

Aqua North Carolina, Inc.
Recommended Capital Structure and Cost Rates
for Ratemaking Purposes
at December 31, 2019

<u>Type Of Capital</u>	<u>Ratios (1)</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>
Long-Term Debt	50.00%	4.21% (1)	2.11%
Common Equity	50.00%	11.00% (2)	5.50%
Total	100.00%		7.61%

Notes:

- (1) Company-provided.
- (2) From page 2 of this Schedule.

Aqua North Carolina, Inc.
Brief Summary of Common Equity Cost Rate

<u>Line No.</u>	<u>Principal Methods</u>	<u>Proxy Group of Seven Water Companies</u>	<u>Results using Current Interest Rates</u>
1.	Discounted Cash Flow Model (DCF) (1)	9.07%	9.07%
2.	Risk Premium Model (RPM) (2)	10.91%	10.56%
3.	Capital Asset Pricing Model (CAPM) (3)	10.90%	10.67%
4.	Market Models Applied to Comparable Risk, Non-Price Regulated Companies (4)	<u>11.48%</u>	<u>11.28%</u>
5.	Indicated Common Equity Cost Rate before Adjustments	10.75%	10.50%
6.	Size Risk Adjustment (5)	0.20%	0.20%
7.	Flotation Cost Adjustment (6)	<u>0.05%</u>	<u>0.05%</u>
8.	Recommended Common Equity Cost Rate after Adjustment	<u><u>11.00%</u></u>	<u><u>10.75%</u></u>

- Notes:
- (1) From page 3 of this Schedule.
 - (2) From page 11 of this Schedule.
 - (3) From page 23 of this Schedule.
 - (4) From page 28 of this Schedule.
 - (5) Adjustment to reflect Aqua NC's greater business risk relative to the Utility Proxy Group as detailed in the direct testimony.
 - (6) From page 34 of this Schedule.

Aqua North Carolina, Inc.
Indicated Common Equity Cost Rate Using the Discounted Cash Flow Model for
Proxy Group of Seven Water Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Seven Water Companies	Average Dividend Yield (1)	Value Line Projected Five Year Growth in EPS (2)	Zack's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Bloomberg Projected Five Year Growth in EPS	Average Projected Five Year Growth in EPS (3)	Adjusted Dividend Yield (4)	Indicated Common Equity Cost Rate (5)
American States Water Co.	1.45 %	6.50 %	NA %	6.00 %	6.00 %	6.17 %	1.49 %	7.66 %
American Water Works Company Inc	1.73	8.50	8.10	8.20	8.19	8.25	1.80	10.05
California Water Service Group	1.66	6.50	NA	9.80	9.00	8.43	1.73	10.16
Essential Utilities, Inc.	2.11	10.00	5.90	6.40	6.69	7.25	2.19	9.44
Middlesex Water Co.	1.66	6.00	NA	2.70	NA	4.35	1.70	6.05
SJW Group	2.04	6.00	4.00	14.00	7.00	7.75	2.12	9.87
York Water Co.	1.66	7.00	NA	4.90	NA	5.95	1.71	7.66
							Average	8.70 %
							Median	9.44 %
							Average of Mean and Median	9.07 %

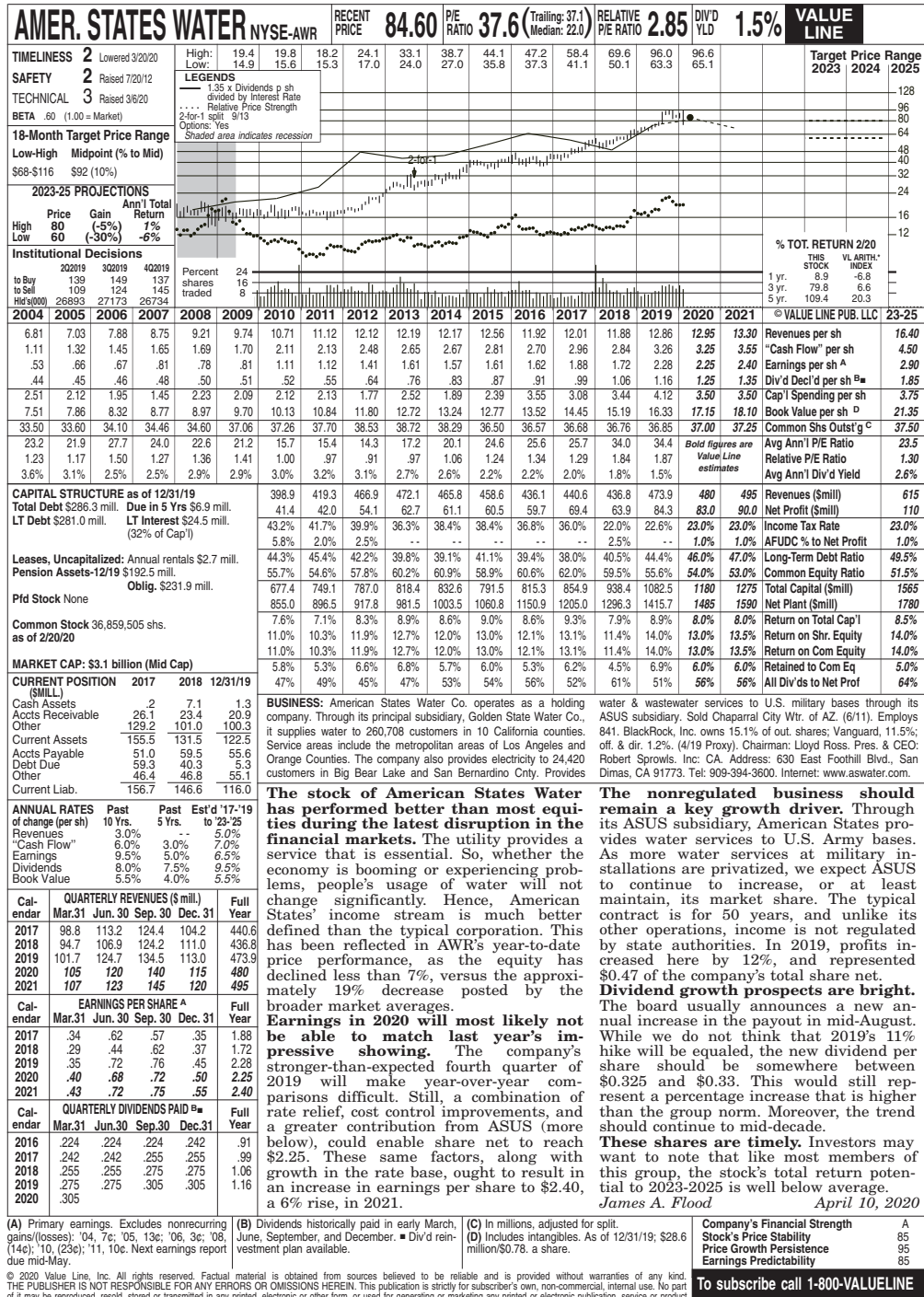
NA= Not Available

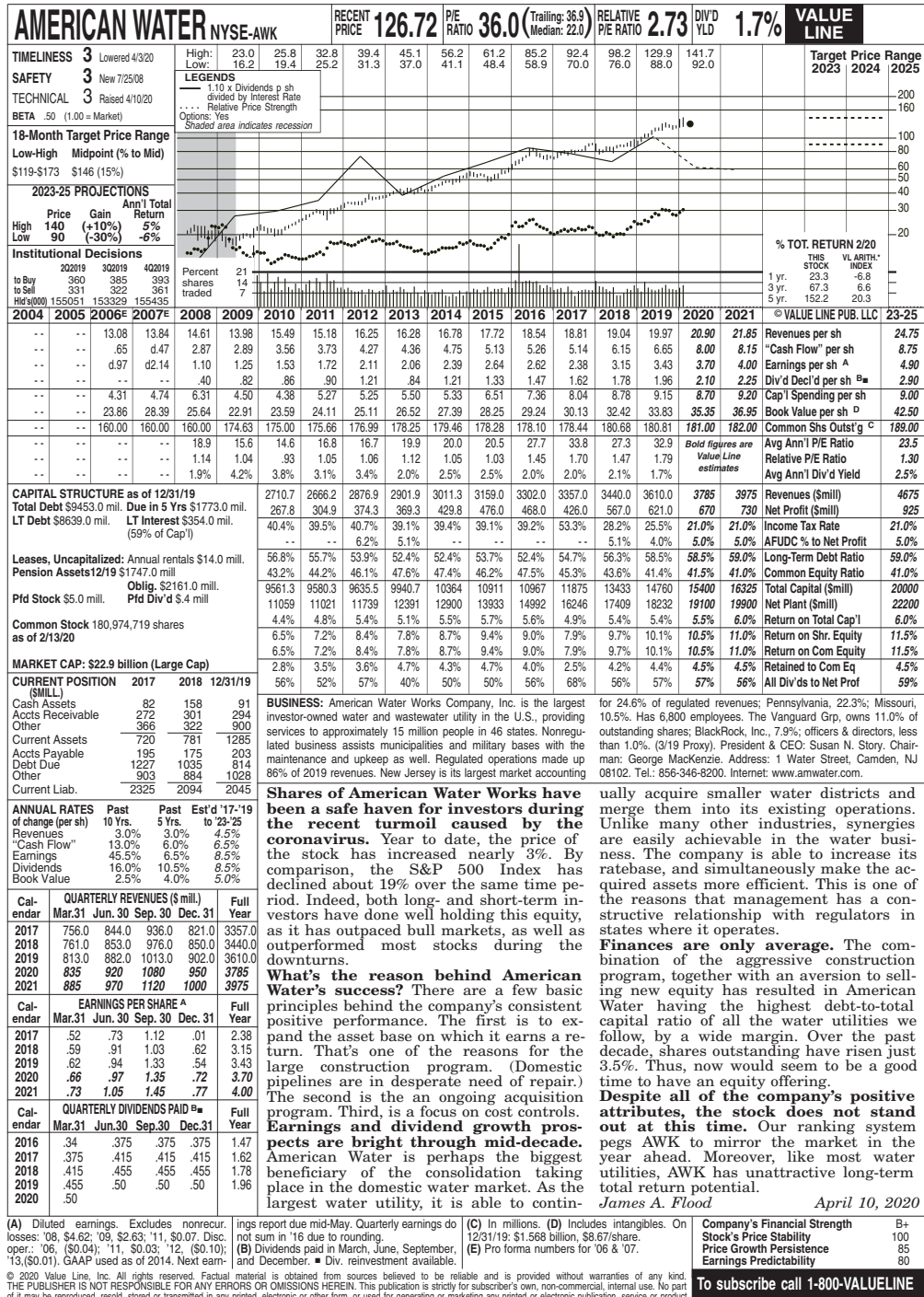
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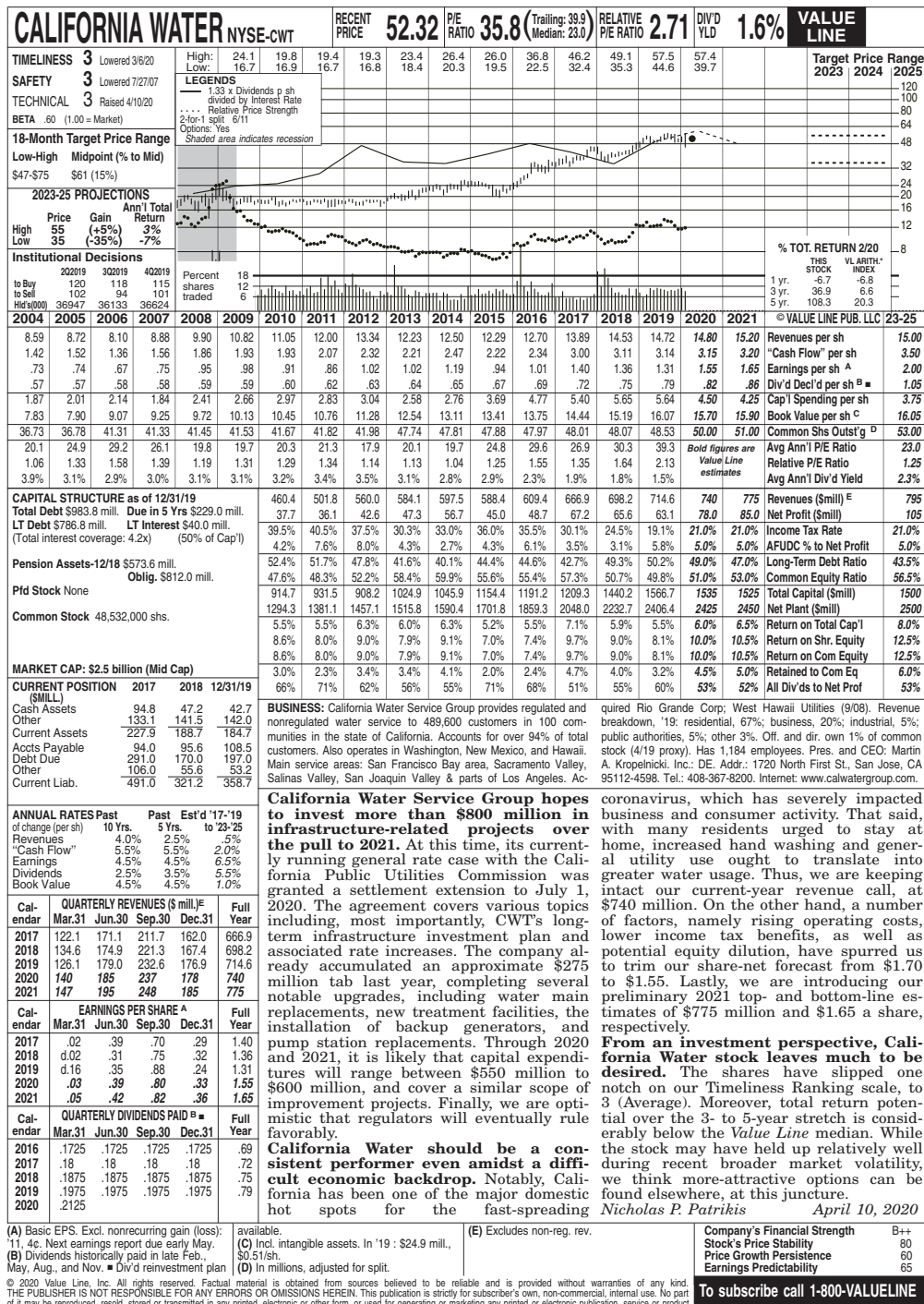
- (1) Indicated dividend at 04/30/2020 divided by the average closing price of the last 60 trading days ending 04/30/2020 for each company.
- (2) From pages 4 through 10 of this Schedule.
- (3) Average of columns 2 through 4 excluding negative growth rates.
- (4) This reflects a growth rate component equal to one-half the conclusion of growth rate (from column 5) x column 1 to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for American States Water Co., $1.45\% \times (1 + (1/2 \times 6.17\%)) = 1.49\%$.
- (5) Column 5 + column 6.

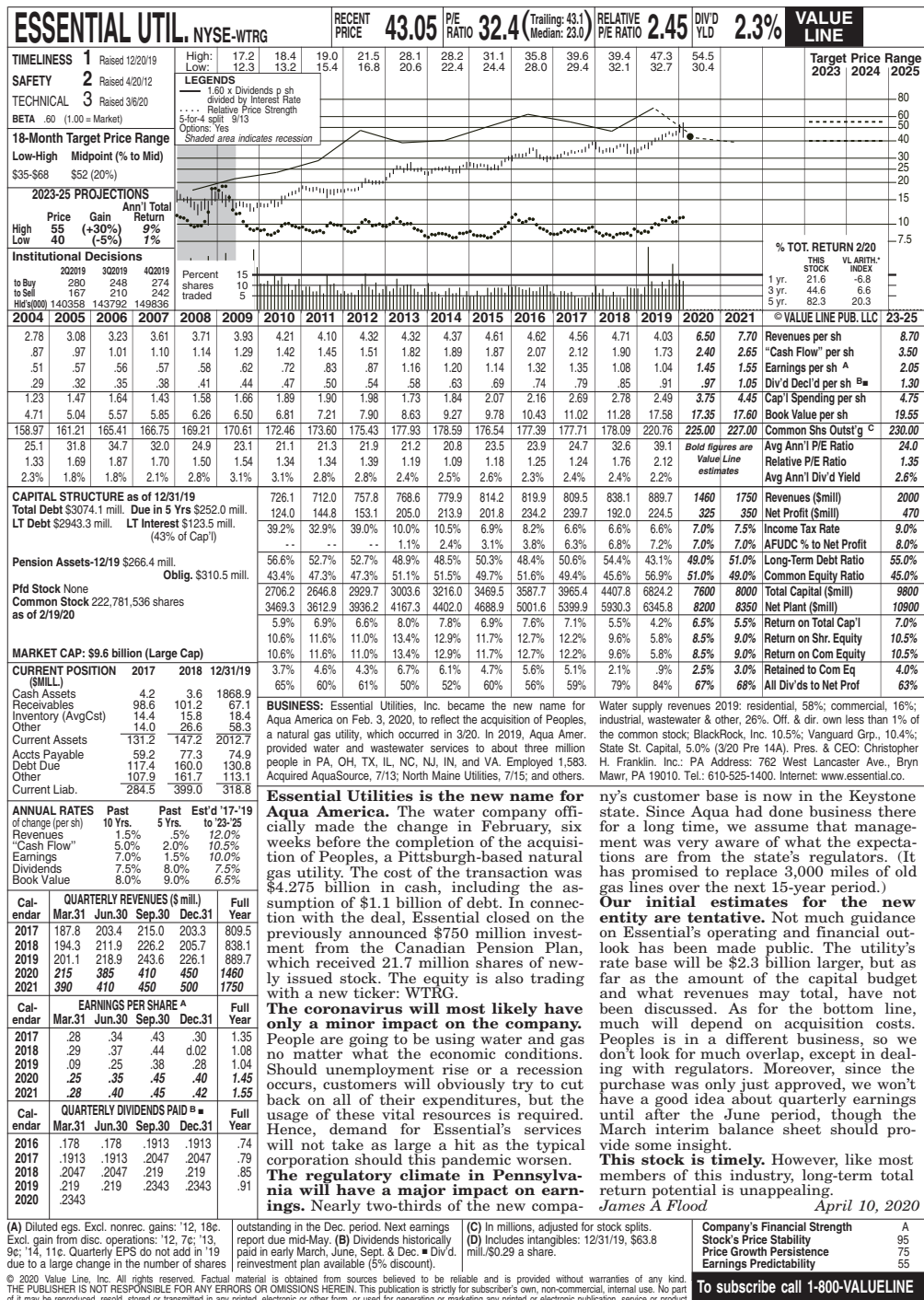
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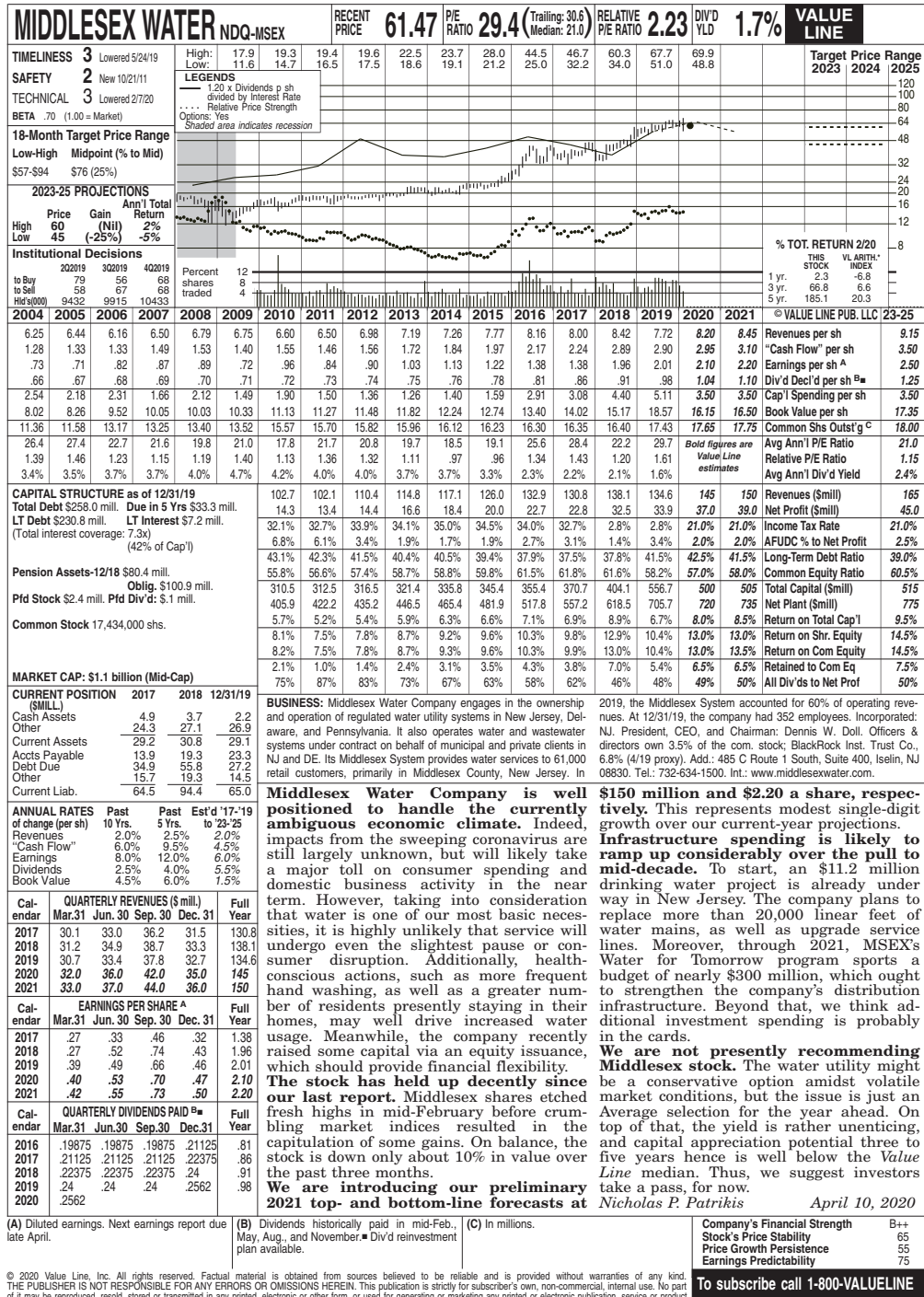
Value Line Investment Survey
www.zacks.com Downloaded on 04/30/2020
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Bloomberg Professional Services







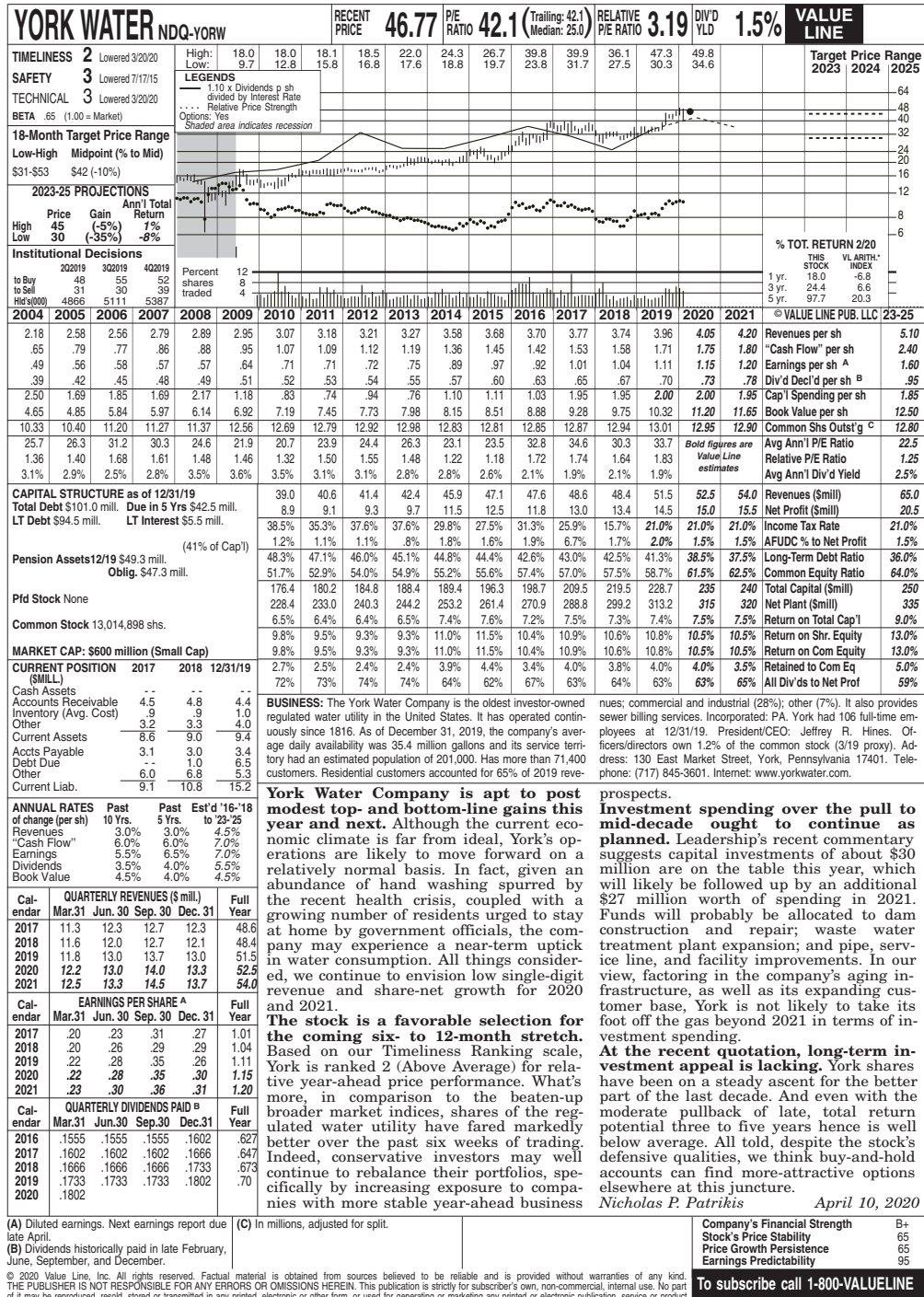




(A) Diluted earnings. Next earnings report due late April.
(B) Dividends historically paid in mid-Feb., May, Aug., and November. Div'd reinvestment plan available.
(C) In millions.

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Aqua North Carolina, Inc.
Summary of Risk Premium Models for the
Proxy Group of Seven Water Companies

	<u>Proxy Group of Seven Water Companies</u>	<u>Results using Current Interest Rates</u>
Predictive Risk Premium Model (PRPM) (1)	11.31 %	10.85 %
Risk Premium Using an Adjusted Total Market Approach (2)	<u>10.50 %</u>	<u>10.27 %</u>
Average	<u><u>10.91 %</u></u>	<u><u>10.56 %</u></u>

Notes:

(1) From page 12 of this Schedule.

(2) From page 13 of this Schedule.

Aqua North Carolina, Inc.
Indicated ROE
Derived by the Predictive Risk Premium Model (1)

Using Projected Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Seven Water Companies	LT Average Predicted Variance	Spot Predicted Variance	Recommended Variance	GARCH Coefficient	Predicted Risk Premium (2)	Risk-Free Rate (3)	Indicated ROE (4)
American States Water Co.	0.38%	0.45%	0.41%	1.89033	9.83%	2.03%	11.86%
American Water Works Company Inc	NMF	NMF	NMF	5.52177	NMF	2.03%	NMF
California Water Service Group	0.32%	0.32%	0.32%	1.90111	7.55%	2.03%	9.58%
Essential Utilities, Inc.	0.44%	0.53%	0.49%	2.25364	14.02%	2.03%	16.05%
Middlesex Water Co.	0.30%	0.27%	0.29%	2.12256	7.52%	2.03%	9.55%
SJW Group	0.42%	0.44%	0.43%	1.51190	8.03%	2.03%	10.06%
York Water Co.	0.45%	0.37%	0.41%	2.09473	10.81%	2.03%	12.84%
						Average	<u>11.66%</u>
						Median	<u>10.96%</u>
						Average of Mean and Median	<u>11.31%</u>

Proxy Group of Seven Water Companies	LT Average Predicted Variance	Spot Predicted Variance	Recommended Variance	GARCH Coefficient	Predicted Risk Premium (2)	Risk-Free Rate (5)	Indicated ROE (4)
American States Water Co.	0.38%	0.45%	0.41%	1.89033	9.83%	1.57%	11.40%
American Water Works Company Inc	NMF	NMF	NMF	5.52177	NMF	1.57%	NMF
California Water Service Group	0.32%	0.32%	0.32%	1.90111	7.55%	1.57%	9.12%
Essential Utilities, Inc.	0.44%	0.53%	0.49%	2.25364	14.02%	1.57%	15.59%
Middlesex Water Co.	0.30%	0.27%	0.29%	2.12256	7.52%	1.57%	9.09%
SJW Group	0.42%	0.44%	0.43%	1.51190	8.03%	1.57%	9.60%
York Water Co.	0.45%	0.37%	0.41%	2.09473	10.81%	1.57%	12.38%
						Average	<u>11.20%</u>
						Median	<u>10.50%</u>
						Average of Mean and Median	<u>10.85%</u>

NMF = Not Meaningful Figure

Notes:

- (1) The Predictive Risk Premium Model uses historical data to generate a predicted variance and a GARCH coefficient. The historical data used are the equity risk premiums for the first available trading month as reported by Bloomberg Professional Service.
- (2) $(1 + (\text{Column [3]} * \text{Column [4]})^{12}) - 1$.
- (3) From note 2 on page 24 of this Schedule.
- (4) Column [5] + Column [6].
- (5) From note 3 on page 24 of this Schedule.

Aqua North Carolina, Inc.
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

<u>Line No.</u>		<u>Proxy Group of Seven Water Companies</u>	<u>Results using Current Interest Rates</u>
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)	3.21 %	
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A Rated Public Utility Bonds	<u>0.53</u> (2)	
3.	Adjusted Prospective Yield on A Rated Public Utility Bonds	3.74 %	
4.	Current Yield on A Rated Public Utility Bonds (3)		3.27 %
5.	Adjustment to Reflect Bond Rating Difference of Proxy Group (4)	<u>0.08</u>	<u>0.08</u>
6.	Adjusted Bond Yield	3.82 %	3.35 %
7.	Equity Risk Premium (5)	<u>6.68</u>	<u>6.92</u>
8.	Risk Premium Derived Common Equity Cost Rate	<u>10.50</u> %	<u>10.27</u> %

- Notes: (1) Consensus forecast of Moody's Aaa Rated Corporate bonds from Blue Chip Financial Forecasts (see pages 20-21 of this Schedule).
- (2) The average yield spread of A rated public utility bonds over Aaa rated corporate bonds of 0.53% from page 14 of this Schedule.
- (3) Three-month average A rated public utility bond yield ending April 2020.
- (4) Adjustment to reflect the A2/A3 Moody's LT issuer rating of the Utility Proxy Group as shown on page 15 of this Schedule. The 0.08% upward adjustment is derived by taking 1/6 of the spread between A2 and Baa2 Public Utility Bonds ($1/6 * 0.46\% = 0.08\%$) as derived from page 14 of this Schedule.
- (5) From page 17 of this Schedule.

Aqua North Carolina, Inc.
Interest Rates and Bond Spreads for
Moody's Corporate and Public Utility Bonds

Selected Bond Yields

	[1]	[2]	[3]
	<u>Aaa Rated Corporate Bond</u>	<u>A Rated Public Utility Bond</u>	<u>Baa Rated Public Utility Bond</u>
Apr-2020	2.43 %	3.19 %	3.82 %
Mar-2020	3.02	3.50	3.96
Feb-2020	<u>2.78</u>	<u>3.11</u>	<u>3.42</u>
Average	<u><u>2.74 %</u></u>	<u><u>3.27 %</u></u>	<u><u>3.73 %</u></u>

Selected Bond Spreads

A Rated Public Utility Bonds Over Aaa Rated Corporate Bonds:

0.53 % (1)

Baa Rated Public Utility Bonds Over A Rated Public Utility Bonds:

0.46 % (2)

Notes:

(1) Column [2] - Column [1].

(2) Column [3] - Column [2].

Source of Information:

Bloomberg Professional Service

Aqua North Carolina, Inc.
Comparison of Long-Term Issuer Ratings for
Proxy Group of Seven Water Companies

	Moody's		Standard & Poor's	
	Long-Term Issuer Rating		Long-Term Issuer Rating	
	April 2020		April 2020	
<u>Proxy Group of Seven Water Companies</u>	<u>Long-Term Issuer Rating</u>	<u>Numerical Weighting (1)</u>	<u>Long-Term Issuer Rating</u>	<u>Numerical Weighting(1)</u>
American States Water Co. (2)	A2	6.0	A+	5.0
American Water Works Company Inc (3)	A3	7.0	A	6.0
California Water Service Group (4)	NR	- -	A+	5.0
Essential Utilities, Inc. (5)	NR	- -	A	6.0
Middlesex Water Co.	NR	- -	A	6.0
SJW Corp. (6)	NR	- -	A/A-	6.5
York Water Co.	NR	- -	A-	7.0
Average	<u>A2/A3</u>	<u>6.5</u>	<u>A</u>	<u>5.9</u>

Notes:

- (1) From page 16 of this Schedule.
- (2) Ratings that of Golden State Water Company.
- (3) Ratings that of New Jersey and Pennsylvania American Water Companies.
- (4) Ratings that of California Water Service Company.
- (5) Ratings that of Aqua Pennsylvania, Inc.
- (6) Ratings that of San Jose Water Company and The Connecticut Water Company

Source Information: Moody's Investors Service
Standard & Poor's Global Utilities Rating Service

Numerical Assignment for
Moody's and Standard & Poor's Bond Ratings

Moody's Bond Rating	Numerical Bond Weighting	Standard & Poor's Bond Rating
Aaa	1	AAA
Aa1	2	AA+
Aa2	3	AA
Aa3	4	AA-
A1	5	A+
A2	6	A
A3	7	A-
Baa1	8	BBB+
Baa2	9	BBB
Baa3	10	BBB-
Ba1	11	BB+
Ba2	12	BB
Ba3	13	BB-
B1	14	B+
B2	15	B
B3	16	B-

Aqua North Carolina, Inc.
Judgment of Equity Risk Premium for
Proxy Group of Seven Water Companies

Line No.		Proxy Group of Seven Water Companies	Results using Current Interest Rates
1.	Calculated equity risk premium based on the total market using the beta approach (1)	7.60 %	7.80 %
2.	Mean equity risk premium based on a study using the holding period returns of public utilities with A rated bonds (2)	<u>5.76</u>	<u>6.04</u>
3.	Average equity risk premium	<u><u>6.68</u></u> %	<u><u>6.92</u></u> %

Notes: (1) From page 18 of this Schedule.
(2) From page 22 of this Schedule.

Aqua North Carolina, Inc.
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for the
Proxy Group of Seven Water Companies

<u>Line No.</u>	<u>Equity Risk Premium Measure</u>	<u>Proxy Group of Seven Water Companies</u>	<u>Results using Current Interest Rates</u>
<u>Ibbotson-Based Equity Risk Premiums:</u>			
1.	Ibbotson Equity Risk Premium (1)	5.78 %	5.78 %
2.	Regression on Ibbotson Risk Premium Data	9.12 (2)	9.59 (3)
3.	Ibbotson Equity Risk Premium based on PRPM (4)	11.95	11.95
4.	Equity Risk Premium Based on Value Line Summary and Index	15.50 (5)	15.90 (6)
5.	Equity Risk Premium Based on Value Line S&P 500 Companies	11.58 (7)	11.98 (8)
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies	<u>10.32 (9)</u>	<u>10.71 (10)</u>
7.	Conclusion of Equity Risk Premium	10.71 %	10.98 %
8.	Adjusted Beta (11)	<u>0.71</u>	<u>0.71</u>
9.	Forecasted Equity Risk Premium	<u><u>7.60 %</u></u>	<u><u>7.80 %</u></u>

Notes provided on page 19 of this Schedule.

Aqua North Carolina, Inc.
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for the
Proxy Group of Seven Water Companies

Notes:

- (1) Based on the arithmetic mean historical monthly returns on large company common stocks from Ibbotson® SBBI® 2020 Market Report minus the arithmetic mean monthly yield of Moody's average Aaa and Aa corporate bonds from 1926-2019.
- (2) This equity risk premium is based on a regression of the monthly equity risk premiums of large company common stocks relative to Moody's average Aaa and Aa rated corporate bond yields from 1928-2019 referenced in note 1 above. Using the equation generated from the regression, an expected equity risk premium is calculated using the average consensus forecast of Aaa corporate bonds of 3.21% (from page 13 of this Schedule).
- (3) This equity risk premium is based on a regression of the monthly equity risk premiums of large company common stocks relative to Moody's average Aaa and Aa rated corporate bond yields from 1928-2019 referenced in note 1 above. Using the equation generated from the regression, an expected equity risk premium is calculated using the three-month average Aaa and Aa rated corporate bond of 2.82%.
- (4) The Predictive Risk Premium Model (PRPM) is discussed in the accompanying direct testimony. The Ibbotson equity risk premium based on the PRPM is derived by applying the PRPM to the monthly risk premiums between Ibbotson large company common stock monthly returns and average Aaa and Aa corporate monthly bond yields, from January 1928 through April 2020.
- (5) The equity risk premium based on the Value Line Summary and Index is derived by subtracting the average consensus forecast of Aaa corporate bond yields of 3.21% (from page 13 of this Schedule) from the projected 3-5 year total annual market return of 18.71% (described fully in note 1 on page 24 of this Schedule).
- (6) The equity risk premium based on the Value Line Summary and Index is derived by subtracting the current 3-month average of Aaa and Aa corporate bond yields of 2.82% from the projected 3-5 year total annual market return of 18.71% (described fully in note 1 on page 24 of this Schedule).
- (7) Using data from Value Line for the S&P 500, an expected total return of 14.79% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 3.21% results in an expected equity risk premium of 11.58%.
- (8) Using data from Value Line for the S&P 500, an expected total return of 14.79% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the current 3-month average of Aaa and Aa corporate bond yields of 2.82% results in an expected equity risk premium of 11.98%.
- (9) Using data from the Bloomberg Professional Service for the S&P 500, an expected total return of 13.53% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 3.21% results in an expected equity risk premium of 10.32%.
- (10) Using data from the Bloomberg Professional Service for the S&P 500, an expected total return of 13.53% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the current 3-month average of Aaa and Aa corporate bond yields of 2.82% results in an expected equity risk premium of 10.71%.
- (11) Average of mean and median beta from page 23 of this Schedule.

Sources of Information:

Stocks, Bonds, Bills, and Inflation - 2020 SBBI Yearbook, John Wiley & Sons, Inc.
Industrial Manual and Mergent Bond Record Monthly Update.
Value Line Summary and Index
Blue Chip Financial Forecasts, May 1, 2020 and December 1, 2019
Bloomberg Professional Service

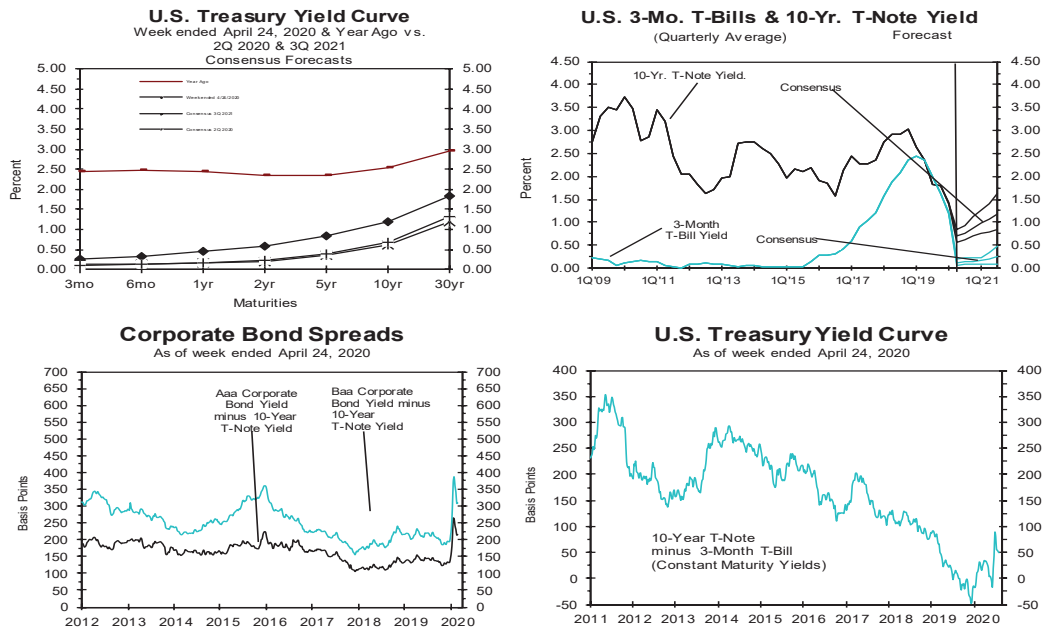
2 ■ BLUE CHIP FINANCIAL FORECASTS ■ MAY 1, 2020

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

Interest Rates	History								Consensus Forecasts-Quarterly Avg.					
	-----Average For Week Ending-----				----Average For Month---				2Q	3Q	4Q	1Q	2Q	3Q
	Apr 24	Apr 17	Apr 10	Apr 3	Mar	Feb	Jan	1Q 2020	2020	2020	2020	2021	2021	2021
Federal Funds Rate	0.05	0.05	0.05	0.09	0.65	1.58	1.55	1.26	0.1	0.1	0.1	0.1	0.2	0.2
Prime Rate	3.25	3.25	3.25	3.25	3.81	4.75	4.75	4.44	3.3	3.3	3.3	3.3	3.3	3.4
LIBOR, 3-mo.	1.01	1.14	1.30	1.42	1.10	1.68	1.82	1.53	0.9	0.7	0.6	0.6	0.6	0.7
Commercial Paper, 1-mo.	0.38	0.37	0.37	1.42	1.36	1.55	1.56	1.49	0.4	0.4	0.4	0.4	0.5	0.6
Treasury bill, 3-mo.	0.12	0.17	0.19	0.10	0.30	1.54	1.55	1.13	0.1	0.1	0.1	0.2	0.2	0.3
Treasury bill, 6-mo.	0.14	0.21	0.21	0.14	0.30	1.51	1.56	1.12	0.1	0.2	0.2	0.2	0.3	0.3
Treasury bill, 1 yr.	0.17	0.21	0.22	0.15	0.33	1.41	1.53	1.09	0.2	0.2	0.3	0.3	0.4	0.4
Treasury note, 2 yr.	0.21	0.22	0.26	0.23	0.45	1.33	1.52	1.10	0.2	0.3	0.4	0.4	0.5	0.6
Treasury note, 5 yr.	0.36	0.38	0.45	0.38	0.59	1.32	1.56	1.16	0.4	0.5	0.6	0.7	0.7	0.8
Treasury note, 10 yr.	0.61	0.68	0.73	0.65	0.87	1.50	1.76	1.38	0.7	0.8	0.9	1.0	1.1	1.2
Treasury note, 30 yr.	1.19	1.31	1.33	1.29	1.46	1.97	2.22	1.88	1.3	1.4	1.5	1.6	1.7	1.8
Corporate Aaa bond	2.75	2.81	3.03	3.05	3.11	2.85	3.04	3.00	2.6	2.7	2.8	2.8	2.9	3.0
Corporate Baa bond	3.70	3.75	4.13	4.23	4.11	3.50	3.66	3.76	4.3	4.3	4.2	4.3	4.2	4.3
State & Local bonds	3.37	3.29	3.42	3.45	3.29	2.93	3.00	3.07	2.6	2.6	2.6	2.6	2.6	2.6
Home mortgage rate	3.33	3.31	3.33	3.33	3.45	3.47	3.62	3.51	3.3	3.3	3.2	3.2	3.3	3.3

Key Assumptions	History								Consensus Forecasts-Quarterly					
	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
	2018	2018	2018	2019	2019	2019	2019	2020	2020	2020	2020	2021	2021	2021
Fed's AFE \$ Index	105.5	107.8	109.4	109.4	110.3	110.5	110.3	111.2	113.5	113.5	113.2	112.9	112.5	112.2
Real GDP	3.5	2.9	1.1	3.1	2.0	2.1	2.1	-4.8	-27.8	7.4	9.2	6.6	4.8	3.6
GDP Price Index	3.2	2.0	1.6	1.1	2.4	1.8	1.3	1.3	0.1	1.1	1.3	1.7	1.9	1.8
Consumer Price Index	2.2	2.1	1.3	0.9	3.0	1.8	2.4	1.2	-2.4	1.1	1.7	2.1	2.1	2.1

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



14 ■ BLUE CHIP FINANCIAL FORECASTS ■ DECEMBER 1, 2019

Long-Range Survey:

The table below contains the results of our twice-annual long-range CONSENSUS survey. There are also Top 10 and Bottom 10 averages for each variable. Shown are consensus estimates for the years 2021 through 2025 and averages for the five-year periods 2021-2025 and 2026-2030. Apply these projections cautiously. Few if any economic, demographic and political forces can be evaluated accurately over such long time spans.

		Average For The Year					Five-Year Averages	
		2021	2022	2023	2024	2025	2021-2025	2026-2030
1. Federal Funds Rate	CONSENSUS	1.5	1.9	2.1	2.3	2.4	2.1	2.4
	Top 10 Average	2.1	2.6	2.7	2.9	3.0	2.6	3.0
	Bottom 10 Average	1.0	1.2	1.5	1.8	1.9	1.5	1.9
2. Prime Rate	CONSENSUS	4.5	4.9	5.1	5.4	5.5	5.1	5.5
	Top 10 Average	5.0	5.5	5.7	6.0	6.0	5.6	6.0
	Bottom 10 Average	4.0	4.3	4.6	4.9	5.0	4.5	5.0
3. LIBOR, 3-Mo.	CONSENSUS	1.9	2.2	2.4	2.6	2.7	2.3	2.7
	Top 10 Average	2.4	2.7	2.9	3.1	3.2	2.9	3.2
	Bottom 10 Average	1.4	1.6	1.8	2.0	2.2	1.8	2.2
4. Commercial Paper, 1-Mo.	CONSENSUS	1.7	2.1	2.3	2.5	2.7	2.3	2.7
	Top 10 Average	2.2	2.5	2.8	3.0	3.1	2.7	3.1
	Bottom 10 Average	1.3	1.6	1.8	2.1	2.2	1.8	2.2
5. Treasury Bill Yield, 3-Mo.	CONSENSUS	1.5	1.8	2.0	2.3	2.4	2.0	2.4
	Top 10 Average	2.1	2.6	2.7	2.9	3.0	2.6	3.0
	Bottom 10 Average	1.0	1.2	1.4	1.7	1.8	1.4	1.8
6. Treasury Bill Yield, 6-Mo.	CONSENSUS	1.6	1.9	2.2	2.4	2.5	2.1	2.5
	Top 10 Average	2.2	2.6	2.8	3.0	3.1	2.7	3.1
	Bottom 10 Average	1.1	1.3	1.5	1.8	2.0	1.5	2.0
7. Treasury Bill Yield, 1-Yr.	CONSENSUS	1.7	2.0	2.2	2.5	2.6	2.2	2.7
	Top 10 Average	2.3	2.7	2.9	3.2	3.2	2.8	3.2
	Bottom 10 Average	1.2	1.3	1.6	1.9	2.1	1.6	2.1
8. Treasury Note Yield, 2-Yr.	CONSENSUS	1.8	2.1	2.4	2.6	2.7	2.3	2.8
	Top 10 Average	2.4	2.8	3.1	3.3	3.4	3.0	3.4
	Bottom 10 Average	1.2	1.5	1.7	2.0	2.2	1.7	2.2
10. Treasury Note Yield, 5-Yr.	CONSENSUS	2.0	2.3	2.6	2.8	2.9	2.5	3.0
	Top 10 Average	2.6	3.0	3.2	3.5	3.5	3.2	3.6
	Bottom 10 Average	1.5	1.7	1.9	2.1	2.3	1.9	2.3
11. Treasury Note Yield, 10-Yr.	CONSENSUS	2.3	2.5	2.8	3.0	3.1	2.8	3.2
	Top 10 Average	2.9	3.3	3.6	3.8	3.9	3.5	4.0
	Bottom 10 Average	1.8	1.9	2.1	2.3	2.4	2.1	2.5
12. Treasury Bond Yield, 30-Yr.	CONSENSUS	2.8	3.0	3.2	3.5	3.6	3.2	3.7
	Top 10 Average	3.3	3.6	4.0	4.2	4.3	3.9	4.4
	Bottom 10 Average	2.2	2.4	2.5	2.7	2.9	2.6	2.9
13. Corporate Aaa Bond Yield	CONSENSUS	3.7	4.0	4.3	4.5	4.6	4.2	4.7
	Top 10 Average	4.3	4.6	4.9	5.2	5.3	4.9	5.4
	Bottom 10 Average	3.2	3.4	3.6	3.7	3.9	3.6	4.0
13. Corporate Baa Bond Yield	CONSENSUS	4.7	4.9	5.2	5.4	5.6	5.2	5.6
	Top 10 Average	5.3	5.6	5.9	6.2	6.3	5.9	6.4
	Bottom 10 Average	4.2	4.3	4.4	4.6	4.8	4.5	4.8
14. State & Local Bonds Yield	CONSENSUS	3.6	3.7	3.9	4.1	4.2	3.9	4.2
	Top 10 Average	4.0	4.3	4.5	4.6	4.7	4.4	4.7
	Bottom 10 Average	3.2	3.2	3.3	3.5	3.7	3.4	3.8
15. Home Mortgage Rate	CONSENSUS	4.1	4.2	4.5	4.7	4.8	4.5	4.9
	Top 10 Average	4.5	4.8	5.1	5.4	5.4	5.0	5.5
	Bottom 10 Average	3.7	3.7	3.9	4.1	4.2	3.9	4.2
A. Fed's AFE Nominal \$ Index	CONSENSUS	108.8	108.8	109.1	109.2	108.8	108.9	108.3
	Top 10 Average	110.6	110.7	111.1	111.5	111.6	111.1	111.8
	Bottom 10 Average	107.0	107.0	107.1	107.1	106.5	106.9	105.7
		Year-Over-Year, % Change					Five-Year Averages	
		2021	2022	2023	2024	2025	2021-2025	2026-2030
B. Real GDP	CONSENSUS	1.9	2.0	2.0	1.9	2.0	1.9	2.0
	Top 10 Average	2.4	2.4	2.3	2.2	2.2	2.3	2.3
	Bottom 10 Average	1.4	1.6	1.6	1.7	1.7	1.6	1.7
C. GDP Chained Price Index	CONSENSUS	2.2	2.3	2.3	2.2	2.2	2.2	2.2
	Top 10 Average	2.6	2.8	2.7	2.6	2.6	2.7	2.6
	Bottom 10 Average	1.8	1.8	1.9	1.9	1.9	1.9	1.9
D. Consumer Price Index	CONSENSUS	2.1	2.2	2.2	2.2	2.1	2.2	2.1
	Top 10 Average	2.4	2.4	2.5	2.4	2.3	2.4	2.3
	Bottom 10 Average	1.8	1.9	2.0	2.0	1.9	1.9	2.0

Aqua North Carolina, Inc.
Derivation of Mean Equity Risk Premium Based Studies
Using Holding Period Returns and
Projected Market Appreciation of the S&P Utility Index

<u>Line No.</u>		<u>Implied Equity Risk Premium</u>	<u>Results using Current Interest Rates</u>
	<u>Equity Risk Premium based on S&P Utility Index Holding Period Returns (1):</u>		
1.	Historical Equity Risk Premium	4.21 %	4.21 %
2.	Regression of Historical Equity Risk Premium	6.68 (2)	7.08 (3)
3.	Forecasted Equity Risk Premium Based on PRPM (4)	5.95	5.95
4.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Value Line Data)	6.76 (5)	7.24 (6)
5.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Bloomberg Data)	<u>5.23 (7)</u>	<u>5.71 (8)</u>
6.	Average Equity Risk Premium (9)	<u>5.76 %</u>	<u>6.04 %</u>

- Notes: (1) Based on S&P Public Utility Index monthly total returns and Moody's Public Utility Bond average monthly yields from 1928-2019. Holding period returns are calculated based upon income received (dividends and interest) plus the relative change in the market value of a security over a one-year holding period.
- (2) This equity risk premium is based on a regression of the monthly equity risk premiums of the S&P Utility Index relative to Moody's A rated public utility bond yields from 1928 - 2019 referenced in note 1 above. Using the equation generated from the regression, an expected equity risk premium is calculated using the prospective A rated public utility bond yield of 3.74% (from line 3, page 13 of this Schedule).
- (3) This equity risk premium is based on a regression of the monthly equity risk premiums of the S&P Utility Index relative to Moody's A rated public utility bond yields from 1928 - 2019 referenced in note 1 above. Using the equation generated from the regression, an expected equity risk premium is calculated using the current A rated public utility bond yield of 3.27% (from line 4, page 13 of this Schedule).
- (4) The Predictive Risk Premium Model (PRPM) is applied to the risk premium of the monthly total returns of the S&P Utility Index and the monthly yields on Moody's A rated public utility bonds from January 1928 - April 2020.
- (5) Using data from Value Line for the S&P Utilities Index, an expected return of 10.50% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A rated public utility bond yield of 3.74%, calculated on line 3 of page 13 of this Schedule results in an equity risk premium of 7.47%. (10.50% - 3.74% = 6.76%)
- (6) Using data from Value Line for the S&P Utilities Index, an expected return of 10.50% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the current A rated public utility bond yield of 3.27%, shown on line 4 of page 13 of this Schedule results in an equity risk premium of 6.76%. (10.50% - 3.27% = 7.24%)
- (7) Using data from Bloomberg Professional Service for the S&P Utilities Index, an expected return of 8.97% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A rated public utility bond yield of 3.74%, calculated on line 3 of page 13 of this Schedule results in an equity risk premium of 5.23%. (8.97% - 3.74% = 5.23%)
- (8) Using data from Bloomberg Professional Service for the S&P Utilities Index, an expected return of 8.97% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the current A rated public utility bond yield of 3.27%, shown on line 4 of page 13 of this Schedule results in an equity risk premium of 6.16%. (8.97% - 3.27% = 5.71%)
- (9) Average of lines 1 through 5.

Aqua North Carolina, Inc.
Indicated Common Equity Cost Rate Through Use
of the Traditional Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM)

Using Prospective Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Seven Water Companies	Value Line Adjusted Beta	Bloomberg Adjusted Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (4)
American States Water Co.	0.60	0.52	0.56	11.94 %	2.03 %	8.72 %	10.03 %	9.37 %
American Water Works Company Inc	0.50	1.00	0.75	11.94	2.03	10.99	11.73	11.36
California Water Service Group	0.60	0.51	0.55	11.94	2.03	8.60	9.94	9.27
Essential Utilities, Inc.	0.60	0.96	0.78	11.94	2.03	11.34	12.00	11.67
Middlesex Water Co.	0.70	0.73	0.72	11.94	2.03	10.63	11.46	11.05
SJW Group	0.60	0.83	0.71	11.94	2.03	10.51	11.37	10.94
York Water Co.	0.65	0.89	0.77	11.94	2.03	11.22	11.91	11.57
Mean			0.69			10.29 %	11.21 %	10.75 %
Median			0.72			10.63 %	11.46 %	11.05 %
Average of Mean and Median			0.71			10.46 %	11.34 %	10.90 %

Using Current Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Seven Water Companies	Value Line Adjusted Beta	Bloomberg Adjusted Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (3)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (4)
American States Water Co.	0.60	0.52	0.56	12.25 %	1.57 %	8.43 %	9.78 %	9.10 %
American Water Works Company Inc	0.50	1.00	0.75	12.25	1.57	10.76	11.52	11.14
California Water Service Group	0.60	0.51	0.55	12.25	1.57	8.31	9.68	9.00
Essential Utilities, Inc.	0.60	0.96	0.78	12.25	1.57	11.12	11.80	11.46
Middlesex Water Co.	0.70	0.73	0.72	12.25	1.57	10.39	11.25	10.82
SJW Group	0.60	0.83	0.71	12.25	1.57	10.27	11.15	10.71
York Water Co.	0.65	0.89	0.77	12.25	1.57	11.00	11.71	11.35
Mean			0.69			10.04 %	10.98 %	10.51 %
Median			0.72			10.39 %	11.25 %	10.82 %
Average of Mean and Median			0.71			10.22 %	11.12 %	10.67 %

Notes on page 24 of this Schedule.

Aqua North Carolina, Inc.
Notes to Accompany the Application of the CAPM and ECAPM

Notes:

- (1) The market risk premium (MRP) is derived by using six different measures from three sources: Ibbotson, Value Line, and Bloomberg as illustrated below:

	Using Prospective Interest Rates	Using Current Interest Rates
<u>Historical Data MRP Estimates:</u>		
Measure 1: Ibbotson Arithmetic Mean MRP (1926-2019)		
Arithmetic Mean Monthly Returns for Large Stocks 1926-2019:	12.10 %	12.10 %
Arithmetic Mean Income Returns on Long-Term Government Bonds:	5.09	5.09
MRP based on Ibbotson Historical Data:	<u>7.01 %</u>	<u>7.01 %</u>
Measure 2: Application of a Regression Analysis to Ibbotson Historical Data (1926-2019)		
	<u>10.26 %</u>	<u>10.72 %</u>
Measure 3: Application of the PRPM to Ibbotson Historical Data: (January 1926 - April 2020)		
	<u>13.44 %</u>	<u>13.44 %</u>
<u>Value Line MRP Estimates:</u>		
Measure 4: Value Line Projected MRP (Thirteen weeks ending May 01, 2020)		
Total projected return on the market 3-5 years hence*:	18.71 %	18.71 %
Projected Risk-Free Rate (see note 2):	2.03	1.57
MRP based on Value Line Summary & Index:	<u>16.68 %</u>	<u>17.14 %</u>
*Forecasted 3-5 year capital appreciation plus expected dividend yield		
Measure 5: Value Line Projected Return on the Market based on the S&P 500		
Total return on the Market based on the S&P 500:	14.79 %	14.79 %
Projected Risk-Free Rate (see note 2):	2.03	1.57
MRP based on Value Line data	<u>12.76 %</u>	<u>13.22 %</u>
Measure 6: Bloomberg Projected MRP		
Total return on the Market based on the S&P 500:	13.53 %	13.53 %
Projected Risk-Free Rate (see note 2):	2.03	1.57
MRP based on Bloomberg data	<u>11.50 %</u>	<u>11.96 %</u>
Average of Value Line, Ibbotson, and Bloomberg MRP:	<u>11.94 %</u>	<u>12.25 %</u>

- (2) For reasons explained in the direct testimony, the appropriate risk-free rate for cost of capital purposes is the average forecast of 30 year Treasury Bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts. (See pages 20-21 of this Schedule.) The projection of the

Second Quarter 2020	1.30 %
Third Quarter 2020	1.40
Fourth Quarter 2020	1.50
First Quarter 2021	1.60
Second Quarter 2021	1.70
Third Quarter 2021	1.80
2021-2025	3.20
2026-2030	3.70
	<u>2.03 %</u>

- (3) Three-month average on 30-year Treasury bond yield ended April, 2020 as shown below:

Feb-20	1.97 %
Mar-20	1.46
Apr-20	1.27
	<u>1.57 %</u>

- (4) Average of Column 6 and Column 7.

Sources of Information:

Value Line Summary and Index
Blue Chip Financial Forecasts, May 1, 2020 and December 1, 2019
Stocks, Bonds, Bills, and Inflation - 2020 SBBI Yearbook, John Wiley & Sons, Inc.
Bloomberg Professional Services

Aqua North Carolina, Inc.
Basis of Selection of the Group of Non-Price Regulated Companies
Comparable in Total Risk to the Utility Proxy Group

The criteria for selection of the Non-Price Regulated Proxy Group was that the non-price regulated companies be domestic and reported in Value Line Investment Survey (Standard Edition).

The Non-Price Regulated Proxy Group was then selected based on the unadjusted beta range of 0.17 – 0.61 and residual standard error of the regression range of 2.6429 – 3.1521 of the Utility Proxy Group.

These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression. Plus or minus two standard deviations captures 95.50% of the distribution of unadjusted betas and residual standard errors of the regression.

The standard deviation of the Utility Proxy Group's residual standard error of the regression is 0.1273. The standard deviation of the standard error of the regression is calculated as follows:

$$\text{Standard Deviation of the Std. Err. of the Regr.} = \frac{\text{Standard Error of the Regression}}{\sqrt{2N}}$$

where: N = number of observations. Since Value Line betas are derived from weekly price change observations over a period of five years, N = 259

$$\text{Thus, } 0.1273 = \frac{2.8975}{\sqrt{518}} = \frac{2.8975}{22.7596}$$

Source of Information: Value Line, Inc., March 2020
Value Line Investment Survey (Standard Edition)

Aqua North Carolina, Inc.
Basis of Selection of Comparable Risk
Domestic Non-Price Regulated Companies

	[1]	[2]	[3]	[4]
Proxy Group of Seven Water Companies	Value Line Adjusted Beta	Unadjusted Beta	Residual Standard Error of the Regression	Standard Deviation of Beta
American States Water Co.	0.60	0.36	2.6563	0.0986
American Water Works Company Inc	0.50	0.23	2.2596	0.0839
California Water Service Group	0.60	0.38	2.3220	0.0862
Essential Utilities, Inc.	0.60	0.39	2.9281	0.1087
Middlesex Water Co.	0.70	0.54	3.4080	0.1265
SJW Group	0.60	0.38	3.2407	0.1203
York Water Co.	0.65	0.46	3.4676	0.1287
Average	<u>0.61</u>	<u>0.39</u>	<u>2.8975</u>	<u>0.1076</u>
Beta Range (+/- 2 std. Devs. of Beta)	0.17	0.61		
2 std. Devs. of Beta	0.22			
Residual Std. Err. Range (+/- 2 std. Devs. of the Residual Std. Err.)	2.6429	3.1521		
Std. dev. of the Res. Std. Err.	0.1273			
2 std. devs. of the Res. Std. Err.	0.2546			

Source of Information: Valueline Proprietary Database, March 2020

Aqua North Carolina, Inc.
Proxy Group of Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Seven Water Companies

	[1]	[2]	[3]	[4]
Proxy Group of Twelve Non-Price Regulated Companies	VL Adjusted Beta	Unadjusted Beta	Residual Standard Error of the Regression	Standard Deviation of Beta
Casey's Gen'l Stores	0.70	0.53	2.9602	0.1099
Cboe Global Markets	0.65	0.46	2.7206	0.1010
Cracker Barrel	0.70	0.54	3.0507	0.1132
Campbell Soup	0.65	0.40	2.9785	0.1105
Dunkin' Brands Group	0.70	0.51	2.7046	0.1004
Darden Restaurants	0.75	0.60	2.9890	0.1109
Hormel Foods	0.60	0.34	2.6862	0.0997
Lancaster Colony	0.70	0.48	2.6628	0.0988
Lilly (Eli)	0.75	0.54	2.6484	0.0983
Lamb Weston Holdings	0.65	0.43	2.8592	0.1543
Altria Group	0.70	0.50	2.6455	0.0982
Valvoline Inc.	0.75	0.57	3.1081	0.1659
Average	0.69	0.49	2.8300	0.1100
Proxy Group of Seven Water Companies	0.61	0.39	2.8975	0.1076

Source of Information:

Valueline Proprietary Database, March 2020

Aqua North Carolina, Inc.
Summary of Cost of Equity Models Applied to
Proxy Group of Twelve Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Seven Water Companies

<u>Principal Methods</u>	<u>Proxy Group of Twelve Non-Price Regulated Companies</u>	<u>Results using Current Interest Rates</u>
Discounted Cash Flow Model (DCF) (1)	8.41 %	8.41 %
Risk Premium Model (RPM) (2)	13.12	12.79
Capital Asset Pricing Model (CAPM) (3)	<u>11.83</u>	<u>11.62</u>
	Mean <u>11.12 %</u>	<u>10.94 %</u>
	Median <u>11.83 %</u>	<u>11.62 %</u>
	Average of Mean and Median <u>11.48 %</u>	<u>11.28 %</u>

Notes:

- (1) From page 29 of this Schedule.
- (2) From page 30 of this Schedule.
- (3) From page 33 of this Schedule.

Aqua North Carolina, Inc.
DCF Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Seven Water Companies

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	
Proxy Group of Twelve Non-Price Regulated Companies	Average Dividend Yield	Value Line Projected Five Year Growth in EPS	Zack's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Bloomberg Projected Five Year Growth in EPS	Average Projected Five Year Growth Rate in EPS	Adjusted Dividend Yield	Indicated Common Equity Cost Rate (1)
	0.83 %	6.50 %	8.30 %	9.27 %	11.53 %	8.90 %	0.87 %	9.77 %
	1.39	12.50	2.30	3.24	6.15	6.05	1.43	7.48
	-	7.50	NA	0.30	(4.99)	3.90	-	NA
	2.89	2.00	7.20	2.75	7.48	4.86	2.96	7.82
	-	9.50	9.90	4.76	6.14	7.58	-	NA
	-	11.00	10.00	NA	5.82	8.94	-	NA
	2.02	8.50	6.00	4.00	4.63	5.78	2.08	7.86
	1.96	5.00	NA	3.00	NA	4.00	2.00	6.00
	2.09	10.00	12.30	12.52	11.31	11.53	2.21	13.74
	1.31	9.50	3.40	3.40	(1.85)	5.43	1.35	6.78
	8.29	8.50	5.00	3.53	5.25	5.57	8.52	14.09
2.71	8.50	2.60	2.60	4.84	4.63	2.77	7.40	
						Mean	8.99 %	
						Median	7.82 %	
						Average of Mean and Median	8.41 %	

NA= Not Available
NMF= Not Meaningful Figure

- (1) The application of the DCF model to the domestic, non-price regulated comparable risk companies is identical to the application of the DCF to the utility proxy group. The dividend yield is derived by using the 60 day average price and the spot indicated dividend as of April 30, 2020. The dividend yield is then adjusted by 1/2 the average projected growth rate in EPS, which is calculated by averaging the 5 year projected growth in EPS provided by Value Line, www.reuters.com, www.zacks.com, and www.yahoo.com (excluding any negative growth rates) and then adding that growth rate to the adjusted dividend yield.

Source of Information:
Value Line Investment Survey
www.reuters.com Downloaded on 04/30/2020
www.zacks.com Downloaded on 04/30/2020
www.yahoo.com Downloaded on 04/30/2020
Bloomberg Professional Services

Aqua North Carolina, Inc.
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

<u>Line No.</u>		<u>Proxy Group of Twelve Non-Price Regulated Companies</u>	<u>Results using Current Interest Rates</u>
1.	Prospective Yield on Baa Rated Corporate Bonds (1)	4.55 % (1)	
2.	Current Yield on Baa Rated Corporate Bonds (2)		4.01 % (2)
3.	Equity Risk Premium (3)	<u>8.57</u>	<u>8.78</u>
4.	Risk Premium Derived Common Equity Cost Rate	<u><u>13.12</u> %</u>	<u><u>12.79</u> %</u>

Notes: (1) Average forecast of Baa corporate bonds based upon the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated May 1, 2020 and December 1, 2019 (see pages 20-21 of this Schedule). The estimates are detailed below.

Second Quarter 2020	4.30 %
Third Quarter 2020	4.30
Fourth Quarter 2020	4.20
First Quarter 2021	4.30
Second Quarter 2021	4.20
Third Quarter 2021	4.30
2021-2025	5.20
2026-2030	<u>5.60</u>
Average	<u><u>4.55</u> %</u>

(2) Three-month average Baa corporate bond yield ended April, 2020 as reported by Bloomberg Professional Services shown below:

Feb-20	3.61 %
Mar-20	4.29
Apr-20	<u>4.13</u>
Average	<u><u>4.01</u> %</u>

(3) From page 32 of this Schedule.

Aqua North Carolina, Inc.
Comparison of Long-Term Issuer Ratings for the
Proxy Group of Twelve Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Seven Water Companies

	Moody's Long-Term Issuer Rating April 2020		Standard & Poor's Long-Term Issuer Rating April 2020	
<u>Proxy Group of Twelve Non- Price Regulated Companies</u>	<u>Long- Term Issuer Rating</u>	<u>Numerical Weighting (1)</u>	<u>Long-Term Issuer Rating</u>	<u>Numerical Weighting (1)</u>
Casey's Gen'l Stores	NA	--	NA	--
Cboe Global Markets	A3	7.0	A-	7.0
Cracker Barrel	WR	--	NR	--
Campbell Soup	Baa2	9.0	BBB-	10.0
Dunkin' Brands Group	NA	--	NA	--
Darden Restaurants	Baa3	10.0	BBB-	10.0
Hormel Foods	A1	5.0	A	6.0
Lancaster Colony	NA	--	NA	--
Lilly (Eli)	A2	6.0	A+	5.0
Lamb Weston Holdings	Ba2	12.0	BB+	11.0
Altria Group	A3	7.0	BBB	9.0
Valvoline Inc.	Ba3	13.0	BB	12.0
Average	<u>Baa2</u>	<u>8.6</u>	<u>BBB+</u>	<u>8.8</u>

Notes:

(1) From page 16 of this Schedule.

Source of Information:
Bloomberg Professional Services

Aqua North Carolina, Inc.
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for
Proxy Group of Twelve Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Seven Water Companies

<u>Line No.</u>	<u>Equity Risk Premium Measure</u>	<u>Proxy Group of Twelve Non-Price Regulated Companies</u>	<u>Results using Current Interest Rates</u>
<u>Ibbotson-Based Equity Risk Premiums:</u>			
1.	Ibbotson Equity Risk Premium (1)	5.78 %	5.78 %
2.	Regression on Ibbotson Risk Premium Data	9.12 (2)	9.59 (3)
3.	Ibbotson Equity Risk Premium based on PRPM (4)	11.95	11.95
4.	Equity Risk Premium Based on <u>Value Line</u> Summary and Index	15.50 (5)	15.90 (6)
5	Equity Risk Premium Based on <u>Value Line</u> S&P 500 Companies	11.58 (7)	11.98 (8)
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies	<u>10.32 (9)</u>	<u>10.71 (10)</u>
7.	Conclusion of Equity Risk Premium	10.71 %	10.98 %
8.	Adjusted Beta (11)	<u>0.80</u>	<u>0.80</u>
9.	Forecasted Equity Risk Premium	<u>8.57 %</u>	<u>8.78 %</u>

Notes:

- (1) From note 1 of page 19 of this Schedule.
- (2) From note 2 of page 19 of this Schedule.
- (3) From note 3 of page 19 of this Schedule.
- (4) From note 4 of page 19 of this Schedule.
- (5) From note 5 of page 19 of this Schedule.
- (6) From note 6 of page 19 of this Schedule.
- (7) From note 7 of page 19 of this Schedule.
- (8) From note 8 of page 19 of this Schedule.
- (9) From note 9 of page 19 of this Schedule.
- (10) From note 10 of page 19 of this Schedule.
- (11) Average of mean and median beta from page 33 of this Schedule.

Sources of Information:

Stocks, Bonds, Bills, and Inflation - 2020 SBBI Yearbook, John Wiley & Sons, Inc.
Value Line Summary and Index
Blue Chip Financial Forecasts, May 1, 2020 and December 1, 2019
Bloomberg Professional Services

Aqua North Carolina, Inc.

Traditional CAPM and ECAPM Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Seven Water Companies

Using Prospective Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Twelve Non-Price Regulated Companies	Value Line Adjusted Beta	Bloomberg Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (4)
Casey's Gen'l Stores	0.70	0.81	0.75	11.94 %	2.03 %	10.99 %	11.73 %	11.36 %
Choe Global Markets	0.65	0.83	0.74	11.94	2.03	10.87	11.64	11.25
Cracker Barrel	0.70	1.31	1.01	11.94	2.03	14.09	14.06	14.08
Campbell Soup	0.65	0.55	0.60	11.94	2.03	9.19	10.39	9.79
Dunkin' Brands Group	0.70	1.36	1.03	11.94	2.03	14.33	14.24	14.28
Darden Restaurants	0.75	1.72	1.23	11.94	2.03	16.72	16.03	16.37
Hormel Foods	0.60	0.41	0.51	11.94	2.03	8.12	9.58	8.85
Lancaster Colony	0.70	0.57	0.64	11.94	2.03	9.67	10.75	10.21
Lilly (Eli)	0.75	0.79	0.77	11.94	2.03	11.22	11.91	11.57
Lamb Weston Holdings	0.65	1.09	0.87	11.94	2.03	12.42	12.81	12.61
Altria Group	0.70	0.82	0.76	11.94	2.03	11.11	11.82	11.46
Valvoline Inc.	0.75	1.22	0.99	11.94	2.03	13.85	13.88	13.87
Mean			0.83			11.88 %	12.40 %	12.14 %
Median			0.77			11.17 %	11.87 %	11.52 %
Average of Mean and Median			0.80			11.53 %	12.14 %	11.83 %

Using Current Interest Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Twelve Non-Price Regulated Companies	Value Line Adjusted Beta	Bloomberg Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (3)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (4)
Casey's Gen'l Stores	0.70	0.81	0.75	12.25 %	1.57 %	10.76 %	11.52 %	11.14 %
Choe Global Markets	0.65	0.83	0.74	12.25	1.57	10.63	11.43	11.03
Cracker Barrel	0.70	1.31	1.01	12.25	1.57	13.94	13.91	13.93
Campbell Soup	0.65	0.55	0.60	12.25	1.57	8.92	10.14	9.53
Dunkin' Brands Group	0.70	1.36	1.03	12.25	1.57	14.19	14.09	14.14
Darden Restaurants	0.75	1.72	1.23	12.25	1.57	16.64	15.93	16.28
Hormel Foods	0.60	0.41	0.51	12.25	1.57	7.82	9.32	8.57
Lancaster Colony	0.70	0.57	0.64	12.25	1.57	9.41	10.51	9.96
Lilly (Eli)	0.75	0.79	0.77	12.25	1.57	11.00	11.71	11.35
Lamb Weston Holdings	0.65	1.09	0.87	12.25	1.57	12.23	12.62	12.43
Altria Group	0.70	0.82	0.76	12.25	1.57	10.88	11.61	11.25
Valvoline Inc.	0.75	1.22	0.99	12.25	1.57	13.70	13.73	13.71
Mean			0.83			11.67 %	12.21 %	11.94 %
Median			0.77			10.94 %	11.66 %	11.30 %
Average of Mean and Median			0.80			11.31 %	11.94 %	11.62 %

Notes:

- (1) From note 1 of page 24 of this Schedule
- (2) From note 2 of page 24 of this Schedule
- (3) From note 3 of page 24 of this Schedule
- (4) Average of CAPM and ECAPM cost rates.

Aqua North Carolina, Inc.
Derivation of the Flotation Cost Adjustment to the Cost of Common Equity

Equity Issuances and Flotation Costs of the Parent In the Test Year

		[Column 1]	[Column 2]	[Column 3]	[Column 4]	[Column 5]
Date	Transaction	Shares Issued	Gross Equity Issue before Costs	Total Flotation Costs	Total Net Proceeds (1)	Flotation Cost Percentage (2)
03/16/20	Equity Offering	21,661,095	\$ 749,907,000	\$ 23,772,000	\$ 726,135,000	3.17%
04/23/19	Equity Offering	2,335,654	\$ 80,860,341	\$ 2,763,842	\$ 78,096,500	3.42%
04/23/19	Equity Offering	32,495,667	\$ 1,324,401,000	\$ 30,651,000	\$ 1,293,750,000	2.31%
			<u>\$ 2,155,168,341</u>	<u>\$ 57,186,842</u>	<u>\$ 2,097,981,500</u>	<u>2.65%</u>

Flotation Cost Adjustment

	Average Dividend Yield	Average Projected EPS Growth Rate (3)	Adjusted Dividend Yield	Average DCF Cost Rate Unadjusted for Flotation (8)	DCF Cost Rate Adjusted for Flotation (4)	Flotation Cost Adjustment (5)
Proxy Group of Seven Water Companies	<u>1.76 %</u>	<u>6.88 %</u>	<u>1.82 %</u>	<u>8.70 %</u>	<u>8.75 %</u>	<u>0.05 %</u>

See page 35 of this Schedule for notes.

Aqua North Carolina, Inc.
Notes to Accompany the
Derivation of the Flotation Cost Adjustment to the Cost of Common Equity

- (1) Column 2 – Column 3.
- (2) (Column 2 – Column 4) divided by Column 2.
- (3) Using the average growth rate from page 3 of this Schedule.
- (4) Adjustment for flotation costs based on adjusting the average DCF constant growth cost rate in accordance with the following:

$$K = \frac{D(1 + 0.5g)}{P(1 - F)} + g,$$

where g is the growth factor and F is the percentage of flotation costs.

- (5) Flotation cost adjustment of 0.05% equals the difference between the flotation adjusted average DCF cost rate of 8.75% and the unadjusted average DCF cost rate of 8.70% of the Utility Proxy Group.

Source of Information:

Company provided information

Aqua North Carolina, Inc.
Calculation of Daily Returns, YTD Returns, and Annual Volatility
for the Utility Proxy Group and the S&P 500

	American States Water		American Water		California Water		Essential Utilities,		Middlesex Water Co.		SIW Group		York Water Co.		Average	S&P 500	
	Co.		Works Company Inc		Service Group		Inc.										
	Price	Return	Price	Return	Price	Return	Price	Return	Price	Return	Price	Return	Price	Return		Price	Return
12/31/2019	86.64	-0.79%	122.85	-0.16%	51.56	0.08%	46.94	-0.30%	63.57	0.02%	71.06	-1.02%	46.11	-0.58%		3,230.78	0.29%
1/2/2020	85.83	-0.93%	120.20	-2.16%	50.63	-1.80%	45.88	-2.26%	62.22	-2.12%	69.63	-2.01%	44.89	-2.65%		3,257.85	0.84%
1/3/2020	86.51	0.79%	120.98	0.65%	51.00	0.73%	46.21	0.72%	62.25	0.05%	69.84	0.30%	44.95	0.13%		3,234.85	-0.71%
1/6/2020	84.90	-1.86%	120.75	-0.19%	50.48	-1.02%	46.05	-0.35%	61.34	-1.46%	69.46	-0.54%	44.81	-0.31%		3,246.28	0.35%
1/7/2020	84.21	-0.81%	120.00	-0.62%	49.93	-1.09%	46.32	0.59%	60.95	-0.64%	68.45	-1.45%	44.61	-0.45%		3,237.18	-0.28%
1/8/2020	83.59	-0.74%	120.49	0.41%	49.42	-1.02%	46.51	0.41%	61.30	0.57%	68.10	-0.51%	44.16	-1.01%		3,253.05	0.49%
1/9/2020	83.91	0.38%	122.13	1.36%	49.73	0.63%	46.73	0.47%	61.43	0.21%	68.59	0.72%	44.41	0.57%		3,274.70	0.67%
1/10/2020	84.03	0.14%	122.56	0.35%	49.74	0.02%	46.82	0.19%	61.34	-0.15%	69.16	0.83%	44.54	0.29%		3,265.55	-0.29%
1/13/2020	84.84	0.96%	123.74	0.96%	50.22	0.97%	47.60	1.67%	62.66	2.15%	69.92	1.10%	45.47	2.09%		3,288.13	0.70%
1/14/2020	84.34	-0.59%	124.57	0.67%	49.50	-1.43%	47.97	0.78%	62.21	-0.72%	69.44	-0.69%	45.30	-0.37%		3,283.15	-0.15%
1/15/2020	85.38	1.23%	126.88	1.85%	50.31	1.64%	48.89	1.92%	63.28	1.72%	70.64	1.73%	46.11	1.79%		3,289.29	0.19%
1/16/2020	86.73	1.58%	128.57	1.33%	51.01	1.39%	49.73	1.72%	64.77	2.35%	71.36	1.02%	47.34	2.67%		3,316.81	0.84%
1/17/2020	87.21	0.55%	130.44	1.45%	51.72	1.39%	50.57	1.69%	66.13	2.10%	72.86	2.10%	47.89	1.16%		3,329.62	0.39%
1/21/2020	88.66	1.66%	133.22	2.13%	52.33	1.18%	50.97	0.79%	66.54	0.62%	73.23	0.51%	48.90	2.11%		3,320.79	-0.27%
1/22/2020	89.27	0.69%	134.05	0.62%	53.03	1.34%	51.44	0.92%	66.74	0.30%	73.58	0.48%	49.08	0.37%		3,321.75	0.03%
1/23/2020	89.87	0.67%	135.29	0.93%	53.54	0.96%	52.10	1.28%	66.70	-0.06%	74.61	1.40%	49.60	1.06%		3,325.54	0.11%
1/24/2020	90.09	0.24%	135.78	0.36%	53.55	0.02%	51.86	-0.46%	65.89	-1.21%	74.73	0.16%	48.65	-1.92%		3,295.47	-0.90%
1/27/2020	89.58	-0.57%	135.25	-0.39%	52.86	-1.29%	51.71	-0.29%	65.97	0.12%	74.53	-0.27%	48.78	-0.27%		3,243.63	-1.57%
1/28/2020	89.97	0.44%	135.80	0.41%	53.19	0.62%	52.15	0.85%	66.30	0.50%	74.16	-0.50%	48.75	-0.06%		3,276.24	1.01%
1/29/2020	90.41	0.49%	136.04	0.18%	53.46	0.51%	52.32	0.33%	66.87	0.86%	74.45	0.39%	48.66	-0.18%		3,273.40	-0.09%
1/30/2020	90.72	0.34%	136.77	0.54%	53.89	0.80%	52.34	0.04%	66.91	0.06%	74.35	-0.13%	48.63	-0.06%		3,283.46	0.31%
1/31/2020	88.56	-2.38%	136.20	-0.42%	52.56	-2.47%	51.94	-0.76%	65.26	-2.47%	73.35	-1.34%	47.36	-2.61%		3,225.52	-1.77%
2/3/2020	89.32	0.86%	136.52	0.23%	53.49	1.77%	53.73	3.45%	66.44	1.81%	73.73	0.52%	48.20	1.77%		3,248.92	0.73%
2/4/2020	88.47	-0.95%	134.84	-1.23%	53.50	0.02%	52.99	-1.38%	66.57	0.20%	72.62	-1.51%	47.80	-0.83%		3,297.59	1.50%
2/5/2020	89.18	0.80%	135.07	0.17%	53.86	0.67%	53.34	0.66%	67.46	1.34%	73.48	1.18%	48.44	1.34%		3,334.69	1.13%
2/6/2020	89.83	0.73%	135.00	-0.05%	54.02	0.30%	53.20	-0.26%	67.97	0.76%	72.89	-0.80%	48.10	-0.70%		3,345.78	0.33%
2/7/2020	90.28	0.50%	134.45	-0.41%	54.29	0.50%	53.22	0.04%	68.15	0.26%	72.49	-0.55%	48.25	0.31%		3,327.71	-0.54%
2/10/2020	91.08	0.89%	135.21	0.57%	54.97	1.25%	53.73	0.96%	68.72	0.84%	72.79	0.41%	48.85	1.24%		3,352.09	0.73%
2/11/2020	91.05	-0.03%	135.34	0.10%	55.05	0.15%	53.27	-0.86%	67.71	-1.47%	72.27	-0.71%	48.11	-1.51%		3,357.75	0.17%
2/12/2020	91.51	0.51%	135.70	0.27%	55.07	0.04%	53.17	-0.19%	68.14	0.64%	72.42	0.21%	48.59	1.00%		3,379.45	0.65%
2/13/2020	92.53	1.11%	136.95	0.92%	55.91	1.53%	53.18	0.02%	69.44	1.91%	73.31	1.23%	48.77	0.37%		3,373.94	-0.16%
2/14/2020	93.85	1.43%	139.32	1.73%	56.77	1.54%	53.72	1.02%	69.26	-0.26%	73.55	0.33%	48.50	-0.55%		3,380.16	0.18%
2/18/2020	93.64	-0.22%	139.26	-0.04%	56.80	0.05%	54.07	0.65%	69.45	0.27%	73.40	-0.20%	48.68	0.37%		3,370.29	-0.29%
2/19/2020	91.50	-2.29%	138.70	-0.40%	55.52	-2.25%	53.62	-0.83%	67.88	-2.26%	71.81	-2.17%	48.60	-0.16%		3,386.15	0.47%
2/20/2020	90.23	-1.39%	137.30	-1.01%	54.48	-1.87%	53.50	-0.22%	67.61	-0.40%	71.54	-0.38%	48.70	0.21%		3,373.23	-0.38%
2/21/2020	90.16	-0.08%	137.77	0.34%	54.50	0.04%	53.06	-0.82%	68.26	0.96%	71.74	0.28%	48.72	0.04%		3,337.75	-1.05%
2/24/2020	89.32	-0.93%	136.53	-0.90%	54.27	-0.42%	51.67	-2.62%	66.84	-2.08%	71.46	-0.39%	47.05	-3.43%		3,225.89	-3.35%
2/25/2020	87.67	-1.85%	133.09	-2.52%	52.89	-2.54%	50.43	-2.40%	64.84	-2.99%	69.16	-3.22%	46.22	-1.76%		3,128.21	-3.03%
2/26/2020	87.31	-0.41%	133.04	-0.04%	52.67	-0.42%	50.31	-0.24%	65.53	1.06%	69.20	0.06%	47.18	2.08%		3,116.39	-0.38%
2/27/2020	81.99	-6.09%	127.78	-3.95%	49.92	-5.22%	46.34	-7.89%	61.90	-5.54%	64.36	-6.99%	43.18	-8.48%		2,978.76	-4.42%
2/28/2020	76.59	-6.59%	123.66	-3.22%	47.96	-3.93%	43.01	-7.19%	59.47	-3.93%	61.18	-4.94%	42.29	-2.06%		2,954.22	-0.82%
3/2/2020	80.49	5.09%	130.84	5.81%	50.34	4.96%	45.44	5.65%	64.43	8.34%	63.10	3.14%	45.68	8.02%		3,090.23	4.60%
3/3/2020	81.16	0.83%	131.42	0.44%	51.41	2.13%	45.31	-0.29%	63.26	-1.82%	63.75	1.03%	44.44	-2.71%		3,003.37	-2.81%
3/4/2020	87.34	7.61%	140.31	6.76%	54.55	6.11%	48.45	6.93%	66.47	5.07%	67.67	6.15%	46.79	5.29%		3,130.12	4.22%
3/5/2020	87.13	-0.24%	139.36	-0.68%	53.99	-1.03%	47.57	-1.82%	65.67	-1.20%	66.27	-2.07%	46.80	0.02%		3,023.94	-3.39%
3/6/2020	87.78	0.75%	141.00	1.18%	54.37	0.70%	46.67	-1.89%	67.61	2.95%	69.33	4.62%	48.78	4.23%		2,972.37	-1.71%
3/9/2020	82.36	-6.17%	137.19	-2.70%	52.15	-4.08%	44.05	-5.61%	64.08	-2.22%	65.49	-5.54%	45.92	-5.86%		2,746.56	-7.60%
3/10/2020	83.47	1.35%	137.71	0.38%	52.38	0.44%	44.41	0.82%	65.08	1.56%	66.10	0.93%	45.55	-0.81%		2,882.23	4.94%
3/11/2020	79.80	-4.40%	129.67	-5.84%	48.41	-7.58%	40.03	-9.86%	58.52	-10.08%	61.08	-7.59%	40.62	-10.82%		2,741.38	-4.89%
3/12/2020	71.88	-9.92%	117.97	-9.02%	44.62	-7.83%	36.70	-8.32%	53.61	-8.39%	58.33	-4.50%	36.19	-10.91%		2,480.64	-9.51%
3/13/2020	76.76	6.79%	128.29	8.75%	45.79	2.62%	38.43	4.71%	55.54	3.60%	62.21	6.65%	40.41	11.66%		2,771.02	9.29%
3/16/2020	65.41	-14.79%	118.81	-7.39%	42.85	-6.42%	33.47	-12.91%	49.45	-10.97%	50.96	-18.08%	35.60	-11.90%		2,386.13	-11.98%
3/17/2020	78.43	19.91%	138.50	16.57%	55.43	29.36%	40.04	19.63%	61.35	24.06%	64.37	26.31%	44.13	23.96%		2,899.69	6.00%
3/18/2020	93.03	18.62%	130.08	-6.08%	54.12	-2.36%	40.59	1.37%	56.31	-8.22%	57.40	-10.83%	40.20	-8.91%		2,398.10	-5.18%
3/19/2020	92.40	-0.68%	115.12	-11.50%	55.45	2.46%	39.52	-2.64%	57.39	1.92%	58.42	1.78%	39.35	-2.11%		2,409.39	0.47%
3/20/2020	86.00	-6.93%	100.69	-12.53%	53.00	-4.42%	34.92	-11.64%	54.86	-9.92%	52.67	-9.84%	36.93	-6.15%		2,304.92	-4.34%
3/23/2020	74.90	-12.91%	97.07	-3.60%	47.33	-10.70%	32.65	-6.50%	51.88	-3.48%	49.48	-6.06%	37.00	0.19%		2,237.40	-2.93%
3/24/2020	79.61	6.29%	103.95	7.09%	48.03	1.48%	36.59	12.07%	56.39	2.75%	54.72	10.59%	39.66	7.19%		2,447.33	9.38%
3/25/2020	77.02	-3.25%	110.45	6.25%	45.66	4.93%	38.52	5.27%	53.82	4.56%	52.02	4.93%	37.30	5.95%		2,475.56	1.15%
3/26/2020	80																

Aqua North Carolina, Inc.
DCF Results for the Non-Regulated Proxy Group Comparable in Total Risk to the
Mr. Hinton's Water Proxy Group

	[1]	[2]	[3]	[4]
Company Name	Yield (1)	Value Line Projected Five Year Growth in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Average Projected Five Year Growth Rate in EPS
Casey's Gen'l Stores	0.85 %	6.50 %	9.27 %	7.89 %
Cboe Global Markets	1.40	12.50	3.24	7.87
Cracker Barrel	4.45	7.50	0.30	3.90
Campbell Soup	2.87	2.00	2.75	2.38
Dunkin' Brands Group	2.68	9.50	4.76	7.13
Darden Restaurants	1.55	11.00	NA	11.00
Hormel Foods	2.05	8.50	4.00	6.25
Lancaster Colony	1.95	5.00	3.00	4.00
Lilly (Eli)	2.11	10.00	12.52	11.26
Lamb Weston Holdings	1.41	9.50	3.40	6.45
Altria Group	8.34	8.50	3.53	6.02
Valvoline Inc.	2.99	8.50	2.60	5.55
Average	2.72 %	8.25 %	4.49 %	6.64 %
Estimated Cost of Equity		10.97 %	7.21 %	9.36 %

NA= Not Available
NMF= Not Meaningful Figure

- (1) 13-week average estimated yield next 12 months ending 05/08/2020 from the Value Line Summary & Index.
(2) Column 1 plus Column 4.

Source of Information: Value Line Investment Survey
www.yahoo.com Downloaded on 04/30/2020

Aqua North Carolina, Inc.
Hinton DCF Analysis using only Projected Growth in EPS

DCF ANALYSIS

Group of Water Utility Companies

		Value Line ² Forecast		Yahoo Forecast ³			
		EPS		EPS			
Company Name	Yield ¹	5-Yr		5-Yr		Average	
1 Amer. States Water	1.50 %	6.50	%	6.00	%	6.25	%
2 Amer. Water Works	1.63	8.50		8.20		8.35	
3 Essential Utilities	1.62	6.50		9.80		8.15	
4 California Water	2.18	10.00		6.40		8.20	
5 Middlesex Water	1.65	6.00		2.70		4.35	
6 SJW Group	2.02	6.00		14.00		10.00	
7 York Water Co.	1.62	7.00		4.90		5.95	
Average		7.21	%	7.43	%	7.32	%
Estimated Cost of Equity		8.96	%	9.17	%	9.07	%

Sources:

¹ Value Line Investment Survey, Summary and Index from February 14, 2020 to May 8, 2020.

² Value Line Investment Survey, Standard Edition, April 10, 2020.

³ Yahoo Earnings Forecast as of May 13, 2020.

Aqua North Carolina, Inc.
Demonstration of the Inadequacy of
a DCF Return Rate Related to Book Value
When Market Value is Greater than Book Value

		[A]	[B]
		Based on Mr. Hinton's Water Proxy Group	
<u>Line No.</u>		<u>Market Value</u>	<u>Book Value</u>
1.	Per Share	\$ 68.91 (1)	\$ 20.57 (2)
2.	DCF Cost Rate (3)	8.60%	8.60%
3.	Return in Dollars (4)	\$ 5.926	\$ 1.769
4.	Dividends (5)	\$ 1.203	\$ 1.203
5.	Growth in Dollars (6)	\$ 4.723	\$ 0.566
6.	Return on Market Value (7)	8.60%	2.57%
7.	Rate of Growth on Market Value (8)	6.85%	0.82%

Notes:

(1) Average of the 13-week ending May 8, 2020 prices from Value Line Summary & Index.

(2) Average book value dividing total common equity at year-end 2019 by common shares outstanding at year-end 2019 for each proxy group company.

(3) Mr. Hinton's Recommended DCF cost rate.

(4) Line 1 x Line 2.

(5) Dividends are based on the average 1.75% dividend yield for Mr. Hinton's water proxy group from Public Staff Hinton Exhibit 3.

(6) Line 3 - Line 4.

(7) Line 3 / Line 1.

(8) Line 5 / Line 1.

Aqua North Carolina, Inc.
Calculation of Indicated DCF Applied to Book Value Capital Structure
of Mr. Hinton's Proxy Group

Un-lever Indicated Market Capital Structure DCF

$$\begin{aligned}
 K_u &= K_e - (((K_u - i) 1 - t) D / E) - (K_u - d) P / E \\
 K_u &= 8.60\% - (((K_u - 4.70\%) 1 - 21\%) 25.92\% / 74.05\%) - (K_u - 7.58\%) 0.03\% / 74.05\% \\
 K_u &= 8.60\% - (((K_u - 4.70\%) 79.00\%) 35.01\%) - (K_u - 7.58\%) 0.04\% \\
 K_u &= 8.60\% - ((79.00\% * K_u - 3.7133\%) 35.01\%) - (0.04\% * K_u - 0.00\%) \\
 K_u &= 8.60\% - (27.65\% * K_u - 1.30\%) -0.04\% * K_u + 0.00\% \\
 K_u &= 8.60\% -27.65\% * K_u + 1.30\% -0.04\% * K_u + 0.00\% \\
 K_u &= 9.90\% -27.69\% * K_u \\
 127.69\% * K_u &= 9.90\% \\
 K_u &= \mathbf{7.76\%}
 \end{aligned}$$

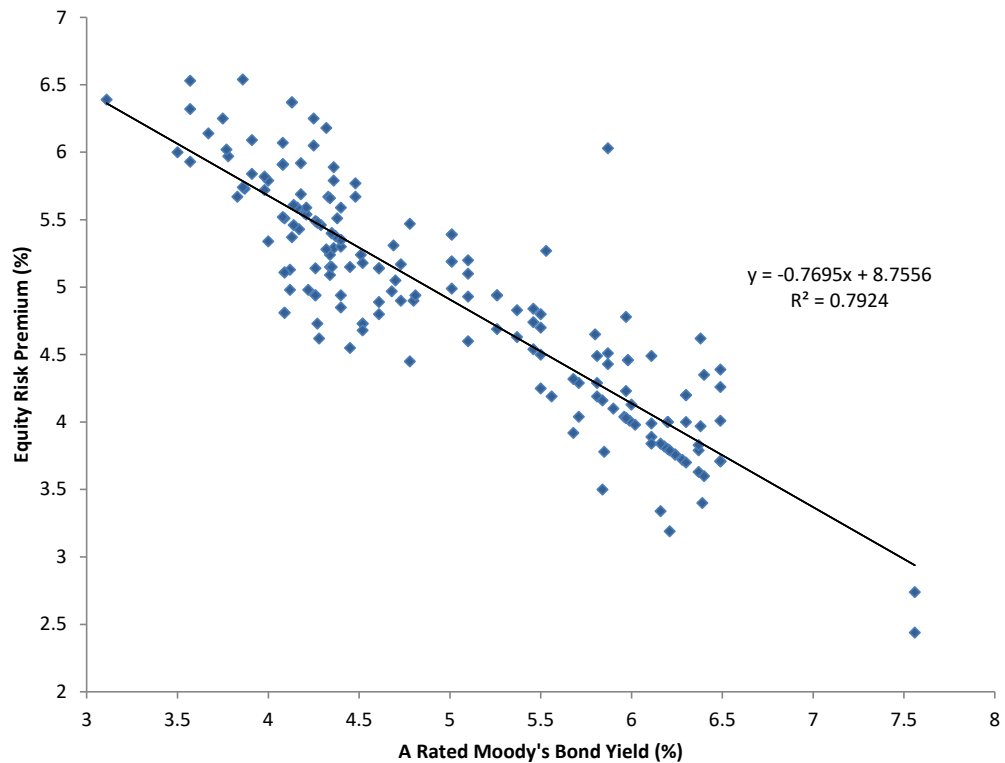
Re-lever to Indicated Book Value Capital Structure DCF

$$\begin{aligned}
 K_e &= K_u + (((K_u - i) 1 - t) D / E) + (K_u - d) P / E \\
 K_e &= 7.76\% + (((7.76\% - 4.70\%) 1 - 21\%) 47.11\% / 52.83\%) + (7.76\% - 7.58\%) 0.06\% / 52.83\% \\
 K_e &= 7.76\% + (((3.05\%) 79\%) 89.18\%) + (0.17\%) 0.11\% \\
 K_e &= 7.76\% + ((2.41\%) 89.18\%) + (0.00\%) \\
 K_e &= 7.76\% + (2.15\%) + 0.00\% \\
 K_e &= \mathbf{9.91\%}
 \end{aligned}$$

Where:

K_u = Un-levered (i.e., 100% equity) cost of common equity
 K_e = Market determined cost of common equity
 i = Cost of debt
 t = Income tax rate
 D = Debt ratio
 E = Equity ratio
 d = Cost of preferred stock
 P = Preferred equity ratio

Aqua North Carolina, Inc.
Prediction of Equity Risk Premiums Relative to
Moody's A Rated Utility Bond Yields



<u>Constant</u>	<u>Slope</u>	<u>Prospective A Rated Utility Bond (1)</u>	<u>Prospective Equity Risk Premium</u>	<u>Indicated ROE</u>
8.755596 %	-0.769458	3.74 %	5.88 %	9.62 %
<u>Constant</u>	<u>Slope</u>	<u>Current A Rated Utility Bond (2)</u>	<u>Prospective Equity Risk Premium</u>	<u>Indicated ROE</u>
8.755596 %	-0.769458	3.27 %	6.24	9.51 %

Notes:

- (1) From line 3 of page 13 of Schedule DWD-1R.
- (2) From line 4 of page 13 of Schedule DWD-1R.

Sources of Information:

Blue Chip Financial Forecasts May 1, 2020 and December 1, 2019
Regulatory Research Associates
Bloomberg Professional Services

Aqua North Carolina, Inc.
Calculation of Range of ROEs needed
to Obtain a Single "A" Rating

	Capitalization Ratio (1) (a)	Embedded Cost (b)	Overall Cost Rate (2) (c)	Pre-Tax Cost of Capital (d)
<u>Company Proposed Rates</u>				
Debt	50.00%	4.21% (1)	2.11%	2.11%
Equity	50.00%	11.00% (3)	5.50%	7.18% (4)
Total	<u>100.00%</u>		<u>7.60%</u>	<u>9.28%</u>
Pre-Tax Interest Coverage				4.41
<u>Public Staff Proposed Rates</u>				
Debt	50.00%	4.21% (1)	2.11%	2.11%
Equity	50.00%	8.90% (5)	4.45%	5.81% (4)
Total	<u>100.00%</u>		<u>6.56%</u>	<u>7.91%</u>
Pre-Tax Interest Coverage				3.76
<u>Highest Rate Scenario</u>				
Debt	50.00%	4.21% (1)	2.11%	2.11%
Equity	50.00%	16.13%	8.07%	10.53% (4)
Total	<u>100.00%</u>		<u>10.17%</u>	<u>12.63%</u>
Pre-Tax Interest Coverage				6.00
<u>Lowest Rate Scenario</u>				
Debt	50.00%	4.21% (1)	2.11%	2.11%
Equity	50.00%	6.45%	3.23%	4.21% (4)
Total	<u>100.00%</u>		<u>5.33%</u>	<u>6.32%</u>
Pre-Tax Interest Coverage				3.00

Notes

- (1) From Schedule DWD-1R, page 1.
- (2) Column (a) x Column (b)
- (3) Updated recommended ROE as shown on Schedule DWD-1R, page 1.
- (4) Overall Equity Cost Rate x Tax Conversion Factor
- (5) Hinton Direct Testimony

Aqua North Carolina, Inc.
Portfolio Ranks by Size and Risk Premiums over CAPM Results
as Compiled by Duff & Phelps 2020 Guide to Cost of Capital

Portfolio Rank by Size	B-1		B-2		B-3		B-4		B-5		B-6		B-7		B-8	
	Market Val. of Equity (in \$millions)	RP	Average Book Val. (in \$millions)	RP	5-yr Net Income (in \$millions)	RP	Market Value of Invested Capital (in \$millions)	RP	Total Assets (in \$millions)	RP	5-yr EBITDA (in \$millions)	RP	Sales (in \$millions)	RP	Average Number of Employees	RP
1	\$105,926 and Up	-0.84%	\$41,550 and Up	1.38%	\$6,822 and Up	1.01%	\$29,194 and Up	-0.32%	\$114,076 and Up	1.09%	\$14,971 and Up	1.13%	\$90,302 and Up	1.28%	729,840 and Up	0.89%
2	\$85,509 - \$105,926	0.89%	\$35,112 - \$41,550	2.13%	\$5,439 - \$6,822	1.83%	\$24,791 - \$29,194	1.25%	\$85,509 - \$114,076	1.19%	\$9,656 - \$14,971	1.13%	\$72,940 and Up	2.05%	69,840 and Up	1.70%
3	\$34,809 - \$85,509	0.89%	\$18,111 - \$35,112	2.26%	\$1,439 - \$5,439	2.13%	\$17,251 - \$24,791	1.25%	\$23,709 - \$85,509	1.88%	\$2,644 - \$9,656	2.18%	\$49,958 - \$69,840	2.61%	45,827 - 69,840	2.18%
4	\$24,895 - \$34,809	1.34%	\$6,887 - \$18,111	2.41%	\$970 - \$1,439	2.41%	\$3,818 - \$4,251	1.55%	\$23,107 - \$23,793	2.22%	\$2,644 - \$3,665	2.41%	\$15,623 - \$20,065	2.61%	35,414 - 45,827	2.52%
5	\$18,821 - \$24,895	1.61%	\$5,248 - \$6,887	2.64%	\$753 - \$970	2.60%	\$2,668 - \$3,818	1.79%	\$16,907 - \$23,107	2.45%	\$1,996 - \$2,644	2.59%	\$11,773 - \$15,263	2.78%	28,157 - 35,414	2.70%
6	\$14,297 - \$18,821	1.87%	\$4,392 - \$5,248	2.74%	\$615 - \$753	2.71%	\$1,728 - \$2,668	2.01%	\$13,508 - \$16,907	2.59%	\$1,559 - \$1,996	2.76%	\$9,610 - \$11,773	2.94%	23,063 - 28,157	2.86%
7	\$11,416 - \$14,297	2.10%	\$3,712 - \$4,392	2.83%	\$483 - \$615	2.71%	\$1,391 - \$1,728	2.23%	\$10,972 - \$13,508	2.73%	\$1,270 - \$1,559	2.89%	\$8,275 - \$9,610	3.03%	18,965 - 23,063	3.00%
8	\$9,274 - \$11,416	2.29%	\$3,122 - \$3,712	2.91%	\$388 - \$483	3.01%	\$1,436 - \$1,391	2.42%	\$9,164 - \$10,972	2.85%	\$1,044 - \$1,270	3.01%	\$7,157 - \$8,275	3.13%	15,846 - 18,965	3.15%
9	\$7,759 - \$9,274	2.48%	\$2,596 - \$3,122	3.01%	\$328 - \$388	3.12%	\$1,361 - \$1,436	2.58%	\$7,673 - \$9,164	2.95%	\$852 - \$1,044	3.14%	\$6,098 - \$7,157	3.22%	13,921 - 15,846	3.26%
10	\$6,535 - \$7,759	2.61%	\$2,201 - \$2,596	3.11%	\$289 - \$328	3.22%	\$870 - \$1,361	2.73%	\$6,462 - \$7,673	3.07%	\$721 - \$852	3.27%	\$4,991 - \$6,098	3.32%	12,271 - 13,921	3.35%
11	\$5,502 - \$6,535	2.77%	\$1,911 - \$2,201	3.18%	\$256 - \$289	3.28%	\$748 - \$870	2.88%	\$5,629 - \$6,462	3.17%	\$636 - \$721	3.35%	\$4,127 - \$4,991	3.47%	10,760 - 12,271	3.45%
12	\$4,624 - \$5,502	2.96%	\$1,687 - \$1,911	3.25%	\$218 - \$256	3.37%	\$659 - \$748	2.99%	\$4,934 - \$5,629	3.25%	\$555 - \$636	3.43%	\$3,550 - \$4,127	3.57%	9,489 - 10,760	3.54%
13	\$3,983 - \$4,624	3.09%	\$1,499 - \$1,687	3.31%	\$183 - \$218	3.48%	\$571 - \$659	3.08%	\$4,236 - \$4,934	3.33%	\$485 - \$555	3.52%	\$3,093 - \$3,550	3.66%	8,303 - 9,489	3.64%
14	\$3,413 - \$3,983	3.23%	\$1,312 - \$1,499	3.38%	\$155 - \$183	3.58%	\$497 - \$571	3.21%	\$3,576 - \$4,236	3.44%	\$427 - \$485	3.60%	\$2,723 - \$3,093	3.75%	7,138 - 8,303	3.74%
15	\$2,975 - \$3,413	3.38%	\$1,143 - \$1,312	3.45%	\$132 - \$155	3.69%	\$428 - \$497	3.34%	\$3,062 - \$3,576	3.54%	\$374 - \$427	3.73%	\$2,404 - \$2,723	3.82%	6,060 - 7,138	3.86%
16	\$2,644 - \$2,975	3.48%	\$996 - \$1,143	3.52%	\$111 - \$132	3.78%	\$368 - \$428	3.46%	\$2,642 - \$3,062	3.63%	\$323 - \$374	3.76%	\$2,137 - \$2,404	3.90%	5,130 - 6,060	3.99%
17	\$2,313 - \$2,644	3.59%	\$857 - \$996	3.59%	\$93 - \$111	3.90%	\$318 - \$368	3.59%	\$2,249 - \$2,642	3.73%	\$274 - \$323	3.86%	\$1,916 - \$2,137	3.97%	4,330 - 5,130	4.11%
18	\$1,932 - \$2,313	3.73%	\$739 - \$857	3.68%	\$79 - \$93	4.00%	\$272 - \$318	3.70%	\$1,898 - \$2,249	3.83%	\$227 - \$274	3.97%	\$1,602 - \$1,916	4.04%	3,605 - 4,330	4.24%
19	\$1,578 - \$1,932	3.93%	\$649 - \$739	3.75%	\$67 - \$79	4.10%	\$229 - \$272	3.86%	\$1,591 - \$1,898	3.94%	\$187 - \$227	4.10%	\$1,446 - \$1,602	4.13%	2,894 - 3,605	4.39%
20	\$1,320 - \$1,578	4.11%	\$562 - \$649	3.82%	\$55 - \$67	4.21%	\$179 - \$229	4.04%	\$1,310 - \$1,591	4.05%	\$155 - \$187	4.22%	\$1,171 - \$1,446	4.24%	2,287 - 2,894	4.57%
21	\$1,080 - \$1,320	4.26%	\$464 - \$562	3.90%	\$44 - \$55	4.33%	\$147 - \$179	4.23%	\$1,074 - \$1,310	4.18%	\$127 - \$155	4.33%	\$926 - \$1,171	4.40%	1,727 - 2,287	4.87%
22	\$850 - \$1,080	4.49%	\$384 - \$464	4.03%	\$37 - \$44	4.43%	\$119 - \$147	4.23%	\$854 - \$1,074	4.35%	\$94 - \$127	4.33%	\$726 - \$926	4.43%	1,203 - 1,727	5.01%
23	\$591 - \$850	4.90%	\$292 - \$384	4.12%	\$24 - \$37	4.49%	\$86 - \$119	4.08%	\$594 - \$854	4.49%	\$70 - \$94	4.60%	\$525 - \$726	4.72%	649 - 1,203	5.28%
24	\$306 - \$591	5.15%	\$168 - \$292	4.28%	\$12 - \$24	4.95%	\$42 - \$86	5.01%	\$320 - \$594	4.76%	\$38 - \$70	4.90%	\$284 - \$525	4.95%	Up to 649	5.28%
25	Up to \$306	6.20%	Up to \$168	4.82%	Up to \$12	5.69%	Up to \$42	5.99%	Up to \$320	5.38%	Up to \$38	5.60%	Up to \$284	5.67%	Up to 649	6.14%

Proxy Group of Seven Water Companies	B-1		B-2		B-3		B-4		B-5		B-6		B-7		B-8	
	Market Val. of Equity (in \$millions)	RP	Average Book Val. (in \$millions)	RP	5-yr Net Income (in \$millions)	RP	Market Value of Invested Capital (in \$millions)	RP	Total Assets (in \$millions)	RP	5-yr EBITDA (in \$millions)	RP	Sales (in \$millions)	RP	Average Number of Employees	RP
Aqua North Carolina, Inc.	\$ 385.41	24	\$ 108	25	\$ 6.32	25	\$ 495.14	24	\$ 385.66	24	\$ 22.90	25	\$ 54.32	25	181	25
Indicated Risk Premium	2.38%		1.57%		2.00%		2.13%		1.59%		1.92%		1.13%		1.13%	

Sources of Information:
Duff & Phelps 2020 Cost of Capital Navigator
S&P Financial
Company Form 10-K

Aqua North Carolina, Inc.
R-Squareds of Mr. Hinton's Proxy Group

<u>Mr. Hinton's Water Proxy Group</u>	<u>R-Squared</u>
American States Water Co.	0.0481
American Water Works Company Inc	0.0287
California Water Service Group	0.0701
Essential Utilities, Inc.	0.0477
Middlesex Water Co.	0.0652
SJW Group	0.0364
York Water Co.	0.0482
Average	<u>0.0492</u>

Source of Information: Value Line Proprietary Database, March 2020

Aqua North Carolina, Inc.
Rate Mechanisms In Place at Proxy Group Operating Subsidiaries

Ticker	Company (bold if parent)	State	Decoupling?	Mechanism Name	Type of Mechanism	Source
AWR	American States Water Company					
	Golden State Water Company	CA	Yes	Water Revenue Adjustment Mechanism (WRAM)	Full Decoupling (Actual to Target Revenues)	Annual Report, tariff
AWK	American Water					
	California American Water	CA	Yes	Water Revenue Adjustment Mechanism (WRAM); Modified Cost Balancing Adjustment (MCBA)	Full Decoupling (Actual to Target Revenues)	Annual Report, tariff
	Hawaii American Water	HI	No			Annual Report
	Illinois American Water	IL	Yes	Volume Balancing Adjustment Rider (VBA); Qualifying Infrastructure Plant (QIP) Surcharge	Full Decoupling (Actual to Target Revenues); Capital Recovery	Commission Order dated December 13, 2016, Docket No. 16-0093
	Indiana American Water	IN	No	Distribution System Improvement Charge (DSIC)	Capital Recovery	Annual Report, tariff
	Iowa American Water	IA	No			Annual Report, tariff
	Kentucky American Water	KY	No			Annual Report, tariff
	Maryland American Water	MD	No			Annual Report, tariff
	Michigan American Water	MI	No			Annual Report
	Missouri American Water	MO	No	Infrastructure System Replacement Surcharge	Capital Recovery	Annual Report, tariff
	New Jersey American Water	NJ	No			Annual Report, tariff
	New York American Water	NY	Yes	Revenue And Production Cost Reconciliation Adjustment Clause and Property Tax Clause (RAC/PTC)	Full Decoupling (Actual to Target Revenues)	Annual Report; tariff; Commission Order in Case 07-W-0508 and Case 16-W-0259
	Pennsylvania American Water	PA	No	Distribution System Improvement Charge (DSIC)	Capital Recovery	Annual Report, tariff
	Tennessee American Water	TN	No			Annual Report, tariff
	Virginia American Water	VA	No	Water & Wastewater Infrastructure Service Charge "WWISC" Rider	Capital Recovery	Annual Report, tariff
	West Virginia American Water	WV	No	Distribution System Improvement Charge (DSIC)	Capital Recovery	Annual Report, tariff
CWT	California Water Service Group					
	California Water Service Co.	CA	Yes	Water Revenue Adjustment Mechanism (WRAM); Modified Cost Balancing Adjustment (MCBA); and Sales Reconciliation Mechanism (SRM)	Full Decoupling (Actual to Target Revenues)	Annual Report, tariff
	New Mexico Water Service Co.	NM	No			Annual Report
	Washington Water Service Co.	WA	No			Annual Report, tariff
	Hawaii Water Service Co.	HI	No			Annual Report, tariff
WTRG	Essential Utilities, Inc.					
	Aqua Illinois, Inc.	IL	Yes	Volume Balancing Adjustment Rider (VBA)	Full Decoupling (Actual to Target Revenues)	Order in Docket No. 17-0259
	Aqua Indiana, Inc.	IN	No			Annual Report, tariff
	Aqua New Jersey, Inc.	NJ	No	Distribution System Improvement Charge (DSIC)	Capital Recovery	Annual Report, tariff
	Aqua North Carolina, Inc.	NC	No			Annual Report
	Aqua Ohio, Inc.	OH	No			Annual Report
	Aqua Pennsylvania, Inc.	PA	No	Distribution System Improvement Charge (DSIC)	Capital Recovery	Annual Report; tariff
	Aqua Texas, Inc.	TX	No			Annual Report
	Aqua Virginia, Inc.	VA	No			Annual Report
MSEX	Middlesex Water Company					
	Middlesex Water Company (NJ)	NJ	No			Annual Report; tariff
	Southern Shores Water Company (DE)	DE	No			Annual Report
	Tidewater Utilities, Inc. (DE)	DE	No	Distribution System Improvement Charge (DSIC)	Capital Recovery	Annual Report; tariff
	Pinelands Water Company (NJ)	NJ	No			Annual Report; tariff
	Twin Lakes Utilities, Inc. (PA)	PA	No			Annual Report; tariff
SJW	SJW Group					
	San Jose Water Company (CA)	CA	No			
	SJWTX, Inc.	TX	No			
	The Connecticut Water Company	CT	Yes	Water Revenue Adjustment (WRA); Water Infrastructure and Conservation Adjustment (WICA)	Full Decoupling (Actual to Target Revenues); Capital Recovery	Annual Report ; tariff
	The Heritage Village Water Company	CT	Yes	Water Revenue Adjustment (WRA); Water Infrastructure and Conservation Adjustment (WICA)	Full Decoupling (Actual to Target Revenues); Capital Recovery	Annual Report ; tariff
	The Avon Water Company	CT	Yes	Water Revenue Adjustment (WRA); Water Infrastructure and Conservation Adjustment (WICA)	Full Decoupling (Actual to Target Revenues); Capital Recovery	Annual Report ; tariff
	The Maine Water Company	ME	No	Water Infrastructure Charge (WISC)	Capital Recovery	Annual Report ; tariff
YORW	York Water Company	PA	No	Distribution System Improvement Charge (DSIC)	Capital Recovery	