



**AQUARIUS  
CAPITAL**

# **CHAPPAQUA CENTRAL SCHOOL DISTRICT**

**OTHER POSTEMPLOYMENT BENEFITS (OPEB)**

**REPORTING IN ACCORDANCE WITH GASB 45**

**FISCAL YEAR**

**JULY 1, 2016 TO JUNE 30, 2017**

**Prepared by: AQUARIUS CAPITAL SOLUTIONS GROUP LLC**  
**Date: May 22, 2017**

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May 22, 2017

Mr. John L. Chow  
Assistant Superintendent for Business  
Chappaqua Central School District  
66 Roaring Brook Road  
Chappaqua, NY 10514

**Re: Report - GASB 43 & 45 Valuation Report for Fiscal Year July 1, 2016 to June 30, 2017**

Dear Mr. Chow:

Enclosed is an analysis of estimated costs for post employment benefits valuation under Government Accounting Standards Board (GASB) No. 43 & 45 for Chappaqua Central School District (the "District"). The valuation was done for fiscal year July 1, 2016 to June 30, 2017. The attached report was completed in accordance with generally accepted actuarial principles and practices.

Please note the calculations contained herein are done for the sole purpose of reporting GASB 43 & 45 results for the audited financial statements. This report does not reflect the impact of GASB 74 & 75, and we recommend having a discussion with you and your auditors to review the impact to your financial statements, including but not limited to, the amount of the Net OPEB Obligation to be reported on your financial statements, the selected actuarial cost method, discount rate selection and your disclosures in your audited financial statements.

Financial Results

Included in the analysis is a Table of Contents. Sections I-III of the report, which is four pages, includes the financial forecast for GASB 45. As an example, the unfunded accrued liability (UAL), which is the accrued liability less assets, is approximately \$128.9 million as of July 1, 2016 and the projected annual other postemployment benefits (OPEB) cost is \$7.2 million.

The projected Net OPEB Obligation as of June 30, 2017 is \$17.1 million, which is based on the projected pay-as-you-go number for fiscal year July 1, 2016 to June 30, 2017 as reported by the district. Pages 1-2 of the report illustrate the financial projections for the plan as of year-end June 30, 2017 to assist your auditors with accounting for the respective plan year. Although the auditors may only require pages 1-2, we recommend forwarding the report in its entirety.

Results for this valuation were valued based on census information provided by your organization in April 2017. This is based on a total of 996 employees, reflecting the sum of 636 active employees and 360 retired employees. The active population reflects approximately 47.2% of the unfunded accrued liability above, with 213 employees or 33.5% of these actives eligible for retirement. Details of census demographic information are illustrated further in the report.

Covered Benefits and Claim Cost Assumptions

The District provides post-employment medical benefits including prescription drug benefits as part of the medical plan on a fully insured basis through the Putnam Northern Westchester Health Benefits Consortium (the "Consortium").

A second plan is available through Empire Blue Cross/Blue Shield, which was a change from Emblem Health, effective July 1, 2012. However, this second plan is being discontinued effective July 1, 2016 so not reflected in the valuation. As a result, active and retirees will only be participating in the Consortium medical plan, effective July 1, 2016. Furthermore, premium rates for the Consortium are reflected through June 30, 2018 since available for this valuation.

#### Sensitivity Analysis

Section II of the report includes a sensitivity analysis based on varying the discount interest rate and the healthcare cost inflation rate (trend). The discount rate used was 4.5%, which is consistent with the discount rate used in the market and the same as the prior valuation. We have not performed a review of the District's investments. If a different discount rate is preferred, then please contact us.

Increasing the discount rate by 1% (a discount rate of 5.5%) would lower the UAL by approximately 14.2%. Conversely, lowering the discount rate by 1% (a discount rate of 3.5%) would *increase* the UAL by approximately 18.3%. Results are illustrated as of the July 1, 2015 valuation date. See page 3 of the report for details of both scenarios.

Section II of the report also includes a sensitivity analysis based on varying the healthcare cost inflation rate (trend). A 1% trend factor increase would increase the UAL by approximately 19.8%. Our forecast applied the 1% increase beginning in July 1, 2018 and later, treating plan years July 1, 2016 to June 30, 2017 and July 1, 2017 to June 30, 2018 costs as fixed (known) costs since the Consortium plan premium rates have already been released.

Results are illustrated as of the July 1, 2016 valuation date. Details of these scenarios are illustrated on page 3 of the attached report. Please contact us if you desire additional scenarios.

#### Additional Seventy Nine (79) Scenarios

Similar to last year, we incorporated additional scenarios for the valuation as requested by the District, which are illustrated on pages 14-15. All scenarios are identical to the prior year. This includes forty nine (49) combinations of discount rate and healthcare cost inflation rate, which are illustrated on page 13 of the report. This is similar to the number of scenarios in the prior valuation.

Also included are thirty (30) combinations of future retiree contribution rates (illustrative percentages) and the ultimate healthcare inflation rates. It should be noted that the retiree contribution rates are scenarios for illustrative purposes and have not been implemented or negotiated. Retiree contribution rate scenarios assume that current retiree contribution rates will not change and changes to retiree contribution rates would only apply to current actives that would retire in the future. Similar to past years, the thirty (30) scenarios reflect the use of the same contribution rate for all future retirees, regardless of union or employment class. These scenarios are illustrated on page 14 of the report.

The ultimate healthcare inflation rates for all seventy nine (79) scenarios on pages 14-15 are applied for years 2024 and later. All other assumptions are based on the valuation assumptions in the report.

#### Projected Pay-As-You-Go Projections for Twenty (20) Years

Similar to the prior year, we included a forecast of the projected pay-as-you-go for twenty (20) years. This is illustrated on page 16 of the report.

#### Illustration of the Net OPEB Obligation for Three Discount Rate Scenarios

In the prior year audited financial statements, it was requested to illustrate the Net OPEB Obligation under three discount rate assumptions, which are 3.0%, 4.0% and 5.0%. Similar to the prior valuation, these same scenarios were illustrated for this valuation and included in the valuation report on the top of page 4.

#### Overview of Actuarial Gain/Loss

On page 4 (Section III) of the valuation report, we illustrate an actuarial loss of \$6.6 million (or 5.40% increase in the June 30, 2016 UAL), which is part of the calculation of OPEB costs. This reflects the increase in the UAL as of July 1, 2016 as compared to the UAL as reported in the prior year valuation report roll forward to yearend June 30, 2016.

The primary drivers of the UAL increase is due the following:

- ) Changes in healthcare costs as compared to projected from the prior valuation
- ) Impact due to aging in the active population since the prior valuation
- ) Change in other demographics and assumptions from the prior valuation

Details of the actuarial loss including financial projections for each component above, are illustrated on page 4 of the report.

#### Demographic Information

Section IV of the report illustrates additional information pertaining to underlying census information including age and sex analysis for active and retired employees along with summaries of the active population by age and years of service. Census analysis is illustrated separately for actives and retirees. This is highlighted on pages 5-7 of the report.

Some highlights of census demographic information as of the July 1, 2016 valuation date are as follows:

- ) For retirees, the overall average age is 74.5 years, which reflects an average age of 61.7 for pre-65 retirees and 76.4 for post-65 retirees with 13.3% of retirees below age 65.
- ) For actives, the average age is 49.3 years and average years of service of 12.9.
- ) Of the active population, 33.5% of the population (213 employees) is eligible to retire.
- ) 74.7% actives and 67.2% retirees valued were female.
- ) Active population includes 148 employees that opted-out of coverage.

The report also includes a comparison of demographics from the prior valuation report, i.e., the July 1, 2015 valuation. See page 7 for details.

#### Assumptions & Definitions

As part of this report, we included supporting documentation such as a summary of assumptions and key definitions (glossary), which are provided in Sections V and VI, respectively. This includes assumptions for health care costs (premium rates through June 30, 2018 for the Consortium plan), retiree contribution rates, healthcare inflation, decrement tables (e.g., probability of death, turnover, disability and retirement) and other provisions.

The decrement tables used for this valuation are based on the New York State Employees' Retirement System (ERS) and the New York State Teachers' Retirement System (TRS), similar to the prior valuation. The mortality table used for the current valuation was the RP 2014 Healthy Male and Female Tables based on the Combined Healthy Table for both pre and post-retirement with mortality improvement projected to the valuation date similar to the previous valuation, plus an additional seven years mortality projection consistent with current industry trends in the market. Financial results of this mortality table change is illustrated on page 4 of the report.

For additional details on assumptions and definitions, see pages 8-13.

#### Healthcare Reform

The Patient Protection and Affordable Care Act (PPACA) enacted in March 2010 (Healthcare Reform) includes several fees and/or taxes levied on employer groups either directly (e.g., self-funded employer groups which calculates and pays the fees directly) or indirectly (e.g., fully insured groups in which the health insurer pays and passes on to the group in their premium rates.)

This valuation includes the latest changes to the Cadillac tax based on the newly passed legislation on December 18, 2015, which delays the implementation of the tax to January 1, 2020 as well as allowing the tax payments to be deductible for federal tax purposes. As stated previously, it is assumed the provided plan cost rates are inclusive of the applicable PPACA fees due at this time with the exception of the High Cost Plans Excise Tax ("Cadillac tax") as described above.

Details of these fees are illustrated in page 9 of this report.

#### Information Reviewed

We based our analysis on reviewing electronic census information (record-by-record review), retiree plan information, cost information (premium rates through June 30, 2018 for the Consortium plan), collective bargaining contracts by bargaining unit, audited financial statements as of June 30, 2016, and other summary information of retiree benefits and eligibility.

The Net OPEB Obligation as of June 30, 2017 reflects the projected pay-as-you-go results for fiscal year July 1, 2016 to June 30, 2017.

We also gathered additional information from the company through emails and other correspondence in order to confirm retiree benefit information, census confirmations, and assumptions. Census information was provided in April 2017 for actives and retirees with details illustrated in Section IV of the report, including comparisons to the prior year valuation report.

#### Data Reliance & Limitations

In our review, we have relied on the information provided by the District. We have not audited or verified the accuracy of the information provided. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

This report and all attachments contained herein are for the internal use of the District. It may not be provided to other parties without prior consent. If consent is granted, the report must be provided in its entirety. We understand the District intends to distribute this letter and attachments to its auditor and fee accountant in connection with the reporting of results of this report for the sole use of preparation of audited financial statements. Aquarius consents to this distribution as long as the report is provided in its entirety and the auditor is advised to have an actuary review the work.

This report is provided to the District for the purpose of calculation results under GASB 45. Information in this report may not be appropriate to use for other purposes. Aquarius does not intend to benefit from the overall results of the report and we assume no duty, liability or obligation to parties that use this work for other reasons other than its intention, i.e., reporting of GASB 45 for financial statements.

As stated previously, this report does not reflect the impact of GASB 75. We recommend having a call and/or meeting with you and your auditors to discuss the impact to your financial statements. Impact includes, but not limited to, the amount of the Net OPEB Obligation to be reported on your financial statements, the selected actuarial cost method, discount rate selection and your disclosures in your audited financial statements.

As an example, if GASB 75 were for this fiscal year, one change would be that the Net OPEB Obligation as of June 30, 2017, which is \$17.1 million (see page 2, line 35 of report), would be increased to equal the Unfunded Accrued Liability as of June 30, 2017, which is \$133.1 million (see page 1, line 11 of report).

#### Actuarial Opinion

I, Michael L. Frank, ASA, FCA, MAAA, am President and Actuary of Aquarius Capital Solutions Group LLC. I am an Associate of the Society of Actuaries, Fellow of Conference of Consulting Actuaries, and Member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

The attached report was completed in accordance with generally accepted actuarial principles and practices.

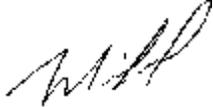
Our organization and its employees are independent of the District and do not have any conflicts of interest as it relates to the services performed on behalf of the District in the preparation of this report.

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**Mr. John Chow**  
**May 22, 2017**  
**Page 6**

We hope that this report is beneficial. When convenient, please contact me so that we can schedule a call or meeting to review report in more detail. In addition, please extend thanks to you and your team for assistance in the gathering of information to help us complete this analysis. Their assistance was much appreciated. We look forward to working with you in the future.

Sincerely,



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Michael L. Frank, A.S.A., M.A.A.A., F.C.A.  
President & Actuary  
American Academy of Actuaries ID 21342

Cc: Donald Rusconi – Aquarius Capital

Enclosure



Client: Chappaqua Central School District  
Valuation Estimates under GASB No. 43 & 45 valued as of July 1, 2016

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**CHAPPAQUA CENTRAL SCHOOL DISTRICT**

**GASB NO. 43 & 45**

**VALUATION AS OF JULY 1, 2016**

Prepared by: Aquarius Capital Solutions Group LLC  
May 22, 2017



## TABLE OF CONTENTS

	<u>Pages</u>
Sections I - III Summary of Financial Information including Sensitivity Analysis	1 - 4
Section I: Financial Results for June 30, 2017 Disclosure	1 - 2
Section II: Sensitivity Analysis for Discount Rate and Healthcare Cost Inflation	3
Section III-A: Scenarios for Discount Rate Sensitivity for Net OPEB Obligation	4
Section III-B: Summary of Gain/Loss Analysis from Prior Valuation	4
Section IV Summary of Census Information for Active & Retired Employees	5 - 7
Summary of Retired Employees	5
Summary of Active Employees	6
Comparison of Census Information to July 1, 2015 Valuation	7
Section V Summary of Assumptions	8 - 12
Section VI Summary of Definitions & Glossary	13
Section VII Summary of Scenarios for Discount Rates & Healthcare Cost Trend Rates - 49 Scenarios	14
Section VIII Summary of Scenarios for Retiree Contribution Rates & Healthcare Cost Trend Rates - 30 Scenarios	15
Section IX Projection of Pay-As-You-Go Payments for Twenty (20) Years	16



**SECTION I: FINANCIAL RESULTS AS OF JULY 1, 2016 VALUATION FOR YEAR END DISCLOSURE**

(First Year of Implementation is Fiscal Year July 1, 2008 to June 30, 2009)

1 Discount Rate		4.50%
<u>Section 1: Development of Service Cost for Fiscal Year July 1, 2016 to June 30, 2017</u>		
2 Service Cost at Beginning of Year as of July 1, 2016	\$	2,852,407
3 Interest on Service Cost (2) x (1)	\$	128,358
4 Service Cost with Interest to Year End (2) + (3)	\$	2,980,765
<u>Section 2: Projected Unfunded Accrued Liability to Year End June 30, 2017</u>		
5 Accrued Liability (AL) as of July 1, 2016	\$	128,916,568
6 Assets	\$	-
7 Unfunded Accrued Liability (UAL) as of July 1, 2016 (5) - (6)	\$	128,916,568
8 Service Cost with Interest to Year End (4)	\$	2,980,765
9 Pay-As-You-Go Benefits - Projected for fiscal year July 1, 2016 to June 30, 2017	\$	4,492,417
10 Interest on Unfunded Accrued Liability (7) x (1) - (9) x (1) / 2	\$	5,700,166
11 Projected Unfunded Accrued Liability (UAL) as of June 30, 2017 (7) + (8) - (9) + (10)	\$	133,105,082
<u>Section 3: Amortization of Initial Unfunded Accrued Liability</u>		
12 Initial Unfunded Accrued Liability at Implementation - July 1, 2008 Valuation (Same as Prior Valuation)	\$	92,868,117
13 30 Year Amortization Factor in Years (Same amortization as prior valuation)		30
14 Amortization of Initial Unfunded Accrued Liability as of July 1, 2008 (12) / (13), (Closed Amortization Basis-Same as the Prior Valuation)	\$	3,095,604
15 Interest on Amortization of Unfunded Accrued Liability (1) x (14)	\$	139,302
16 Total Amortization of Unfunded Accrued Liability w/ Interest (14) + (15)	\$	3,234,906
17 # of Years of Amortization of Initial UAL, including Current Valuation (First Year of Implementation is Fiscal Year July 1, 2008 to June 30, 2009)		9



**SECTION I: FINANCIAL RESULTS AS OF JULY 1, 2016 VALUATION FOR YEAR END DISCLOSURE (CONTINUED)**

Section 4: Adjustments to Annual Required Contribution (ARC)

18 Unfunded Accrued Liability (UAL) as of July 1, 2016 (7)	\$	128,916,568
19 Projected Unfunded Accrued Liability as of June 30, 2016 (Prior Valuation Projected to Yearend June 30, 2016)	\$	122,309,495
20 Experience (Gain)/Loss on Unfunded Accrued Liability as of July 1, 2016 (18) - (19)	\$	6,607,073
21 Net OPEB Obligation as of June 30, 2016 (Audited Financial Statements as of year-end 6/30/2016, note 3, page 46)	\$	14,367,910
22 Total (Gain)/Loss since Prior Valuation		
a. Calculation of Experience (Gain)/Loss on UAL as of July 1, 2016: (20)	\$	6,607,073
b. Amortization of (Gain)/Loss (Amortization factor over 15 years)		15
c. Amortization for (Gain)/Loss for Current Period: (22a) / (22b)	\$	440,472
23 Amortization Period for (Gain)/Loss based on Prior Valuation (Developed from Prior Valuation Report)	\$	(105,440)
24 Adjustment to ARC - Amortization of (Gain)/Loss (22c) + (23)	\$	335,032

Section 5: Summary of Annual OPEB Cost & Net OPEB Obligation as of June 30, 2017

25 Unfunded Accrued Liability (UAL) as of July 1, 2016 (7)	\$	128,916,568
26 Total Service Cost with Interest - July 1, 2016 to June 30, 2017 (4)	\$	2,980,765
27 Total Amortization of Initial Unfunded Accrued Liability w/ Interest (16)	\$	3,234,906
28 Annual Required Contribution (ARC) (26) + (27)	\$	6,215,671
29 Interest on Net OPEB Obligation as of July 1, 2016 (1) x (21)	\$	646,556
30 Adjustment to ARC (24)	\$	335,032
31 Annual OPEB Cost (28) + (29) + (30)	\$	7,197,258
32 Contributions Made (Pay-As-You-Go Costs) - Projected (9)	\$	4,492,417
33 Net OPEB Expense Cost at June 30, 2017 (31) - (32)	\$	2,704,841
34 Net OPEB Obligation as of June 30, 2016 (21)	\$	14,367,910
35 Net OPEB Obligation as of June 30, 2017 (33) + (34)	\$	17,072,751



**SECTION II - SUMMARY OF FINANCIAL INFORMATION INCLUDING SENSITIVITY ANALYSIS**

Summary of Financial Results with Sensitivity Analysis (July 1, 2016 Valuation Date)	Val. Discount	Sensitivity Analysis	Sensitivity Analysis	Healthcare Cost
	Rate of 4.50%	Val. Discount Rate of 5.50%	Val. Discount Rate of 3.50%	Trend Rate Assumptions Increased 1%
<i>Results illustrated as of July 1, 2016</i>				
	Total	Total	Total	Total
1 Total Employee Lives				
a. Actives	636	636	636	636
b. Retirees	360	360	360	360
c. Subtotal	996	996	996	996
2 Present Value of Future Benefits (PVFB) as of July 1, 2016				
a. Actives	\$ 83,519,268	\$ 64,797,832	\$ 109,622,890	\$ 113,483,255
b. Retirees	\$ 68,063,386	\$ 61,983,667	\$ 75,235,335	\$ 75,000,108
c. Subtotal	\$ 151,582,654	\$ 126,781,499	\$ 184,858,225	\$ 188,483,364
d. % Actives as ratio of Subtotal	55.1%	51.1%	59.3%	60.2%
e. Sensitivity Analysis of Subtotal: Ratio to Valuation Results for PVFB		83.6%	122.0%	124.3%
3 Accrued Liability (AL) as of July 1, 2016				
a. Actives	\$ 60,853,182	\$ 48,619,492	\$ 77,312,072	\$ 79,430,161
b. Retirees	\$ 68,063,386	\$ 61,983,667	\$ 75,235,335	\$ 75,000,108
c. Subtotal	\$ 128,916,568	\$ 110,603,159	\$ 152,547,406	\$ 154,430,269
d. % Actives as ratio of Subtotal	47.2%	44.0%	50.7%	51.4%
e. Sensitivity Analysis of Subtotal: Ratio to Valuation Results for AL		85.8%	118.3%	119.8%
4 Assets as of July 1, 2016	\$ -	\$ -	\$ -	\$ -
5 Unfunded Accrued Liability (UAL) as of July 1, 2016 (3c) - (4)	\$ 128,916,568	\$ 110,603,159	\$ 152,547,406	\$ 154,430,269
6 Service Cost with Interest				
a. Service Cost at Year End:	\$ 2,980,765	\$ 2,248,336	\$ 4,013,408	\$ 4,235,525
b. Ratio to Valuation Results for Service Cost		75.4%	134.6%	142.1%
7 Pay-As-You-Go Benefits - Illustrated as Projected	\$ 4,492,417	\$ 4,492,417	\$ 4,492,417	\$ 4,492,417
8 Ratio of AL to Pay-As-You-Go: (3c) / (7)	28.70	24.62	33.96	34.38
9 Ratio of Service Cost to Pay-As-You-Go: (6a) / (7)	0.66	0.50	0.89	0.94
10 Average Annual Pay-As-You-Go Benefit per Retiree (7) / (1b)	\$ 12,479	\$ 12,479	\$ 12,479	\$ 12,479
11 Three Year Projection of Pay-As-You-Go Costs				
a. Year 1: July 1, 2016 to June 30, 2017	\$ 4,492,417	\$ 4,492,417	\$ 4,492,417	\$ 4,492,417
b. Year 2: July 1, 2017 to June 30, 2018	\$ 4,730,417	\$ 4,730,417	\$ 4,730,417	\$ 4,730,417
c. Year 3: July 1, 2018 to June 30, 2019	\$ 4,976,555	\$ 4,976,555	\$ 4,976,555	\$ 5,023,065

Notes:

1. All costs are net of retiree contributions. See pages 1-2 for financial statement information.
2. Healthcare trend inflation assumption applies to Year 3, since premium rates (costs) are known for Year 2.



**SECTION III - SUMMARY OF FINANCIAL INFORMATION INCLUDING GAIN/LOSS ANALYSIS**

**A. Discount Rate Sensitivity for Net OPEB Obligation for GASB45 Footnote in Audited Financial Statements**

<u>Discount Interest Rate</u>	<u>Unfunded Accrued Liability as of July 1, 2016</u>	<u>Change in the Unfunded Accrued Liability from 4.5% Scenario</u>	<u>Net OPEB Obligation as of June 30, 2017</u>	<u>Change in the Net OPEB Obligation from 4.5% Scenario</u>
4.5%	\$ 128,916,568	n/a	\$ 17,072,751	n/a
3.0%	\$ 166,963,557	\$ 38,046,989	\$ 21,051,219	\$ 3,978,468
4.0%	\$ 139,957,334	\$ 11,040,766	\$ 18,192,707	\$ 1,119,956
5.0%	\$ 119,195,553	\$ (9,721,015)	\$ 16,115,079	\$ (957,672)

**B. Summary of Experienced (Gain)/Loss as of July 1, 2016**

1 Calculation of Experience (Gain)/Loss on Unfunded Accrued Liability as of July 1, 2016 (See Page 2, Line 20 of Report)	\$ 6,607,073	
2 Prior Valuation Unfunded Accrued Liability as of June 30, 2016 (See Page 2, Line 19 of Report)	\$ 122,309,495	
3 Ratio of (Gain)/Loss to Prior Valuation Unfunded Accrued Liability (1) / (2)	5.40%	
4 Distribution of Experience (Gain)/Loss as of July 1, 2016		<u>% Distribution</u>
a. Impact due to changes in healthcare costs since the prior valuation	\$ 1,258,698	19.1%
b. Impact due to aging of active population	\$ 2,086,536	31.6%
c. Impact due to changes in other demographics and other valuation assumptions	\$ 3,261,839	49.4%
d. Subtotal: (a) + (b) + (c)	\$ 6,607,073	100.0%



**SECTION IV - SUMMARY OF CENSUS INFORMATION**

Summary of Enrollment by Age Band for Retirees, calculated as of July 1, 2016

<u>Age Band</u>	<u>Female</u>	<u>Male</u>	<u>Subtotal</u>	<u>% Subtotal</u>
Under 50	-	-	-	0.0%
50 to 54	-	-	-	0.0%
55 to 59	5	1	6	1.7%
60 to 64	27	15	42	11.7%
65 to 69	60	18	78	21.7%
70 to 74	49	26	75	20.8%
75 to 79	32	19	51	14.2%
80 to 84	30	15	45	12.5%
85 to 89	24	13	37	10.3%
90 to 94	12	9	21	5.8%
95 +	<u>3</u>	<u>2</u>	<u>5</u>	<u>1.4%</u>
Subtotal	242	118	360	100.0%
% Subtotal	67.2%	32.8%	100.0%	

	<u>Female</u>	<u>Male</u>	<u>Subtotal</u>	<u>% Subtotal</u>
Pre 65 Retirees	32	16	48	13.3%
Post 65 Retirees	<u>210</u>	<u>102</u>	<u>312</u>	<u>86.7%</u>
Subtotal	242	118	360	100.0%

Average Age

Pre 65 Retirees	61.7
Post 65 Retirees	76.4
Subtotal	74.5



**SECTION IV - SUMMARY OF CENSUS INFORMATION (CONTINUED)**

Summary of Census for Actives by Age Band and Years of Service, calculated as of July 1, 2016

<u>Age Band</u>	<u>Years of Service</u>								<u>Subtotal</u>	<u>% Subtotal</u>
	<u>0 to 4</u>	<u>5 to 9</u>	<u>10 to 14</u>	<u>15 to 19</u>	<u>20 to 24</u>	<u>25 to 29</u>	<u>30 to 34</u>	<u>35 +</u>		
Under 25	9	-	-	-	-	-	-	-	9	1.4%
25 to 29	11	-	-	-	-	-	-	-	11	1.7%
30 to 34	17	10	6	-	-	-	-	-	33	5.2%
35 to 39	16	25	28	4	-	-	-	-	73	11.5%
40 to 44	14	10	34	23	1	-	-	-	82	12.9%
45 to 49	26	13	32	19	11	2	-	-	103	16.2%
50 to 54	15	14	26	28	11	8	-	1	103	16.2%
55 to 59	5	11	30	25	8	17	2	1	99	15.6%
60 to 64	4	8	17	23	13	7	3	6	81	12.7%
Age 65 +	-	3	11	7	7	1	6	7	42	6.6%
Subtotal	117	94	184	129	51	35	11	15	636	100.0%
% Subtotal	18.4%	14.8%	28.9%	20.3%	8.0%	5.5%	1.7%	2.4%	100.0%	

Actives

Average Age: 49.3  
Average Years of Service: 12.9

% by Gender

Female	475	74.7%
Male	<u>161</u>	<u>25.3%</u>
Total	636	100.0%

Actives by Service Category

Actives Not Yet Eligible for Benefits	423	66.5%
Actives Eligible for Benefits	<u>213</u>	<u>33.5%</u>
Total	636	100.0%

Note: Active counts above include 148 employees currently opting out of coverage (e.g., receiving buy-out).



**SECTION IV - SUMMARY OF CENSUS INFORMATION (CONTINUED)**

Comparison of Census Information with Prior Valuation Report (July 1, 2015)

	<u>July 1, 2016</u>	<u>July 1, 2015</u>	<u>Difference</u>	<u>% Difference</u>
<u>Summary of Counts</u>				
Actives	636	604	32	5.3%
Retirees	<u>360</u>	<u>386</u>	<u>(26)</u>	<u>-6.7%</u>
Total	996	990	6	0.6%
Retiree Counts - % Pre-65	13.3%	15.0%	-1.7%	-11.3%
<u>Average Age</u>				
Actives				
o Current Age	49.3	48.4	0.9	1.9%
o Hire Age	36.4	36.2	0.2	0.6%
Retirees				
o Pre-65	61.7	61.1	0.6	1.0%
o Post-65	76.4	76.5	(0.1)	-0.1%
o Total	74.5	74.2	0.3	0.4%
<u>Average Years of Service</u>				
Actives - Average Years of Service	12.9	12.2	0.7	5.7%
Actives Eligible for Benefits	213	182	31	17.0%
% Actives Eligible for Benefits	33.5%	30.1%	3.4%	11.3%
<u>Gender</u>				
% Female - Actives	74.7%	73.8%	0.9%	1.2%
% Female - Retirees	67.2%	67.4%	-0.2%	-0.3%

Notes:

1. Active counts above include employees currently opting out of coverage (e.g., receiving buy-out).
2. Active counts for July 1, 2016 reflect six (6) employees on leave of absence.



**SECTION V - SUMMARY OF ASSUMPTIONS**

Municipality	Chappaqua Central School District ("District")
Valuation Date	July 1, 2016
Initial Implementation Year	July 1, 2008 to June 30, 2009
Discount Rate	4.5%
Purpose of Work	This report is provided to the District for the purpose of calculation results under GASB 45. Information in this report may not be appropriate to use for other purposes. Aquarius does not intend to benefit from the overall results of the report and we assume no duty, liability or obligation to parties that use this work for other reasons other than its intention, i.e., reporting of GASB 45 for financial statements. This report does not reflect the impact of GASB Statements 74 & 75 effective for fiscal years beginning after June 15, 2017. The impact to financial statements as a result of these new GASB Statements include, but are not limited to, the amount of the Net OPEB Obligation to be reported on the financial statements, the selected actuarial cost method, discount rate used, and disclosures in the audited financial statements.
Covered Benefits	Coverage for medical only including prescription drug coverage as part of medical plan. Certain retirees are eligible for life insurance and receive on a non-contributory basis.
Information for Valuation	All information was provided by the District for active and retired population.
Retirement Benefits	Coverage for pre-65 and post-65 retirement coverage valued for active and retired population.
Insurance Coverage Funding Basis	Medical, including prescription drugs, is fully insured through Putnam Northern Westchester Health Benefits Consortium ("Consortium") and Empire Blue Cross/Blue Shield. The Empire plan was a new plan effective July 1, 2013, replacing the medical plan with Emblem Health. The Empire plan was cancelled effective July 1, 2016, so all employees are valued on the Consortium plan only.
Assets	Not valued since benefit is unfunded. Assets are zero.
Actuarial Cost Method	Projected Unit Credit.
Health Care Cost Trend Assumption	The following assumptions are used for annual healthcare cost inflation (trend):

	Year	Pre-65	Post 65
Initial Trend	July 1, 2018	7.0%	7.0%
Ultimate Trend	July 1, 2024 & Later	4.0%	4.0%
Grading Per Year		0.5%	0.5%

Starting Claim Cost

Base plan costs for medical are based on premium rates for plan years July 1, 2015 to June 30, 2016 and July 1, 2016 to June 30, 2017. Both plan years were reflected in the valuation since known premium cost. Medical insured monthly premiums for pre-65 and post-65 retirees for the Consortium along with the Medicare Part B premium are illustrated below by coverage tier.

	Plan Year 7/2015 to 6/2016	Plan Year 7/2016 to 6/2017	Plan Year 7/2017 to 6/2018
Consortium Plan			
Single - Pre 65	\$ 660.00	\$ 677.00	\$ 731.00
Family - Pre 65	1,650.00	1,693.00	1,828.00
Single - Post 65	\$ 594.00	\$ 610.00	\$ 658.00
Family - Post 65	1,320.00	1,354.00	1,462.00
	<u>1/2015 to 12/2015</u>	<u>1/2016 to 12/2016</u>	<u>1/2017 to 12/2017</u>
Standard Medicare Part B per Member	\$ 104.90	\$ 121.80	\$ 134.00

The above costs are based on 100% before retiree contributions. These costs are valued to assume administrative expenses since fully insured.

The Consortium plan is assumed fully insured since purchased as part of a consortium medical plan with pooled rates among the combined participants, i.e., all participating employers. All plans have plan year July 1 to June 30. The monthly cost amounts (premium rates) are trended forward based on the percentages which are listed under "Health Care Cost Trend Assumptions" above.



SECTION V - SUMMARY OF ASSUMPTIONS (CONTINUED)

Medicare Part B Reimbursements	Valuation reflects the reimbursement of Medicare Part B premium to retirees, spouses and surviving spouses over age 65 that are eligible for the benefit. Employee will pay Medicare Part B premium and be reimbursed by District. The District reimburses for the Income Related Monthly Adjustment Amount (IRMAA) amount and it is assumed that 15.4% (48 employees) are currently receiving this benefit, which is assumed to be an additional \$140 per month based on current reporting by the District.
Medicare Part D	The District does not reimburse for Medicare Part D premium.
Projected Benefit Costs	The medical plans are community rated, therefore retiree claim costs are based on actual premium rates without adjustment for aging. This is consistent with Actuarial Standards of Practice No. 6.
Healthcare Reform Impact	<p>The Patient Protection and Affordable Care Act (PPACA) enacted in March 2010 (Healthcare Reform) includes several fees and/or taxes levied on employer groups either directly (e.g., self-funded employer groups which calculates and pays the fees directly) or indirectly (e.g., fully insured employer groups in which the health insurer pays and passes on to the group in their premium rates.) The fees contemplated in this valuation are 1) Comparative Effectiveness Research fee, 2) Health Insurance Industry fee, 3) Reinsurance Assessment, and 4) High Cost Plans Excise Tax ("Cadillac tax").</p> <p>The Comparative Effectiveness Research fee runs through 2019 and is tax deductible. The initial fee is \$1 per participant per year increasing to \$2 in the next year. Subsequent years are increased based on medical inflation. The fee applies to post-65 retirees where Medicare is the primary payer.</p> <p>The Health Insurance Industry fee is based on targeted fixed fees to be paid by the health insurance industry and is not tax deductible. The total fee amount to be paid by health insurers starts at \$8 billion in 2014 and increases to \$14.3 billion in 2018. After 2018, the fee increases annually based on premium growth. Starting in 2014, the fee is estimated to be approximately 2.0% to 2.5% of premium increasing to approximately 3.0% to 4.0% in future years. The fee applies to fully insured plans including Medicare Advantage plans and excludes self-funded employer sponsored group health plans. Effective with recent legislation passed on December 18, 2015, this fee will be suspended for the 2017 plan year and will resume in 2018.</p> <p>The Reinsurance Assessment is a short term fee levied on fully insured and self-funded employer groups between 2014 and 2016 and is tax deductible. The 2014 fee is \$63 per member per year. The 2015 fee is estimated to be between \$40 and \$45 PMPY and the 2016 fee is estimated at \$25 to \$30 PMPY. The fee applies to pre-65 group retiree plans and post-65 plans where Medicare is the secondary payer. Post-65 retirees where Medicare is the primary payer are excluded from this fee.</p> <p>The High Cost Plans Excise tax includes a 40% tax ("Cadillac tax") on high cost plans that will be levied on insurers and third party administrators (TPA) beginning in 2020 and will be tax deductible. It will be calculated separately for single and family coverage and will be equal to 40% of the excess of per employee plan costs, net of patient cost sharing, over the 2020 stated cost limits of:</p> <ul style="list-style-type: none"><li>o - \$10,200 single / \$27,500 family</li><li>o - \$11,850 single / \$30,950 family for retirees age 55-64</li></ul> <p>The 2020 limits above may be increased if higher than expected trends are realized from 2010 through 2020 in the benchmark plan. The benchmark plan is the Federal Employees Health Benefits Plan (FEHBP) Blue Cross/Blue Shield standard option. The limits will be adjusted to the extent per employee costs in the benchmark plan increase by more than 55% from 2010 to 2020 (for example, if the benchmark plan increase is 60% between 2010 and 2020, the cost limits will increase by the excess over 55% or 5%). The final 2020 limits will be increased by CPI + 1% for 2021 and by CPI thereafter. For this valuation, it is assumed that CPI will be 3% in 2021 and beyond.</p> <p>For valuation purposes, it is assumed the trend adjustments to the cost limits in the benchmark plan (FEHBP) are equal to actual premium increases in the FEHBP plan for 2010 through 2017 and projected increases in costs from 2018 through 2020 as listed in the "Health Care Cost Trend Assumption" above. For each year from 2020 and beyond, the excess of projected future premiums over future adjusted cost limits are multiplied by 40%. It is assumed that any excise tax payable by an insurer/TPA will be passed on to the entity through increased premiums/costs (whether billed separately or not.)</p> <p><i>This valuation includes the latest changes to the Cadillac tax based on the newly passed legislation on December 18, 2015, which delays the implementation of the tax to January 1, 2020 as well as allowing the tax payments to be deductible for federal tax purposes. As stated previously, it is assumed the provided plan cost rates are inclusive of the applicable PPACA fees due at this time with the exception of the High Cost Plans Excise Tax ("Cadillac tax") as described above.</i></p> <p>Premium rates for the Consortium reflect all PPACA fees for the current period. Rates do not include the excise tax, which is incorporated into the valuation based on the formula above.</p>



**SECTION V - SUMMARY OF ASSUMPTIONS (CONTINUED)**

Plan Design Changes	Valuation assumes no changes in future plan designs (e.g., deductibles, coinsurance, etc.) from current benefits offered for the current plan year. It is assumed that the current level of benefits will remain, with no modifications to avoid the potential excise "cadillac" tax imposed by the Patient Protection and Affordable Care Act (PPACA) described in detail above.
Future Contributions for Medical	Retiree contributions as a percentage of premium remain constant over the valuation. No benefit cost cap changes other than increases due to inflation and the PPACA excise tax calculation as projected in the valuation.
% Future Retirees Opting Out	None, assume 100% participation for those covered as actives. All eligible active and retiree employee records provided by client were valued.
Census Information	Participant data provided by the District dated April 2017. We relied on information provided as being accurate and we have not conducted any data audits. One census file was provided for both actives and retirees. All data supplied to us by District.
New Hires	This valuation is based on a closed group and does not reflect the impact of future new entrants (e.g., new hires after date of data collection, i.e., April 2017) into the plan.
Payroll Information	Payroll information was not reflected or valued in this analysis, as benefit and retiree contributions are not based on payroll so this information was not necessary for this valuation.
Retirement System (ERS & TRS)	Valuation is based on the most recent New York State Employees' Retirement System (ERS), and the New York State Teachers' Retirement System (TRS). ERS tables were based on version released in 2010 while TRS tables were based on the version released in 2011.
Retirement Eligibility Assumptions	Eligibility for early retirement is based on meeting a criteria of minimum age and/or years of service (YOS) requirements. All employees are assumed to be eligible upon reaching age fifty five (55) and completing five (5) years of service, which is based on the current contracts as provided by the client.
Retiree Contribution Rates	For employees retiring prior to June 30, 2018, retiree contribution percentages are as follows:

Contract Year	Teachers (CCT)	Clerical (COSA)	Custodians (CSEA)	Administration
2007 to 2008	5.00%	5.00%	6.00%	8.00%
7/2008 to 12/2008	6.50%	6.50%	7.00%	10.00%
1/2009 to 6/2009	6.50%	6.50%	8.00%	10.00%
2009 to 2010	7.75%	7.75%	8.00%	10.00%
2010 to 2011	9.00%	9.00%	8.00%	11.00%
2011 to 2012	10.00%	9.00%	10.50%	13.00%
2012 to 2013	11.00%	9.00%	10.50%	15.00%
2013 to 2014	12.25%	9.00%	11.75%	16.25%
2014 to 2015	13.50%	9.00%	13.00%	17.50%
2015 to 2016	14.50%	11.00%	14.00%	18.25%
2016 to 2017	15.50%	12.00%	15.00%	19.00%
2017 to 2018	16.50%	13.00%	16.00%	19.00%

The above are examples of contribution rates by class. Teaching Assistants will be at 11.75% contribution of premium effective July 1, 2015, 12.00% effective July 1, 2016 and 12.50% effective July 1, 2017. Please note that for Custodial, contribution rates for the period May 1, 2011 to June 30, 2011 are 9%. Retirees contribution rates vary based on class of employees. Contribution rates are based on a percentage of premium. For the Consortium plan, contribution rate percentages are as follows for future retirees (single or family) after June 30, 2018.

Division	Future Retiree Contribution %
Teachers (CCT)	16.50%
Clerical (COSA)	13.00%
Administration	19.00%
Custodians (CSEA)	16.00%



**SECTION V - SUMMARY OF ASSUMPTIONS (CONTINUED)**

Retiree Contribution Rates (Continued)	Contribution rates were reviewed from the collective bargaining agreements posted on the District website. Retiree contribution rates for alternative plan are established at the Consortium premium plan rates plus the incremental cost amount in order for the company to have a net cost structure similar to the current Consortium plan. Since the alternative plan (Blue Cross) premium rates are assumed higher than Aetna, then the net cost to the company is the same under both the Aetna and the alternative plans.
Mortality	RP 2014 Healthy Male and Female Tables are based on the Combined Healthy Table for both pre and post-retirement projected with mortality improvements using Projection Scale AA for 2.5 years, (i.e., from the date of table to valuation date), plus seven (7) years generational improvement. The mortality table for the prior valuation was RP 2000 table and the impact of the table change is illustrated on page 4 of the report.
Turnover Assumptions	This reflects rate of separation from the active plan and excludes retirement and disability. Turnover table varies by age, gender and years of service with rates of turnover based on the NYS Employees' Retirement System (ERS), and the NYS Teachers' Retirement System (TRS).
Disability Assumptions	This reflects disability assumptions from the active plan and is based on age and gender. This is the assumption used for the NYS Employees' Retirement System (ERS), the NYS Teachers' Retirement System (TRS).
Retirement Assumptions	This reflects rate of retirement from the active plan and is based on age and gender. This is the assumption used for the NYS Employees' Retirement System (ERS) and the NYS Teacher's Retirement System (TRS).
Valuation of Spouses & Marital Status	Spouses are valued for benefits similar to retired employees. Employees with spouses are assumed to be married to those spouses at and throughout retirement. Employees that are without spouses (or not covering a spouse) are assumed to be single at and throughout retirement. Employees electing family coverage are assumed to continue family coverage 80% of the time in retirement.
Spouse Age Assumptions	For missing date of births, we are assuming that female spouses are three years younger than male employees and male spouses are three years old than female employees. This is applied for spouses without dates of birth. This was assumed since spouse dates of birth were not available for all actives and retirees with family coverage.
Surviving Spouses & Surviving Dependents	Surviving dependents do not receive subsidized health insurance or any reimbursements for Medicare Part B coverage. Any health insurance coverage provided by District is individual pay all coverage resulting in no additional liability to the company.
Buy Backs (Opt Outs/Waivers)	A portion of individuals that elected buy back option (i.e., opt outs) as actives are assumed to enroll in coverage at retirement. Individuals must be covered as actives prior to retirement in order to be eligible for benefits at retirement. We are assuming 1/2 of these employees will elect to re-enroll at open enrollment in the year prior to retirement in order to obtain retiree benefits. Individuals are assumed to be single since no spouse information was available. A total of 148 employees elected opt-out, waiver or declined coverage. Individuals are assumed to elect single coverage in retirement.
Leave of Absence	There were six (6) individuals listed as leave of absence, and all are assumed to return to work.
Vested Terminations	There were no individuals listed as vested terminated.
Cobra Participants	COBRA participants were excluded from the valuation.
Missing Census Information	
o Dates of Birth	No retired employees were missing date of birth, so no special adjustments were needed. For employees missing date of birth in the current file, these individuals were matched against prior valuation census information in order to obtain missing dates of birth. Two (2) active employees were missing date of birth and those individual were assumed to be age 48, which was the average age for the July 1, 2015 valuation.
o Dates of Hire	One (1) active employee was missing date of hire, so assumed to have twelve (12) years of service, which is the service average for July 1, 2015 valuation.
o Gender	No employees were missing gender, so no special adjustments were needed.
o Coverage Tier	No employees were missing coverage tier, so no special adjustments were needed.



**SECTION V - SUMMARY OF ASSUMPTIONS (CONTINUED)**

Special Adjustments	No other special adjustments were provided since client data was complete for purposes of completing the valuation. All active and retired employees provided were valued.
Medicare Tax Subsidy	The Medicare tax subsidy is not reflected in valuation. There is no offset in premium rates charged to employer and post-65 costs are illustrated gross of subsidy.
Excluded Population	Population reflects all benefit eligible employees provided. Any new hires after date of data collection are not reflected in the valuation.
Amortization of Initial UAL	Initial unfunded accrued liability (UAL) was amortized over thirty (30) years on a level dollar basis. Initial UAL valued on an closed basis.
Rounding of Results	Results are illustrated to the nearest dollar. In using unrounded results (exact dollars), no implication is made as to the degree of precision in those results. Clients and their auditors should apply their own judgment as to the desirability of rounding when transferring results from this valuation report to the client's financial statements.
Initial Year of Recognition of GASB 43 & 45	We have not reviewed the audited financials of client so are not providing an opinion on when client should recognize and comply with GASB 43 & 45. We rely on the opinion of the client and its auditor for this determination.
Employee Contracts & Collective Bargaining Agreements	Employee contracts and collective bargaining agreements specific to retiree benefits were reviewed based contracts posted on the District's website as of the issue date of this report.
Other Comments	Actuarial methods, considerations, and analyses used in forming this certification conform to the appropriate Standards of Practice and guidelines of the Actuarial Standards Board (ASB).



**SECTION VI - DEFINITIONS & GLOSSARY**

Actuarial Present Value of Future Benefits (PVFB)	Present value of all benefits expected to be paid by the employer, net of expected retiree contributions, based on actuarial assumptions used in the valuation. Assumptions are illustrated in Section VI.
Accrued Liability (AL)	This is the past service liability or present value of all benefits earned to date. Since retiree medical benefits are not accrued based on a specific formula like a pension plan, the accounting standard (GASB 45) requires the benefits to be earned ratably from date of hire to date of full eligibility for benefits. For retirees and actives that are immediately eligible to retire and receive full benefits, the AL equals the PVFB. For actives not yet eligible to retire, it equals a pro-rata portion of the PVFB based on past services to total service for that employee.
Unfunded Accrued Liability (UAL)	This is the excess of the AL over assets.
Annual Required Contribution (ARC)	The employer's periodic required contribution to a defined benefit OPEB plan. The portion, as determined by a particular Actuarial Method, of the Actuarial Present Value of the benefits and expenses, which is provided for by future Normal Costs.
Service Cost (Normal Cost)	The proportion of the PVFB of a plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method used in the valuation. This is the cost of OPEB attributed to the current year of service. Service cost is accounting terminology for normal cost.
Amortization Payment	The portion of the pension plan contribution (ARC) which is designated to pay interest on and to amortize the Actuarial Unfunded Accrued Liability (UAL)
Adjustment to ARC	For this valuation, the adjustment to the ARC reflects the gain/loss from the prior valuation. Cumulative gain/losses are amortized over thirty (30) years on a level dollar basis.
Pay-As-You-Go	This is a method of financing a postretirement benefit plan under which the contributions to the plan are generally made at about the same time and amount as benefits and expenses become due.
Closed Group Valuation	This means that it does not consider the Actuarial PVFB associated with future entrants.
Decrement Rates	This is mortality, turnover, disability and retirement rate assumptions. This is used to determine likelihood of employee qualifying for OPEB and when benefits will commence. Mortality is also used to determine probability of individuals to live and continue to receive benefits.
Discount Rate	Assumption used for converting present value of future benefits less future contributions into today's dollar amounts.
Projected Unit Credit	This is an actuarial cost method whereby the costs of benefits earned is funded each year and the value of the accrued liability reflects the benefits earned to date.
Plan Members	The individuals covered by the terms of an OPEB plan. The plan membership generally includes employees in active service, terminated employees who have accumulated benefits but are not yet receiving them, and retired employees and beneficiaries currently receiving benefits.
Other Post Employment Benefits (OPEB)	Medical, dental, vision, life and other health benefits provided to terminated or retired employees including their dependents and beneficiaries.
Substantive Plan	The terms of the OPEB plan as understood by the employer and its plan members.
Recognition Year for GASB No. 43 & 45	2007-08 Fiscal Year: This impacts public agencies with total annual revenue of \$100 million or more must comply in the fiscal year after December 15, 2006. 2008-09 Fiscal Year: This impacts public agencies with total annual revenue between \$10 million and \$100 million must comply in the fiscal year after December 15, 2007. 2009-10 Fiscal Year: This impacts public agencies with total annual revenue less than \$10 million must comply in the fiscal year after December 15, 2008.



**SECTION VII: FORTY TWO (42) SCENARIOS FOR DISCOUNT RATES AND HEALTHCARE COST TREND RATES**

VALUATION RESULTS FOR UAL AS OF JULY 1, 2016:

Ultimate Healthcare Cost Trend Scenarios	<u>Discount Rate Scenarios</u>						
	<u>2%</u>	<u>3%</u>	<u>4%</u>	<u>4.5%</u>	<u>5%</u>	<u>6%</u>	<u>7%</u>
3%	\$ 177,024,395	\$ 148,118,828	\$ 125,917,082	\$ 116,734,836	\$ 108,591,386	\$ 94,867,595	\$ 83,844,067
4%	\$ 202,686,260	\$ 166,963,557	\$ 139,957,334	\$ 128,916,568	\$ 119,195,553	\$ 102,979,639	\$ 90,124,340
5%	\$ 239,457,813	\$ 193,585,908	\$ 159,511,010	\$ 145,761,290	\$ 133,754,933	\$ 113,961,452	\$ 98,509,461
6%	\$ 287,711,306	\$ 228,245,757	\$ 184,777,070	\$ 167,448,075	\$ 152,433,023	\$ 127,953,476	\$ 109,122,830
7%	\$ 349,825,274	\$ 272,395,266	\$ 216,641,600	\$ 194,668,271	\$ 175,768,477	\$ 145,280,591	\$ 122,157,765
8%	\$ 430,082,357	\$ 328,787,445	\$ 256,893,702	\$ 228,869,673	\$ 204,935,712	\$ 166,720,795	\$ 138,133,890
9%	\$ 534,593,688	\$ 401,356,411	\$ 308,100,087	\$ 272,135,599	\$ 241,631,045	\$ 193,409,164	\$ 157,819,824

RATIO OF UAL TO CURRENT VALUATION:

Ultimate Healthcare Cost Trend Scenarios	<u>Discount Rate Scenarios</u>						
	<u>2%</u>	<u>3%</u>	<u>4%</u>	<u>4.5%</u>	<u>5%</u>	<u>6%</u>	<u>7%</u>
3%	137.3%	114.9%	97.7%	90.6%	84.2%	73.6%	65.0%
4%	157.2%	129.5%	108.6%	100.0%	92.5%	79.9%	69.9%
5%	185.7%	150.2%	123.7%	113.1%	103.8%	88.4%	76.4%
6%	223.2%	177.0%	143.3%	129.9%	118.2%	99.3%	84.6%
7%	271.4%	211.3%	168.0%	151.0%	136.3%	112.7%	94.8%
8%	333.6%	255.0%	199.3%	177.5%	159.0%	129.3%	107.1%
9%	414.7%	311.3%	239.0%	211.1%	187.4%	150.0%	122.4%

Notes:

1. Trend rate scenarios are for ultimate trend assumptions in Year 2025 and later. Trend rates for Years 2018 to 2024 as per valuation report.
2. Current valuation results are based on a 4.5% discount rate, which is the same discount rate as the prior valuation.
3. Current valuation results illustrated as of July 1, 2016.



**SECTION VIII: THIRTY (30) ADDITIONAL SCENARIOS BASED ON TREND AND RETIREE CONTRIBUTIONS - UAL SUMMARY**

Future Retirees Contribution Rates	Ultimate Healthcare Cost Trend Scenarios					
	4%	5%	9%	11%	13%	15%
7.5%	\$ 133,242,052	\$ 151,031,327	\$ 284,841,047	\$ 418,692,920	\$ 644,400,913	\$ 1,037,818,350
10.0%	\$ 131,951,575	\$ 149,464,585	\$ 281,109,748	\$ 412,709,607	\$ 634,529,677	\$ 1,021,041,478
20.0%	\$ 126,789,665	\$ 143,197,617	\$ 266,184,556	\$ 388,776,355	\$ 595,044,731	\$ 953,933,991
30.0%	\$ 121,627,755	\$ 136,930,648	\$ 251,259,364	\$ 364,843,103	\$ 555,559,785	\$ 886,826,504
40.0%	\$ 116,465,845	\$ 130,663,680	\$ 236,334,172	\$ 340,909,852	\$ 516,074,840	\$ 819,719,017

**INCREASE/(DECREASE) IN UAL TO CURRENT VALUATION BASED ON SCENARIO:**

Current Valuation @ July 1, 2016 & 4.5% Discount Rate: \$ 128,916,568

Future Retirees Contribution Rates	Ultimate Healthcare Cost Trend Scenarios					
	4%	5%	9%	11%	13%	15%
7.5%	\$ 4,325,484	\$ 22,114,759	\$ 155,924,479	\$ 289,776,352	\$ 515,484,345	\$ 908,901,782
10.0%	\$ 3,035,007	\$ 20,548,017	\$ 152,193,180	\$ 283,793,039	\$ 505,613,109	\$ 892,124,910
20.0%	\$ (2,126,903)	\$ 14,281,049	\$ 137,267,988	\$ 259,859,787	\$ 466,128,163	\$ 825,017,423
30.0%	\$ (7,288,813)	\$ 8,014,080	\$ 122,342,796	\$ 235,926,535	\$ 426,643,217	\$ 757,909,936
40.0%	\$ (12,450,723)	\$ 1,747,112	\$ 107,417,604	\$ 211,993,284	\$ 387,158,272	\$ 690,802,449

**RATIO OF UAL TO CURRENT VALUATION UAL:**

Future Retirees Contribution Rates	Ultimate Healthcare Cost Trend Scenarios					
	4%	5%	9%	11%	13%	15%
7.5%	103.4%	117.2%	220.9%	324.8%	499.9%	805.0%
10.0%	102.4%	115.9%	218.1%	320.1%	492.2%	792.0%
20.0%	98.4%	111.1%	206.5%	301.6%	461.6%	740.0%
30.0%	94.3%	106.2%	194.9%	283.0%	430.9%	687.9%
40.0%	90.3%	101.4%	183.3%	264.4%	400.3%	635.9%

**Notes:**

1. Trend rate scenarios are for ultimate trend assumptions in Year 2025 and later. Trend rates for Years 2018 to 2024 as per valuation report.
2. Current valuation results are based on a 4.5% discount rate, which is the same discount rate as the prior valuation.
3. Updates to future retiree contribution rates only. Current retirees based on current percentages.
4. Current valuation results illustrated as of July 1, 2016.



**SECTION IX: TWENTY (20) YEAR FORECAST OF PAY-AS-YOU-GO COSTS FOR CURRENT POPULATION**

	Projected <u>Pay-As-You-Go</u>	% Year over Year % Increase (Decrease)
1 Projected PAYGO for fiscal year July, 2016 to June 30, 2017	\$ 4,492,417	n/a
2 Projected PAYGO for fiscal year July, 2017 to June 30, 2018	4,730,417	5.3%
3 Projected PAYGO for fiscal year July, 2018 to June 30, 2019	4,976,555	5.2%
4 Projected PAYGO for fiscal year July, 2019 to June 30, 2020	5,162,123	3.7%
5 Projected PAYGO for fiscal year July, 2020 to June 30, 2021	5,397,357	4.6%
6 Projected PAYGO for fiscal year July, 2021 to June 30, 2022	5,605,311	3.9%
7 Projected PAYGO for fiscal year July, 2022 to June 30, 2023	5,707,587	1.8%
8 Projected PAYGO for fiscal year July, 2023 to June 30, 2024	5,854,925	2.6%
9 Projected PAYGO for fiscal year July, 2024 to June 30, 2025	5,961,770	1.8%
10 Projected PAYGO for fiscal year July, 2025 to June 30, 2026	6,139,022	3.0%
11 Projected PAYGO for fiscal year July, 2026 to June 30, 2027	6,369,802	3.8%
12 Projected PAYGO for fiscal year July, 2027 to June 30, 2028	6,522,766	2.4%
13 Projected PAYGO for fiscal year July, 2028 to June 30, 2029	6,855,608	5.1%
14 Projected PAYGO for fiscal year July, 2029 to June 30, 2030	7,015,227	2.3%
15 Projected PAYGO for fiscal year July, 2030 to June 30, 2031	7,175,052	2.3%
16 Projected PAYGO for fiscal year July, 2031 to June 30, 2032	7,490,459	4.4%
17 Projected PAYGO for fiscal year July, 2032 to June 30, 2033	7,696,492	2.8%
18 Projected PAYGO for fiscal year July, 2033 to June 30, 2034	8,016,537	4.2%
19 Projected PAYGO for fiscal year July, 2034 to June 30, 2035	8,303,027	3.6%
20 Projected PAYGO for fiscal year July, 2035 to June 30, 2036	<u>8,483,121</u>	2.2%
21 Subtotal: (1) + ... + (20)	\$ 127,955,575	

Notes:

1. Projections are based on the current census population for the July 1, 2016 Valuation Report. Group is assumed to be closed group with no new hires.
2. The above costs are net of retiree contribution rates, and are based on the healthcare cost inflation and decrement tables used in the valuation report.