	.165	.178	.178	.69
2016	.178	.178	.1913	.1913	.74
2017	.1913	.1913	.205		

BUSINESS: Aqua America, Inc. is the holding company for water and wastewater utilities that serve approximately three million residents in Pennsylvania, Ohio, North Carolina, Illinois, Texas, New Jersey, Florida, Indiana, and five other states. Has 1,551 employees. Acquired AquaSource, 7/13; North Maine Utilities, 7/15; and others. Water supply revenues '2016: residential, 59%; commercial, 16%; industrial, wastewater & other, 25%. Off. & dir. own less than 1% of the common stock; Vanguard Group, 8.9%; Blackrock, Inc, 8.1%; State Street Capital, 6.0% (3/17 Proxy). President & Chief Executive Officer: Christopher Franklin. Incorporated: Pennsylvania. Address: 762 West Lancaster Avenue, Bryn Mawr, Pennsylvania 19010. Tel.: 610-525-1400. Internet: www.aquamerica.com.

A large percentage of Aqua America's future growth will likely come via acquisitions. Similar to other large publicly traded water utilities, Aqua has been a continual buyer of small local water districts. Indeed, most of the 100,000-plus water systems in the U.S. do not have the financial wherewithal to replace their aging infrastructures. By constantly purchasing these types of entities, Aqua can gradually increase its customer base. Moreover, since actual synergies do result from mergers in this industry, the new assets can be operated more efficiently.

There's always something happening on the regulatory front. The company has received rate relief in Indiana, New Jersey, North Carolina, Ohio and Pennsylvania. Other rate cases are pending in Virginia and Illinois. Aqua has good relationships with its regulators, so we are not expecting any major negative surprises.

Dividends should increase at a healthy rate for the foreseeable future. Last quarter, the payout was hiked by 7%. This is less than the company's five- and 10-year historical average of 8%. Nevertheless, we think Aqua's strong cash generation should enable its payouts to rise 8%-10% annually through 2020-2022.

Capital outlays are large but manageable. Aqua increased this year's capital expenditure budget to approximately \$450 million. The majority of funds will be allocated to repair, maintain, and replace aged pipelines and equipment. We don't expect this figure to change much in 2018. In 2019, though, we think outlays should decline to the \$300 million-\$325 million range. Of the nine members included in the water group, Aqua is only one of two that rates a Financial Strength rating of at least an A. While the balance sheet may be more leveraged over the next couple of years, it should remain relatively healthy.

The stock has a high yield for a water utility. WTR is yielding 2.5%, or about 50 basis points more than its peers. This is unusual considering the equity's strong projected dividend growth. As a result, even though we still think shares of water utilities are currently trading at too high a premium, WTR is probably the best selection for those investors who must own a stock in this industry.

James A. Flood *October 13, 2017*

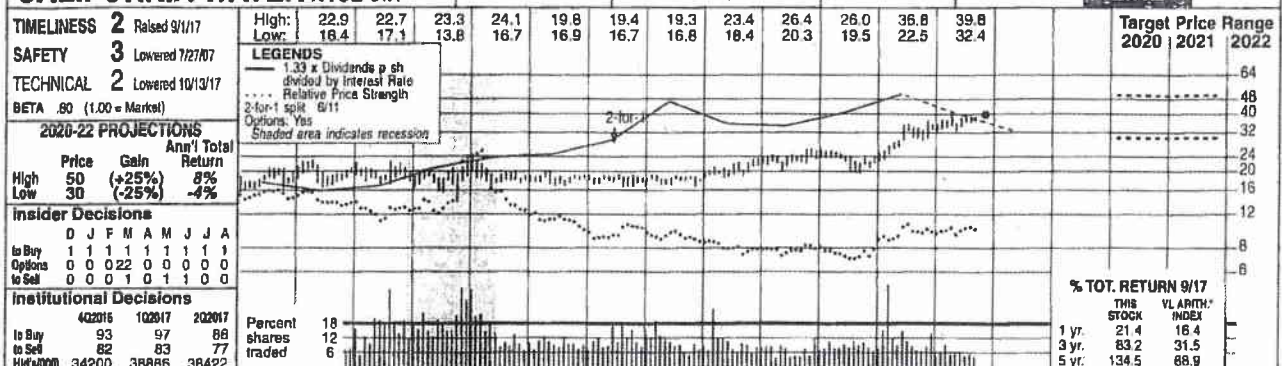
(A) Diluted eqs. Excl. nonrec. gains: '01, 2e; '02, 4e; '03, 3e; '12, 18e. Excl. gain from disc. operations: '12, 7e; '13, 9e; '14, 11e. May not sum due to rounding. Next earnings report due mid-November.
 (B) Dividends historically paid in early March, June, Sept. & Dec. = Div'd. reinvestment plan available (5% discount).
 (C) In millions, adjusted for stock splits.

Company's Financial Strength	A
Stock's Price Stability	95
Price Growth Persistence	65
Earnings Predictability	90

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CALIFORNIA WATER NYSE-CWT RECENT PRICE **39.65** P/E RATIO **28.3** (Trailing: 33.0 Median: 20.0) RELATIVE P/E RATIO **1.41** DIV'D YLD **1.8%** VALUE LINE **1786**



Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Price	8.13	8.67	8.18	8.59	8.72	8.10	8.88	9.90	10.82	11.05	12.00	13.34	12.23	12.50	12.29	12.70	13.45	13.90
Gain	1.10	1.32	1.26	1.42	1.52	1.36	1.56	1.86	1.93	1.93	2.07	2.32	2.21	2.47	2.22	2.34	2.85	2.80
Return	.47	.63	.61	.73	.74	.67	.75	.95	.98	.91	.86	1.02	1.02	1.19	.94	1.01	1.35	1.45
High	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Low	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Revenues per sh	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70
"Cash Flow" per sh	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15
Earnings per sh	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
Div'd Decl'd per sh	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Income Tax Rate	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
AFUDC % to Net Profit	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Long-Term Debt Ratio	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Return on Total Cap'l	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
Return on Shr. Equity	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%
Return on Com Equity	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Revenues (\$mill)	675	675	675	675	675	675	675	675	675	675	675	675	675	675	675	675	675	675
Net Profit (\$mill)	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0
Income Tax Rate	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%

California Water Service Group benefited from favorable rate activity in the second quarter. The regulated water provider saw revenues surge to \$171 million, a 12% annual improvement, and a 40% increase on a sequential basis. The advance can largely be attributed to recent rate changes by the California regulatory authority (effective earlier this year). Specifically, rate increases alone added more than \$17 million to the top line in the June period, with unbilled revenue accounting for the remainder of gains. **Profits are on the right track.** California Water earned \$0.39 a share in the second quarter, besting our \$0.35 call. Lower incremental drought costs were positive, but the real takeaway was the 260-basis-point decline in operating expenses, notably slimmer maintenance and administrative costs. Our 2017 bottom-line estimate of \$1.35 a share remains intact, equating to year-over-year growth of 34%. **We are tacking \$10 million onto our current-year revenue estimate, to \$650 million.** This is partly owing to the strong second-quarter showing, but also factors in the higher base rate going forward. Meanwhile, our 2018 top-line forecast is unchanged, at \$675 million. **The long-term story hasn't changed much.** Acquisitions and capital spending remain the main themes here. The company has ample funding to allocate to infrastructure upgrades and water system improvements. Year to date, CWT has spent just over \$100 million on investments, leaving approximately \$450 million-\$500 million at its disposal. Further, bolt-on acquisitions are a possible avenue to explore should management want to supplement organic growth. All this, along with continued inquiry into increased base rates, augurs well for business prospects into next decade. **These shares are trading near all-time highs.** No doubt, the market has rewarded the company for returning to growth in 2016, as the stock price is up nearly 75% from last year's lows. This issue is timely (2), and is slated to outperform the year-ahead broader market averages. However, due to the run-up in price, total return potential over the 3- to 5-year stretch is below average.

Nicholas P. Patrikis *October 13, 2017*

(A) Basic EPS. Excl. nonrecurring gain (loss): '01, 2c; '02, 4c; '11, 4c. Next earnings report due late November. (B) Dividends historically paid in late Feb., May, Aug., and Nov. ■ Div'd reinvestment plan available. (C) Incl. intangible assets. In '16: \$21.9 mill., \$0.46/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	35
Earnings Predictability	70

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CONNECTICUT WATER NDQ-CTWS										RECENT PRICE	60.93	P/E RATIO	27.8 (Trailing: 30.5 Median: 20.0)	RELATIVE P/E RATIO	1.39	DIV'D YLD	2.0%	P/VALUE LINE	178766																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
TIMELINESS	3	Raised 10/13/17	High: 27.7	25.6	29.0	26.4	27.9	29.1	32.8	36.4	37.5	39.9	58.3	62.2	Target Price Range 2020 : 2021 : 2022																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
SAFETY	3	New 1/18/13	Low: 20.3	22.4	19.3	17.3	20.0	23.3	26.2	27.8	31.0	33.2	37.5	50.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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<table border="1"> <thead> <tr> <th>2001</th><th>2002</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>20-22</th></tr> </thead> <tbody> <tr> <td>5.93</td><td>5.77</td><td>5.91</td><td>6.04</td><td>5.81</td><td>5.68</td><td>7.05</td><td>7.24</td><td>6.93</td><td>7.65</td><td>7.83</td><td>9.47</td><td>8.29</td><td>8.45</td><td>8.58</td><td>8.77</td><td>9.00</td><td>9.60</td><td>Revenues per sh</td><td>12.80</td></tr> <tr> <td>1.78</td><td>1.78</td><td>1.89</td><td>1.91</td><td>1.62</td><td>1.52</td><td>1.90</td><td>1.95</td><td>1.93</td><td>2.04</td><td>2.11</td><td>2.64</td><td>2.63</td><td>2.97</td><td>3.18</td><td>3.31</td><td>3.40</td><td>3.50</td><td>"Cash Flow" per sh</td><td>3.85</td></tr> <tr> <td>1.13</td><td>1.12</td><td>1.15</td><td>1.16</td><td>.88</td><td>.81</td><td>1.05</td><td>1.11</td><td>1.19</td><td>1.13</td><td>1.13</td><td>1.53</td><td>1.66</td><td>1.92</td><td>2.04</td><td>2.08</td><td>2.20</td><td>2.35</td><td>Earnings per sh A</td><td>2.65</td></tr> <tr> <td>.80</td><td>.81</td><td>.83</td><td>.84</td><td>.85</td><td>.86</td><td>.87</td><td>.88</td><td>.90</td><td>.92</td><td>.94</td><td>.98</td><td>.98</td><td>1.01</td><td>1.05</td><td>1.12</td><td>1.18</td><td>1.24</td><td>Div'd Decl'd per sh B</td><td>1.40</td></tr> <tr> <td>1.86</td><td>1.98</td><td>1.49</td><td>1.58</td><td>1.96</td><td>1.96</td><td>2.24</td><td>2.44</td><td>3.28</td><td>3.06</td><td>2.61</td><td>2.79</td><td>3.02</td><td>4.11</td><td>4.29</td><td>5.93</td><td>4.50</td><td>4.35</td><td>Cap'l Spending per sh</td><td>3.35</td></tr> <tr> <td>9.25</td><td>10.06</td><td>10.46</td><td>10.94</td><td>11.52</td><td>11.60</td><td>11.95</td><td>12.23</td><td>12.67</td><td>13.05</td><td>13.50</td><td>20.95</td><td>17.92</td><td>18.83</td><td>20.01</td><td>20.98</td><td>21.70</td><td>21.65</td><td>Book Value per sh D</td><td>22.80</td></tr> <tr> <td>7.65</td><td>7.94</td><td>7.97</td><td>8.04</td><td>8.17</td><td>8.27</td><td>8.38</td><td>8.46</td><td>8.57</td><td>8.68</td><td>8.76</td><td>8.85</td><td>11.04</td><td>11.12</td><td>11.19</td><td>11.25</td><td>11.75</td><td>12.00</td><td>Common Shs Outst'g C</td><td>12.50</td></tr> <tr> <td>21.5</td><td>24.3</td><td>23.5</td><td>22.9</td><td>28.6</td><td>29.0</td><td>23.0</td><td>22.2</td><td>18.4</td><td>20.7</td><td>23.0</td><td>19.4</td><td>16.4</td><td>17.5</td><td>17.6</td><td>23.3</td><td>23.0</td><td>23.0</td><td>Avg Ann'l P/E Ratio</td><td>15.0</td></tr> <tr> <td>1.10</td><td>1.33</td><td>1.34</td><td>1.21</td><td>1.52</td><td>1.57</td><td>1.22</td><td>1.34</td><td>1.23</td><td>1.32</td><td>1.44</td><td>1.23</td><td>1.03</td><td>.92</td><td>.89</td><td>1.22</td><td>1.22</td><td>1.22</td><td>Relative P/E Ratio</td><td>1.20</td></tr> <tr> <td>3.3%</td><td>3.0%</td><td>3.0%</td><td>3.1%</td><td>3.4%</td><td>3.6%</td><td>3.6%</td><td>3.6%</td><td>4.1%</td><td>3.9%</td><td>3.6%</td><td>3.2%</td><td>3.2%</td><td>3.0%</td><td>2.9%</td><td>2.3%</td><td>2.3%</td><td>2.3%</td><td>Avg Ann'l Div'd Yield</td><td>2.8%</td></tr> <tr> <td colspan="18"> CAPITAL STRUCTURE as of 6/30/17 Total Debt \$210.6 mill. Due In 5 Yrs \$19.8 mill. LT Debt \$205.4 mill. LT Interest \$7.7 mill. (45% of Cap'l) </td> </tr> <tr> <td colspan="18"> Leases, Unicapitalized: Annual rentals \$.3 mill. Pension Assets-12/16 \$62.7 mill. Oblig. \$79.3 mill. </td> </tr> <tr> <td colspan="18"> Pfd Stock \$0.8 mill. Pfd Divd NMF </td> </tr> <tr> <td colspan="18"> Common Stock 11,575,400 shs </td> </tr> <tr> <td colspan="18"> MARKET CAP: \$700 million (Small Cap) </td> </tr> <tr> <td colspan="18"> CURRENT POSITION 2015 2016 6/30/17 (\$MILL.) </td> </tr> <tr> <td colspan="18"> Cash Assets 7 1.6 2.7 Accounts Receivable 11.0 13.0 12.9 Other 15.3 14.8 16.6 Current Assets 27.0 29.4 32.2 Accts Payable 11.9 13.1 9.6 Debt Due 2.8 4.9 5.2 Other 22.2 37.1 47.8 Current Liab. 36.9 55.1 62.6 </td> </tr> <tr> <td colspan="18"> ANNUAL RATES of change (per sh) Past 10 Yrs. Past 5 Yrs. 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2016	21.6	26.1	29.5	21.5	98.7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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BUSINESS: Connecticut Water Service, Inc. is a non-operating holding company, whose income is derived from earnings of its wholly-owned subsidiary companies (regulated water utilities). In 2016, 95% of net income was derived from these activities. Provides water services to 440,000 people in 79 municipalities throughout Connecticut and Maine. Acquired The Maine Water Company, January, 2012; Biddelford and Saco Water, December, 2012; Heritage Village, February, 2017, Inc., Conn. Has 266 employees. Chairman/President/Chief Executive Officer: Eric W. Thomburg. Officers and directors own 2.5% of the common stock; BlackRock, Inc., 7.2% (4/17 proxy). Address: 93 West Main Street, Clinton, CT 06413. Telephone: (860) 669-8836. Internet: www.ctwater.com.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Connecticut Water Service delivered second-quarter results that fell short of our expectations. Revenues of \$27.9 million improved marginally, on a year-over-year basis, but missed our \$28.5 million call. The July period included a full quarter of Heritage Village operations, as well as incremental surcharges in both Connecticut and Maine. Not until the third quarter will the completed acquisition (July 1st) of the Avon Water Company be included in the financials. Similarly, the bottom line was a nickel shy of our estimate, at \$0.73 a share. Net income was adversely impacted by several cents due to greater business development costs associated with the above-mentioned deals. Nonetheless, Connecticut Water should right the ship in the recently concluded third quarter, as we look for revenues of \$32 million and share net of \$0.88.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
There has been some activity on the rate front. Earlier this summer, The Maine Water Company filed for a rate increase (pending approval from the Maine Public Utilities Commission) in its Biddelford and Saco division. This could potentially add about \$2 million to the top line.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Additionally, the company filed for a rate increase of 1.6% on WICA (recovered funds from infrastructure upgrades.)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Long term, acquisitions and higher capital spending are likely in the cards. Indeed, the strategy is starting to bear fruit, as CTWS lifted its customer base by nearly 9,500 via its Avon and Heritage purchases. Financials results should feel the effects beginning in the second half of this year. Moreover, Connecticut plans to take full advantage of WICA and WISC benefits (increase to WICA surcharge pending), and ought to continue to replace aging water mains in the coming years.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
This equity has slipped a notch in Timeliness to 3, Average. What's more, the current valuation (28.0x 12-month earnings-per-share estimate) is a bit rich when compared to historical norms, and on a peer-to-peer basis. The stock is trading above our 3- to 5-year Target Price Range, and total return potential is substantial. Thus, we recommend investors wait for a better entry point before committing funds here.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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(A) Diluted earnings. Next earnings report due late November. (B) Dividends historically paid in mid-March, June, September, and December. (C) In millions. (D) Includes Intangibles. In 2016: \$30.4 million/\$2.70 a share.

Company's Financial Strength B+
 Stock's Price Stability 90
 Price Growth Persistence 50
 Earnings Predictability 90

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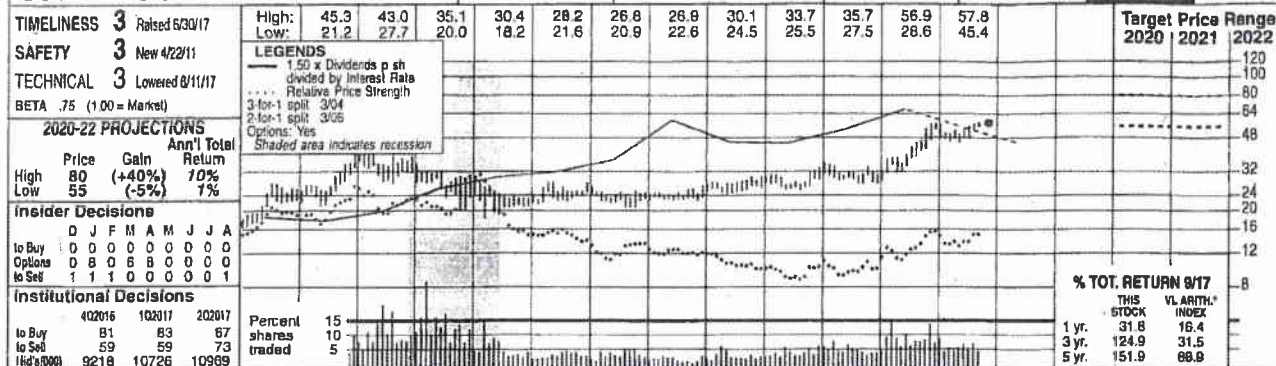
MIDDLESEX WATER NDAQ-MSEX				RECENT PRICE	P/E RATIO	Trailing: 30.4 Median: 20.0	RELATIVE P/E RATIO	DIV'D YLD	VALUE LINE	4789							
TIMELINESS	4 Lowered 7/7/17	High: 20.5	20.2	19.8	17.9	19.3	19.4	19.6	22.5	23.7	28.0	44.5	42.8	Target Price Range	2020	2021	2022
SAFETY	2 New 10/21/11	Low: 16.5	16.9	12.0	11.6	14.7	16.5	17.5	18.6	19.1	21.2	25.0	32.2	64			
TECHNICAL	3 Raised 7/14/17	LEGENDS 1.25x Dividends p sh divided by Interest Rate Relative Price Strength Options: Yes Shaded area indicates recession															
BETA	.80 (1.00 = Market)	2020-22 PROJECTIONS Price Gain Ann'l Total High 50 (+25%) 8% Low 35 (-15%) -1%															
Insider Decisions		D J F M A M J J A to Buy 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 Options 0 0 0 0 0 7 0 0 0 0 0 0 0 0 0 0 0 0 to Sell 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0															
Institutional Decisions		1Q2016 1Q2017 2Q2017 to Buy 40 45 60 to Sell 62 51 44 Hld's(000) 7874 9400 9201 Percent shares traded 12 8 4															
CAPITAL STRUCTURE as of 6/30/17		Total Debt \$159.6 mill. Due in 5 Yrs \$32.1 mill. LT Debt \$136.4 mill LT Interest \$6.0 mill. (Total Interest coverage: 8.6x) (38% of Cap'l)															
Pension Assets-12/16 \$59.4 mill		Oblig. \$78.6 mill. Pfd Stock \$2.4 mill. Pfd Div'd: \$.1 mill.															
Common Stock 16,337,784 shs. as of 7/31/17		MARKET CAP: \$650 million (Small Cap)															
CURRENT POSITION (\$MILL.)		2015 2016 6/30/17 Cash Assets 3.5 3.9 3.7 Other 20.9 22.8 26.0 Current Assets 24.4 26.7 29.7 Accts Payable 6.5 12.3 15.0 Debt Due 8.7 18.2 23.2 Other 13.1 16.6 17.2 Current Liab. 28.3 47.1 55.4															
ANNUAL RATES of change (per sh)		Past 10 Yrs. Past 5 Yrs. Est'd '14-'16 to '20-22 Revenues 2.0% 3.0% 3.5% "Cash Flow" 4.5% 6.5% 7.5% Earnings 5.0% 8.0% 8.5% Dividends 1.5% 1.5% 4.5% Book Value 4.0% 3.0% 4.5%															
QUARTERLY REVENUES (\$ MILL)		Cal-ender Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2014 27.1 29.2 32.7 28.1 117.1 2015 28.8 31.7 34.7 30.8 126.0 2016 30.6 32.7 37.8 31.8 132.9 2017 30.1 33.0 39.0 34.9 137 2018 33.0 37.0 40.0 35.0 145															
EARNINGS PER SHARE		Cal-ender Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2014 .20 .29 .42 .22 1.13 2015 .22 .31 .41 .28 1.22 2016 .29 .36 .54 .19 1.38 2017 .27 .33 .55 .33 1.48 2018 .33 .38 .57 .32 1.60															
QUARTERLY DIVIDENDS PAID		Cal-ender Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2013 .1875 .1875 .1875 .19 .75 2014 .19 .19 .19 .1925 .76 2015 .1925 .1925 .1925 .19875 .78 2016 .19875 .19875 .19875 .21125 .81 2017 .21125 .21125 .21125															
BUSINESS:		Middlesex Water Company engages in the ownership and operation of regulated water utility systems in New Jersey, Delaware, and Pennsylvania. It also operates water and wastewater systems under contract on behalf of municipal and private clients in NJ and DE. Its Middlesex System provides water services to 61,000 retail customers, primarily in Middlesex County, New Jersey. In 2016, the Middlesex System accounted for 60% of operating revenues. At 12/31/16, the company had 303 employees. Incorporated: NJ. President, CEO, and Chairman: Dennis W. Doll. Officers & directors own 3.5% of the common stock; BlackRock Institutional Trust Co., 7.2% (4/17 proxy). Add: 1500 Ronson Road, Iselin, NJ 08830. Tel: 732-634-1500. Internet: www.middlesexwater.com.															
Middlesex Water Company reported soft results for the second quarter. Following a somewhat colder (longer) winter season, customer water usage picked up only moderately through the late spring into early summer months. Indeed, the volatile Northeast region of the U.S. (MSEX's main area of operation) leaves the company subject to weather disruptions. First-quarter revenues came in roughly flat, year over year, at \$33.0 million. Delaware operations registered a modest gain thanks to new customer additions, while its New Jersey segment slipped due to a continued trend of weak water consumption. Similar to the first quarter, net income took a step back, compared to the year-earlier figure. Share net of \$0.33 missed our mark by \$0.04, with increased water production costs weighing on profits.		2016, the Middlesex System accounted for 60% of operating revenues. At 12/31/16, the company had 303 employees. Incorporated: NJ. President, CEO, and Chairman: Dennis W. Doll. Officers & directors own 3.5% of the common stock; BlackRock Institutional Trust Co., 7.2% (4/17 proxy). Add: 1500 Ronson Road, Iselin, NJ 08830. Tel: 732-634-1500. Internet: www.middlesexwater.com.															
Our current-year top- and bottom-line estimates are being modestly reduced. We now expect Middlesex to earn \$1.48 a share (-\$0.02 less than our previous call), on \$137 million in revenues (-\$1 million). Infrastructure upgrades are still management's main focus. Under its recent-		ly established RENEW program and Water for Tomorrow initiative, the company aims to allocate nearly \$12 million in each of the next three years to bolster its water transmission capabilities by replacing old water mains, valves, and services lines throughout New Jersey. Total capital spending on its water distribution infrastructure (approximately \$200 million through next decade) ought to be closely monitored, with a portion of those corresponding investment costs being recovered by appropriate rate filings. Finally, a slow but sure pickup in consumption from New Jersey residents should provide an extra boost to the top line further out.															
Our Timeliness Ranking System pegs shares of Middlesex Water Company as year-ahead market laggards (4, Below Average). In the same breath, the issue offers unattractive total return potential over the 3- to 5-year pull, and its dividend yield, though average, pales in comparison to its historical norms. Therefore, we suggest investors stay on the sidelines, for now.		Nicholas P. Patrikis October 13, 2017															

(A) Diluted earnings. Next earnings report due early November. (B) Dividends historically paid in mid-Feb., May, Aug., and November. Div'd reinvestment plan available. (C) In millions, adjusted for split.

Company's Financial Strength	B++
Stock's Price Stability	70
Price Growth Persistence	40
Earnings Predictability	85

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SJW GROUP NYSE-SJW RECENT PRICE **57.60** P/E RATIO **22.7** (Trailing: 21.6 Median: 23.0) RELATIVE P/E RATIO **1.13** DIV'D YLD **1.5%** VALUE LINE **1790**



Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Price	7.45	7.97	8.20	9.14	9.86	10.35	11.25	12.12	11.68	11.62	12.85	14.01	13.73	15.76	14.97	16.61	17.15	16.80	17.15	16.80	17.15	16.80
Cash Flow	1.49	1.55	1.75	1.89	2.21	2.38	2.30	2.44	2.21	2.38	2.80	2.97	2.90	4.42	3.86	4.76	4.60	4.65	4.65	4.65	4.65	4.65
Earnings	.77	.78	.91	.87	1.12	1.19	1.04	1.08	.81	.84	1.11	1.18	1.12	2.54	1.85	2.57	2.45	2.60	2.60	2.60	2.60	2.60
Div'd Decl'd	.43	.46	.49	.51	.53	.57	.61	.65	.66	.68	.69	.71	.73	.75	.78	.81	.87	.87	.87	.87	.87	.87
Cap'l Spending	2.63	2.06	3.41	2.31	2.83	3.87	6.62	3.79	3.17	5.65	3.75	5.67	4.66	5.02	5.24	6.95	6.00	5.50	5.50	5.50	5.50	5.50
Book Value	8.17	8.40	9.11	10.11	10.72	12.48	12.90	13.99	13.66	13.75	14.20	14.71	15.92	17.75	18.83	20.61	21.20	21.60	21.60	21.60	21.60	21.60
Common Shs Outst'g	18.27	18.27	18.27	18.27	18.27	18.27	18.36	18.18	18.50	18.55	18.59	18.67	20.17	20.29	20.38	20.46	21.00	22.00	22.00	22.00	22.00	22.00
Avg Ann'l P/E Ratio	16.5	17.3	15.4	19.6	19.7	23.5	33.4	26.2	28.7	29.1	21.2	20.4	24.3	11.2	16.6	15.7	11.2	11.2	11.2	11.2	11.2	11.2
Relative P/E Ratio	95	94	88	1.04	1.05	1.27	1.77	1.58	1.91	1.85	1.33	1.30	1.37	5.9	.84	83	1.1	1.1	1.1	1.1	1.1	1.1
Avg Ann'l Div'd Yield	3.0%	3.4%	3.5%	3.0%	2.4%	2.0%	1.7%	2.3%	2.8%	2.8%	2.9%	3.0%	2.7%	2.6%	2.5%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Revenues (\$mil)	206.6	220.3	216.1	215.6	239.0	261.5	276.9	319.7	305.1	339.7	360	370	370	370	370	370	370	370	370	370	370	370
Net Profit (\$mil)	19.3	20.2	15.2	15.8	20.9	22.3	23.5	51.8	37.9	52.0	51.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0
Income Tax Rate	39.4%	39.5%	40.4%	38.8%	41.1%	41.1%	38.7%	32.5%	38.1%	38.8%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%
AFUDC % to Net Profit	2.7%	2.3%	2.0%	--	--	--	--	--	2.0%	1.0%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Long-Term Debt Ratio	47.7%	46.0%	49.4%	53.7%	56.6%	55.0%	51.1%	51.6%	49.8%	50.7%	49.0%	48.5%	48.0%	48.4%	49.3%	51.0%	51.5%	51.5%	51.5%	51.5%	51.5%	51.5%
Common Equity Ratio	52.3%	54.0%	50.6%	46.3%	43.4%	45.0%	48.9%	48.4%	50.2%	49.3%	51.0%	51.5%	51.5%	51.5%	50.7%	49.3%	48.5%	48.5%	48.5%	48.5%	48.5%	48.5%
Capital (\$mil)	453.2	470.9	499.6	550.7	607.9	610.2	656.2	744.5	764.6	855.0	870	925	925	925	925	925	925	925	925	925	925	925
Net Plant (\$mil)	645.5	684.2	718.5	785.5	756.2	831.6	898.7	963.0	1036.8	1146.4	1200	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250
Return on Total Cap'l	5.7%	5.8%	4.4%	4.3%	4.9%	5.0%	5.0%	8.3%	6.3%	7.4%	7.0%	7.5%	7.5%	7.4%	7.4%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
Return on Shr. Equity	8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	11.5%	12.0%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Return on Com Equity	8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	11.5%	12.0%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Retained to Com Prof	3.5%	3.3%	1.2%	1.2%	3.1%	3.3%	2.8%	10.2%	5.7%	8.6%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
All Div'ds to Net Prof	57%	59%	80%	80%	61%	59%	62%	29%	42%	31%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%

CAPITAL STRUCTURE as of 6/30/17
 Total Debt \$430.9 mill. Due in 5 Yrs \$14.3 mill.
 LT Debt \$430.9 mill. LT Interest \$20.0 mill. (50% of Cap'l)

Leases, Uncapitalized: Annual rentals \$6.6 mill.

Pension Assets-12/16 \$113.9 mill. Oblig. \$174.1 mill.

Pfd Stock None.

Common Stock 20,506,494 shs.

MARKET CAP: \$1.2 billion (Mid Cap)

Year	2015	2016	6/30/17
Cash Assets	5.2	25.3	9.2
Accts Receivable	16.4	16.4	20.6
Other	51.8	57.9	43.1
Current Assets	73.4	99.6	72.9
Accts Payable	16.2	18.7	27.1
Debt Due	38.1	14.3	--
Other	25.3	30.6	43.3
Current Liab.	79.6	63.6	70.4

Year	2015	2016	2017	2018
Revenues	5.0%	5.5%	4.5%	4.5%
"Cash Flow"	7.0%	12.0%	3.0%	4.5%
Earnings	8.0%	20.5%	4.5%	4.5%
Dividends	4.0%	3.0%	6.0%	6.0%
Book Value	5.5%	6.5%	4.0%	4.0%

Cal-endar	Quarterly Revenues (\$ mil.)	Full Year			
Mar.31	Jun.30	Sep.30	Dec.31	Year	
2014	54.6	70.4	125.4	69.3	319.7
2015	62.1	72.4	83.0	87.6	305.1
2016	61.1	86.9	112.3	79.4	339.7
2017	69.0	102.1	102	87.0	360
2018	70.0	105	105	90.0	370

Cal-endar	Earnings per Share	Full Year			
Mar.31	Jun.30	Sep.30	Dec.31	Year	
2014	.04	.34	1.88	.28	2.54
2015	.23	.36	.46	.80	1.85
2016	.16	.82	.92	.67	2.57
2017	.18	.90	.75	.62	2.45
2018	.27	.88	.80	.65	2.60

Cal-endar	Quarterly Dividends Paid	Full Year			
Mar.31	Jun.30	Sep.30	Dec.31	Year	
2013	.1825	.1825	.1825	.1825	.73
2014	.1875	.1875	.1875	.1875	.75
2015	.1950	.1950	.1950	.1950	.78
2016	.2025	.2025	.2025	.2025	.81
2017	.2175	.2175	.2175	.2175	.87

SJW Group is making a change at the helm. Current President and Chief Executive Officer Richard Roth announced his retirement effective November 5th. The board of directors has appointed Eric W. Thornburg as a replacement for both positions, as well as a new board member. Mr. Roth will also step down as Chairman, but will serve until the next annual stockholder's meeting.

The second-quarter performance was better than expected. SJW delivered impressive financial results during the June period, underpinned by cumulative rate increases and higher recordings in its water conservation memorandum account. Customer water usage also ramped up in the period. All told, revenues of \$102 million rose 17% from the previous-year tally. Meanwhile, water production and operating costs edged higher, but the company managed to report earnings of \$0.90 a share. Note, there was a one-time gain on the sale of real estate assets. Still, the bottom line would have exceeded our expectations.

Our financial projections are being raised across the board. We have added \$0.25 to our current-year earnings estimate, to \$2.45 a share mainly owing to the recent quarter's beat. For 2018, we now look for share net of \$2.60 (+\$0.25). Revenues for this year and next are being ratcheted up by \$15 million and \$20 million, to \$360 million and \$370 million, respectively.

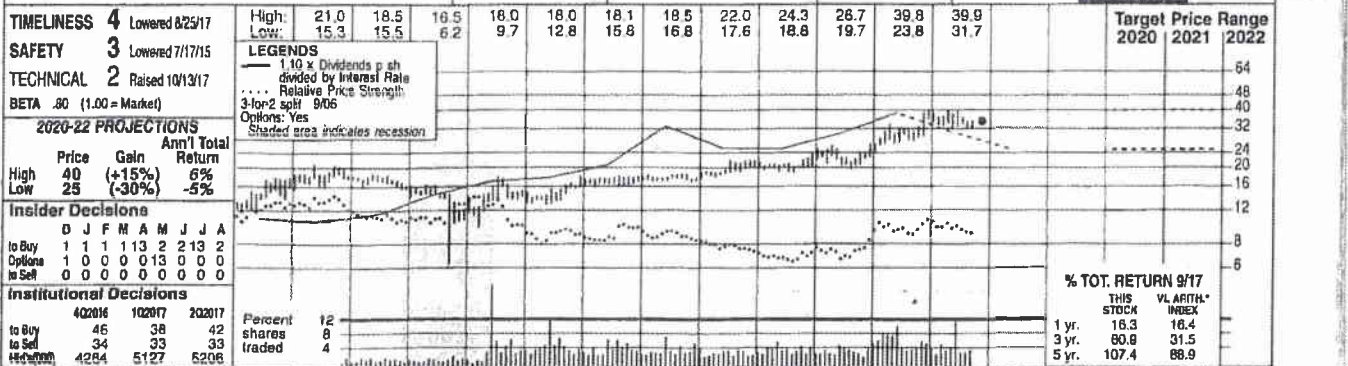
Capital spending ought to be a key growth driver further out. Year to date, SJW has invested \$62 million, and will likely allocate more funds to its Montevina project this year. On balance, only a small dent has been made in its \$300 million spending budget. Lastly, the company ought to get a better handle on its operating costs, which should provide a modest boost to margins down the road.

SJW Group stock does not jump out at us at the current quotation. Shares of the San Jose utility have surged almost 15% in value since our July review. Even after raising our 2020-2022 Target Price Range, the issue presents lackluster total return potential over the long haul. Moreover, the dividend yield is below the Value Line median.

Nicholas P. Patrikis October 13, 2017

(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 November. Quarterly earnings may not add due to rounding. (B) Dividends historically paid in early March, June, September, and December. (C) Div'd reinvestment plan available. (D) In millions, adjusted for stock splits. Company's Financial Strength B+ Stock's Price Stability 70 Price Growth Persistence 35 Earnings Predictability 45 To subscribe call 1-800-VALUELINE

YORK WATER NDQ-YORW RECENT PRICE **35.05** P/E RATIO **34.4** (Trailing: 37.7, Median: 24.0) RELATIVE P/E RATIO **1.72** DIV'D YLD **1.8%** VALUE LINE **1791** of 166



2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	20-22	
2.05	2.05	2.17	2.18	2.58	2.56	2.79	2.89	2.95	3.07	3.18	3.21	3.27	3.58	3.68	3.70	3.90	4.10	4.70	5.65
.59	.57	.65	.65	.79	.77	.86	.88	.95	1.07	1.09	1.12	1.19	1.36	1.45	1.42	1.60	1.65	1.65	2.05
.43	.40	.47	.49	.56	.58	.57	.57	.64	.71	.71	.72	.75	.89	.97	.92	1.00	1.05	1.05	1.40
.34	.35	.37	.39	.42	.45	.48	.49	.51	.52	.53	.54	.55	.57	.60	.63	.66	.70	.70	.90
.75	.66	1.07	2.50	1.69	1.85	1.89	2.17	1.18	65	74	94	76	1.10	1.11	1.03	1.50	1.25	1.03	.85
3.79	3.90	4.06	4.65	4.85	5.84	5.97	6.14	6.92	7.19	7.45	7.73	7.98	8.15	8.51	8.88	9.15	9.55	9.55	11.00
9.46	9.55	9.63	10.33	10.40	11.20	11.27	11.37	12.56	12.69	12.79	12.92	12.98	12.83	12.81	12.65	12.90	12.75	12.90	12.60
17.8	26.9	24.5	25.7	26.3	31.2	30.3	24.6	21.9	20.7	23.9	24.4	26.3	23.1	23.5	32.8	32.8	32.8	32.8	22.5
.91	1.47	1.40	1.36	1.40	1.68	1.61	1.48	1.46	1.32	1.50	1.55	1.48	1.22	1.18	1.18	1.18	1.18	1.18	1.40
4.4%	3.3%	3.2%	3.1%	2.9%	2.5%	2.8%	3.5%	3.6%	3.5%	3.1%	3.1%	2.8%	2.8%	2.6%	2.1%	2.1%	2.1%	2.1%	2.8%

CAPITAL STRUCTURE as of 6/30/17		2017	2018	2019	2020	2021	2022
Total Debt \$89.2 mill.	Due in 5 Yrs \$30.5 mill.	31.4	32.8	37.0	39.0	40.6	41.4
LT Debt \$88.2 mill.	LT Interest \$5.4 mill.	6.4	6.4	7.5	8.9	9.1	9.3
(43% of Cap'l)		36.5%	36.1%	37.9%	38.5%	35.3%	37.6%
Pension Assets 12/16 \$35.5 mill.		3.6%	10.1%	--	1.2%	1.1%	1.1%
Oblig. \$40.8 mill.		46.5%	54.5%	45.7%	48.3%	47.1%	46.0%
Pfd Stock None		53.5%	45.5%	54.3%	51.7%	52.9%	54.0%
Common Stock 12,845,000 shs		125.7	153.4	160.1	176.4	180.2	184.8
MARKET CAP: \$450 million (Small Cap)		191.6	211.4	222.0	228.4	233.0	240.3
CURRENT POSITION		6.7%	5.7%	6.2%	6.5%	6.4%	6.4%
2015		9.5%	9.2%	8.6%	9.8%	9.5%	9.3%
2016		9.5%	9.2%	8.6%	9.8%	9.5%	9.3%
6/30/17		1.7%	1.4%	1.9%	2.7%	2.5%	2.4%
(SMILL)		82%	85%	78%	72%	73%	74%
Cash Assets	2.9	4.2	--	--	--	--	--
Accounts Receivable	3.5	4.3	4.2	4.2	4.2	4.2	4.2
Inventory (Avg. Cost)	.8	.7	.8	.8	.8	.8	.8
Other	4.6	3.4	3.4	3.4	3.4	3.4	3.4
Current Assets	11.8	12.6	8.4	8.4	8.4	8.4	8.4
Accs Payable	1.8	3.7	5.1	5.1	5.1	5.1	5.1
Debt Due	--	--	--	--	--	--	--
Other	4.4	4.5	4.7	4.7	4.7	4.7	4.7
Current Liab.	6.2	8.2	9.8	9.8	9.8	9.8	9.8

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, 2016, the company's average daily availability was 35.4 million gallons and its service territory had an estimated population of 196,000. Has more than 67,000 customers. Residential customers accounted for 63% of 2016 revenues; commercial and industrial (29%); other (8%). It also provides sewer billing services. Incorporated: PA. York had 105 full-time employees at 12/31/16. President/CEO: Jeffrey R. Hines. Officers/directors own 1.1% of the common stock (3/17 proxy). Address: 130 East Market Street, York, Pennsylvania 17401. Telephone: (717) 845-3601. Internet: www.yorkwater.com.

Shares of York Water are trading at levels seen three months prior. It has been a relatively quiet summer for the Pennsylvania-based regulated water utility, as the stock price has been somewhat rangebound.

Second-quarter financial results were a mixed bag. Revenues of \$12.3 million were in line with our expectations, with help from recent acquisitions and higher surcharges. But the annual jump in revenues did not directly translate to an increase in earnings. Operating expenses, namely maintenance and administrative, rose substantially to almost 39% of total revenues (+240 basis points year over year). Consequently, share net of \$0.23 was flat compared to the like-2016 figure.

We are scaling back our 2017 and 2018 share-net estimates accordingly. Due to the rise in operating costs, we are lowering our current-year profit forecast by \$0.03, to \$1.00 a share. Meanwhile, our 2018 earnings estimate is being reduced by \$0.05, to \$1.05 a share.

Ensuing benefits from capital expenditures should help offset the uptick in operating costs (lower effective tax rate). York ought to continue to benefit on the tax front thanks to higher maintenance and repair deductions. Year-to-date spending is already 180% above last year's tally. For the remainder of 2017, York estimates an additional \$9 million in capital investment on water mains and various infrastructure upgrades. Overall, our model projects top- and bottom-line advances of 5% and 9% this year, and 4% and 5% in the next, respectively.

This issue holds limited investment appeal, at the moment. The stock is an unfavorable selection for relative year-ahead price performance (Timeliness: 4). And from a price-to-earnings perspective, the recent valuation is a bit lofty, in our view. Although York's track record of dividend payout increases is second to none, the current yield is nothing to write home about. Indeed, the recent price surge has pushed the yield below 2.0%, fractionally below the broader market average. All told, those looking to gain exposure to the regulated water utility space will probably find more attractive options elsewhere.

Nicholas P. Patrikis October 13, 2017


(A) Diluted earnings. Next earnings report due late November.	(C) In millions, adjusted for split.	Company's Financial Strength	B+
(B) Dividends historically paid in late February, June, September, and December.		Stock's Price Stability	60
		Price Growth Persistence	55
		Earnings Predictability	95

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Company Name	AMERICAN S	AMERICAN W	AQUA AMERI	ARTESIAN RE	CALIFORNIA I	CONNECTICU	MIDDLESEX V	SJW 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]	184.033	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%	

VERIFICATION

I, Harold Walker III, Manager of Financial Studies of Gannett Fleming Valuation and Rate Consultants, LLC (“Gannett”), a Utility Valuation Expert in the Commonwealth of Pennsylvania, hereby state that Gannett was selected by Aqua Pennsylvania Wastewater, Inc., to perform a fair market value appraisal of the East Bradford Sanitary Sewage Wastewater Collection System (“System”); that, as Manager of Financial Studies of Gannett, I prepared the foregoing Fair Market Value Appraisal of the System, dated April 23, 2018; that the facts set forth in the Fair Market Value Appraisal are true and correct to the best of my knowledge, information, and belief; that, as Manager of Financial Studies of Gannett, I determined the fair market value of the System in compliance with the Uniform Standards of Professional Appraisal Practices, employing the cost, market and income approaches; that neither Gannett nor I have derived any material benefit from the sale of the selling utility other than fees for services rendered; that I am not an immediate family member of a director, officer or employee of either Aqua Pennsylvania Wastewater, Inc. or East Bradford Township, Chester County within a 12-month period of the date Gannett was engaged to perform the appraisal; and that I make this verification subject to the penalties of 18 Pa. Cons. Stat. § 4904 (relating to unsworn falsification to authorities).


Harold Walker III
Gannett Fleming Valuation and Rate
Consultants LLC

Dated: April 25, 2018