



**AQUARIUS
CAPITAL**

CHAPPAQUA CENTRAL SCHOOL DISTRICT

OTHER POSTEMPLOYMENT BENEFITS (OPEB)

REPORTING IN ACCORDANCE WITH GASB 75

FISCAL YEAR

JULY 1, 2017 TO JUNE 30, 2018

Prepared by: AQUARIUS CAPITAL SOLUTIONS GROUP LLC
Date: June 9, 2018

June 9, 2018

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

Re: Report - GASB No. 75 Valuation Report for Fiscal Year July 1, 2017 to June 30, 2018

Dear Mr. Chow:

Enclosed is an analysis of estimated costs for other postemployment benefits (OPEB) valuation under Government Accounting Standards Board (GASB) No. 75 for Chappaqua Central School District (the "District"). The valuation was done for fiscal year July 1, 2017 to June 30, 2018. 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 75 results for the audited financial statements. Fiscal year July 1, 2017 to June 30, 2018 is the first year of implementation for GASB 75 for the District with the prior year's reporting based on GASB 45.

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 75. The Net OPEB Liability as of year-end June 30, 2018 is \$187.6 million, which is based on the projected pay-as-you-go number for fiscal year July 1, 2017 to June 30, 2018 as reported by the District.

Pages 1-2 of the report illustrate the financial projections for the plan as of year-end June 30, 2018 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. The remainder of the report will include additional documentation and disclosures.

Results for this valuation were valued based on census information provided by your organization in March 2018. This is based on a total of 995 employees, reflecting the sum of 600 active employees and 395 retired employees. The active population reflects approximately 50.0% of the unfunded accrued liability above, with 179 employees or 29.8% 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 was 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, 2017. Furthermore, premium rates for the Consortium are reflected through June 30, 2019 since available for this valuation.

The 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. This benefit includes reimbursement for the Income Related Monthly Adjustment Amount (IRMAA) amount. Certain retirees are eligible for life insurance and receive on a non-contributory basis. The District does not subsidize benefits for dental or vision coverage in retirement.

Sensitivity Analysis

Section I (page 3) of the report includes a sensitivity analysis as of fiscal year-end June 30, 2018 based on varying the discount interest rate and the healthcare cost inflation (trend) rates. We illustrate two scenarios for each variable of discount rate and trend rate as prescribed under GASB 75.

The discount rate used was 3.7%, which is consistent with discount rates in the market today and consistent with the prescribed discount rate under GASB 75. The prior valuation discount rate was 4.5%. Details of the discount rate assumption are described further in the report in Section V, page 9.

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 16-17. 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 16 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 17 of the report.

The ultimate healthcare inflation rates for all seventy-nine (79) scenarios on pages 16-17 are applied for years 2025 and later. All other assumptions are based on the valuation assumptions in the report. These scenarios are illustrated as of July 1, 2017, which is the beginning of the fiscal year to be consistent with the prior year's analysis

Projected Pay-As-You-Go and OPEB Liability 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 15 of the report. For this valuation, we expanded the projection to include a forecast of the OPEB Liability during the same time period for illustrative purposes.

Overview of Actuarial Gain/Loss

Fiscal year July 1, 2017 to June 30, 2018 is the first year of implementation under GASB 75, so there is no prior actuarial gain/loss. For illustrative purposes, we completed an analysis to compare the unfunded accrued liability (UAL) from the prior valuation under GASB 45 to the OPEB Liability under GASB 75 for the current valuation as of July 1, 2017.

On page 5 (Section III) of the valuation report, we illustrate an actuarial loss of \$51.0 million (or 38.3% increase in the June 30, 2017 UAL). This reflects the increase in the UAL (or OPEB Liability) as of July 1, 2017 as compared to the UAL as reported in the prior year valuation report roll forward to yearend June 30, 2017. The primary drivers of the liability increase are due the following:

- Change in the discount rate from 4.5% to 3.7%, which is a prescribed discount rate under GASB 75;
- Change in actuarial cost method from Projected Unit Credit, which was the most common method used under GASB 45, to Entry Age Normal (EAN) as a Percentage of Payroll. EAN is a prescribed method under GASB 75;
- Changes in Actuarial Standards of Practice involving assumptions for aging. Although the Consortium is participating in a community-rated health plan with pool rates for all participating employer groups, claim costs are required to be projected for aging; and
- Change in other demographics and assumptions from the prior valuation.

The above increases are partially offset by changes in starting claims cost since the prior valuation (i.e., favorable rate increases from prior valuation projections) and changes in demographics for the active population (i.e., average years of service for actives is lower than the prior year.

Details of the actuarial loss including financial projections for each component above, are illustrated on page 5 of the report. The above actuarial loss is provided for illustrated purposes to explain changes in results since the prior valuation. The amortization of the actuarial gain/loss is not reflected in the financial statements since this is a first-time valuation under GASB 75.

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 6-8 of the report. Some highlights of census demographic information as of the July 1, 2017 valuation date are as follows:

- For retirees, the overall average age is 74.4 years, which reflects an average age of 61.5 for pre-65 retirees and 76.4 for post-65 retirees with 13.7% of retirees below age 65.
- For actives, the average age is 48.4 years and average years of service of 12.2.
- Of the active population, 29.8% of the population (179 employees) is eligible to retire.
- 75.5% actives and 69.1% retirees valued were female.
- Active population includes 115 employees that opted-out of coverage.

The report also includes a comparison of demographics from the prior valuation report, i.e., the July 1, 2016 valuation. See page 8 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-VII. This includes assumptions for health care costs (premium rates through June 30, 2019 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 ten additional years for mortality projection consistent with current industry trends in the market.

For additional details on assumptions and definitions, see pages 9-14.

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). Consistent with the prior valuation, fees associated with PPACA are reflected in the valuation and described in more detail on page 10 of the 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, 2019 for the Consortium plan), collective bargaining contracts by bargaining unit, audited financial statements as of June 30, 2017, and other summary information of retiree benefits and eligibility. Note that the District's collective bargaining agreements were available on the District's website by business unit and fiscal year.

The projected OPEB Liability as of June 30, 2018 reflects the projected pay-as-you-go results for fiscal year July 1, 2017 to June 30, 2018.

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 March 2018 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 75. 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 75 for financial statements.

This report does not reflect the impact of GASB 45 since the District is migrating to GASB 75 for fiscal year July 1, 2017 to June 30, 2018.

Furthermore, our understanding is that the District does not maintain assets in an OPEB trust, so no disclosure reporting would be required under GASB74. If the District elects to set up an OPEB trust and contribute assets towards the plan, then please let us know so that we can reflect accordingly, including providing any additional disclosures that may be required under GASB 74

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.

Independence Certification

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.

Mr. John Chow
June 9, 2018
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We hope that this report is beneficial. When convenient, please contact me so that we can schedule a call or meeting to review the report in more detail. We are available to walk through the report with your auditors as well to assist with the implementation of GASB 75 reporting for the current fiscal year.

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,



Michael L. Frank, A.S.A., M.A.A.A., F.C.A.
President & Actuary
American Academy of Actuaries ID No. 21342

cc: Donald Rusconi – Aquarius Capital

Enclosure



Chappaqua Central School District
Valuation Estimates under GASB No. 75 valued as of July 1, 2017

CHAPPAQUA CENTRAL SCHOOL DISTRICT

GASB NO. 75

VALUATION AS OF JULY 1, 2017

Prepared by: Aquarius Capital Solutions Group LLC
June 9, 2018



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SECTION I: GASB NO. 74/75 REPORTING TO YEAR END JUNE 30, 2018 REPORTING

(Implementation Year for GASB 74/75 is July 1, 2017 to June 30, 2018)

Section A: Reported OPEB Liability as of Year End June 30, 2018

1 Discount Rate		3.70%
2 Present Value of Future Benefits as of Year End June 30, 2018	\$	220,697,949
3 Total OPEB Liability as of Year End June 30, 2018	\$	187,552,988
4 Plan Fiduciary Net Position as of Year End June 30, 2018	\$	-
5 Net OPEB Liability as of Year End June 30, 2018: (3) - (4)	\$	187,552,988
6 Plan Fiduciary Net Position as a Percentage of OPEB Liability: (4) / (3)		0.00%
7 Total Annual Salary (Compensation) based on Valuation Census Information	\$	58,345,696
8 Net OPEB Liability as a Percentage of Annual Salary: (5) / (7)		321.45%
9 Total Employee Census Counts for Valuation		
a. Active Employees		600
b. Retired Employees (incl. vested terminations)		395
c. Subtotal: (8a) + (8b)		<u>995</u>

Section B: Projected Expense Calculation as of Year End June 30, 2018

1 Service Cost with Interest to Year End - Period July 1, 2017 to June 30, 2018	\$	2,194,861
2 Interest Cost - Period July 1, 2017 to June 30, 2018		
a. Discount Rate		3.70%
b. Total OPEB Liability as of July 1, 2017	\$	184,082,202
c. Actual Benefit Payments - Illustrated as Project for Period July 1, 2017 to June 30, 2018	\$	5,434,577
d. Interest Cost: (2a) x [(2b) - (2c) / 2]	\$	6,710,502
3 Investment Return - Period July 1, 2017 to June 30, 2018	\$	-
4 Employee Contributions - Period July 1, 2017 to June 30, 2018 (Amount is illustrated as zero since employer contributions are illustrated net of employee contributions)	\$	-
5 Administrative Expenses	\$	-
6 Plan Changes	\$	-
7 Amortization of Unrecognized Amounts		
a. Liability (Gain)/Loss	\$	-
b. Asset (Gain)/Loss	\$	-
c. Net (Gain)/Loss: (7a) - (7b)	\$	-
8 Total Expense - Period July 1, 2017 to June 30, 2018 (1) + (2d) + (3) + (4) + (5) + (6) + (7c)	\$	8,905,363



SECTION I: GASB NO. 74/75 REPORTING TO YEAR END JUNE 30, 2018 REPORTING (CONTINUED)

(Implementation Year for GASB 74/75 is July 1, 2017 to June 30, 2018)

Section C: Reconciliation of Net OPEB Liability as of Year End June 30, 2018

	<u>Total</u> <u>OPEB Liability</u>	<u>Plan Fiduciary</u> <u>Net Position</u>	<u>Net</u> <u>OPEB Liability</u>
1 Balance Recognized as of Beginning of Year (End of Prior Year)	\$ 184,082,202	\$ -	\$ 184,082,202
2 Changes Recognized for Fiscal Year			
a. Service Cost: Section B, Line 1	\$ 2,194,861	\$ -	\$ 2,194,861
b. Interest on Total OPEB Liability: Section B, Line 2d	\$ 6,710,502	\$ -	\$ 6,710,502
c. Change in Benefit Terms: Section B, Line 6	\$ -	\$ -	\$ -
d. Change in Expected to Actual	\$ -	\$ -	\$ -
e. Changes in Assumptions	\$ -	\$ -	\$ -
f. Benefit Payments: Section B, Line 2c	\$ (5,434,577)	\$ -	\$ (5,434,577)
g. Contributions from Employer	\$ -	\$ -	\$ -
h. Contributions from Employees	\$ -	\$ -	\$ -
i. Net Investment Income: Section B, Line 3	\$ -	\$ -	\$ -
j. Administrative Expenses: Section B, Line 5	\$ -	\$ -	\$ -
k. Net Changes: (a) + ... + (j)	\$ 3,470,786	\$ -	\$ 3,470,786
3 Balance Recognized as of End Year - June 30, 2018 (1) + (2k)	\$ 187,552,988	\$ -	\$ 187,552,988

Notes:

- a. Employee contributions are illustrated above as zero since employer contributions are illustrated net of employee contributions.
- b. This fiscal year is the first year of implementation for GASB No. 75, so no deferred inflows or outflows of resources are anticipated.



SECTION I: GASB NO. 74/75 REPORTING TO YEAR END JUNE 30, 2018 REPORTING (CONTINUED)

(Implementation Year for GASB 74/75 is July 1, 2017 to June 30, 2018)

Section D: Discount (Interest) Rate Sensitivity as of Year End June 30, 2018

	Current Valuation Discount Rate <u>3.70%</u>		Discount Rate Less 1% <u>2.70%</u>		Discount Rate Plus 1% <u>4.70%</u>
1 Total OPEB Liability as of Year End June 30, 2018					
a. OPEB Liability	\$ 187,552,988	\$	227,192,720	\$	157,894,821
b. Ratio to Current Valuation Assumptions	n/a		121.14%		84.19%
2 Plan Fiduciary Net Position as of Year End June 30, 2018					
a. Plan Fiduciary Net Position	\$ -	\$	-	\$	-
b. Ratio to Current Valuation Assumptions	n/a		n/a		n/a
3 Net OPEB Liability as of Year End June 30, 2018					
a. OPEB Liability: (1a) - (2a)	\$ 187,552,988	\$	227,192,720	\$	157,894,821
b. Ratio to Current Valuation Assumptions	n/a		121.14%		84.19%

Note: Sensitivity analysis for discount (interest) rate is illustrated as of end of year.

Section E: Healthcare Cost Inflation (Trend) Rate Sensitivity as of Year End June 30, 2018

	Current Valuation Discount Rate		Trend Rate Less 1%		Trend Rate Plus 1%
1 OPEB Liability as of Year End June 30, 2018					
a. OPEB Liability	\$ 187,552,988	\$	156,009,979	\$	232,977,420
b. Ratio to Current Valuation Assumptions	n/a		83.18%		124.22%
2 Plan Fiduciary Net Position as of Year End June 30, 2018					
a. Plan Fiduciary Net Position	\$ -	\$	-	\$	-
b. Ratio to Current Valuation Assumptions	n/a		n/a		n/a
3 Net OPEB Liability as of Year End June 30, 2018					
a. OPEB Liability: (1a) - (2a)	\$ 187,552,988	\$	156,009,979	\$	232,977,420
b. Ratio to Current Valuation Assumptions	n/a		83.18%		124.22%

Note: Sensitivity analysis for healthcare cost inflation (trend) rate is illustrated as of end of year.



SECTION II - SUMMARY OF FINANCIAL INFORMATION INCLUDING SENSITIVITY ANALYSIS

Summary of Financial Results with Sensitivity Analysis (July 1, 2017 Valuation Date)	Base Scenario Val. Discount Rate of <u>3.70%</u>	Sensitivity Analysis Val. Discount Rate of <u>4.70%</u>	Sensitivity Analysis Val. Discount Rate of <u>2.70%</u>	Healthcare Cost Trend Rate Assumptions <u>Increased 1%</u>	Healthcare Cost Trend Rate Assumptions <u>Decreased 1%</u>
1 Total Employee Lives					
a. Actives	600	600	600	600	600
b. Retirees	395	395	395	395	395
c. Subtotal	995	995	995	995	995
2 Present Value of Future Benefits (PVFB) as of July 1, 2017					
a. Actives	\$ 126,151,661	\$ 96,372,394	\$ 168,262,196	\$ 171,757,478	\$ 96,527,740
b. Retirees	\$ 92,009,444	\$ 82,682,756	\$ 103,178,794	\$ 102,387,100	\$ 83,415,564
c. Subtotal	\$ 218,161,105	\$ 179,055,150	\$ 271,440,990	\$ 274,144,578	\$ 179,943,304
d. % Actives as ratio of Subtotal	57.8%	53.8%	62.0%	62.7%	53.6%
e. Sensitivity Analysis of Subtotal: Ratio to Base Scenario for PVFB		82.1%	124.4%	125.7%	82.5%
3 Accrued Liability (AL) as of July 1, 2017					
a. Actives	\$ 92,072,758	\$ 71,707,436	\$ 120,830,960	\$ 124,669,078	\$ 70,775,346
b. Retirees	\$ 92,009,444	\$ 82,682,756	\$ 103,178,794	\$ 102,387,100	\$ 83,415,564
c. Subtotal	\$ 184,082,202	\$ 154,390,192	\$ 224,009,754	\$ 227,056,178	\$ 154,190,910
d. % Actives as ratio of Subtotal	50.0%	46.4%	53.9%	54.9%	45.9%
e. Sensitivity Analysis of Subtotal: Ratio to Base Scenario for AL		83.9%	121.7%	123.3%	83.8%
4 Assets as of July 1, 2017	\$ -	\$ -	\$ -	\$ -	\$ -
5 Unfunded Accrued Liability (UAL) (3c) - (4)	\$ 184,082,202	\$ 154,390,192	\$ 224,009,754	\$ 227,056,178	\$ 154,190,910
6 Service Cost with Interest					
a. Service Cost at Year End:	\$ 2,194,861	\$ 1,810,580	\$ 2,642,646	\$ 3,055,280	\$ 1,649,122
b. Ratio to Valuation Results for Service Cost		82.5%	120.4%	139.2%	75.1%
7 Pay-As-You-Go Benefits - Illustrated as Projected	\$ 5,434,577	\$ 5,434,577	\$ 5,434,577	\$ 5,434,577	\$ 5,434,577
8 Ratio of AL to Pay-As-You-Go: (3c) / (7)	33.87	28.41	41.22	41.78	28.37
9 Ratio of Service Cost to Pay-As-You-Go: (6a) / (7)	0.40	0.33	0.49	0.56	0.30
10 Average Annual Pay-As-You-Go Benefit per Retiree (7) / (1b)	\$ 13,758	\$ 13,758	\$ 13,758	\$ 13,758	\$ 13,758
11 Three Year Projection of Pay-As-You-Go Costs					
a. Year 1: July 1, 2017 to June 30, 2018: (7)	\$ 5,434,577	\$ 5,434,577	\$ 5,434,577	\$ 5,434,577	\$ 5,434,577
b. Year 2: July 1, 2018 to June 30, 2019	\$ 5,402,935	\$ 5,402,935	\$ 5,402,935	\$ 5,402,935	\$ 5,402,935
c. Year 3: July 1, 2019 to June 29, 2020	\$ 5,439,897	\$ 5,439,897	\$ 5,439,897	\$ 5,490,857	\$ 5,388,916
12 Discount Rate	3.70%	4.70%	2.70%	3.70%	3.70%
13 Interest Cost for Fiscal Year July 1, 2017 to June 30, 2018 (3c) x (12) - (7) x (12) / 2; excludes interest on service cost	\$ 6,710,502	\$ 7,128,626	\$ 5,974,897	\$ 8,300,539	\$ 5,604,524
14 Accrued Liability (AL) as of June 30, 2018 (3c) + (6a) - (7) + (13)	\$ 187,552,988	\$ 157,894,821	\$ 227,192,720	\$ 232,977,420	\$ 156,009,979
15 Assets as of June 30, 2018	\$ -	\$ -	\$ -	\$ -	\$ -
16 Unfunded Accrued Liability (UAL) as of June 30, 2018 (14) - (15)	\$ 187,552,988	\$ 157,894,821	\$ 227,192,720	\$ 232,977,420	\$ 156,009,979
17 Present Value of Future Benefits (PVFB) as of June 30, 2018 (2c) x [1 + (12)] - (7) x [1 + (12) / 2]	\$ 220,697,949	\$ 181,908,452	\$ 273,261,953	\$ 278,752,811	\$ 181,066,090

Note: All costs are net of retiree contributions. See pages 1-2 for financial statement information.



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

Summary of Experienced (Gain)/Loss as of July 1, 2017

1 Unfunded Accrued Liability (UAL) as of July 1, 2017 (See Page 4, Line 5 of Report)	\$ 184,082,202
2 Projected Unfunded Accrued Liability as of June 30, 2017 (Reflects prior valuation under GASB45 projected to June 30, 2017)	\$ 133,105,082
3 Experience (Gain)/Loss on Unfunded Accrued Liability as of July 1, 2017 (1) - (2)	\$ 50,977,120
4 Ratio of (Gain)/Loss to Prior Valuation Unfunded Accrued Liability (3) / (2)	38.3%
5 Distribution of Experience (Gain)/Loss as of July 1, 2017	
a. Impact due to change in discount rate from 4.5% to 3.7% for the current valuation as prescribed under GASB 75	\$ 24,401,892
b. Impact due to the implementation of an aging assumption as required under actuarial standards of practice and prescribed under GASB 75	26,385,684
c. Impact due to change in premium rates as compared to projections from the prior valuation	(5,982,672)
d. Change in demographics for the active population (e.g., reduction in years of service) since the prior valuation	(3,731,264)
e. Change in employee headcounts since the prior valuation	3,275,837
f. Changes in other demographics and other valuation assumptions, including the actuarial cost method	<u>6,627,643</u>
g. Subtotal: (5a) + (5b) + (5c) + (5d) + (5e) + (5f)	\$ 50,977,120

Notes:

- a. Actuarial (gain)/loss above is illustrated at the beginning of the fiscal year (i.e., valuation date) for comparison with GASB45 reporting from the prior valuation.
- b. Line 5f above reflects the impact of an increase in liability due to the change in actuarial cost method offset, which is partially offset by changes in other assumptions and census demographic information since the prior valuation. The actuarial cost method under GASB 75 is prescribed and reflects a change from Projected Unit Credit, which was the most common method used under GASB 45 to Entry Age Normal as a Percentage of Payroll.



SECTION IV - SUMMARY OF CENSUS INFORMATION

Summary of Retiree Enrollment, by Age Band and Status, calculated as of July 1, 2017

<u>Age Band</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>	<u>% Female</u>
Under 50	-	-	-	n/a
50 to 54	-	-	-	n/a
55 to 59	6	3	9	66.7%
60 to 64	31	14	45	68.9%
65 to 69	66	25	91	72.5%
70 to 74	52	25	77	67.5%
75 to 79	42	19	61	68.9%
80 to 84	27	9	36	75.0%
85 to 89	29	13	42	69.0%
90 to 94	16	12	28	57.1%
95 +	<u>4</u>	<u>2</u>	<u>6</u>	<u>66.7%</u>
Subtotal	273	122	395	69.1%

	<u>Female</u>	<u>Male</u>	<u>Total</u>	<u>% Female</u>
Pre 65	37	17	54	68.5%
Post 65	<u>236</u>	<u>105</u>	<u>341</u>	<u>69.2%</u>
Subtotal	273	122	395	69.1%
% Pre-65 Retirees	13.6%	13.9%	13.7%	

	<u>Female</u>	<u>Male</u>	<u>Total</u>
Average Age - Pre 65	61.7	61.2	61.6
Average Age - Post 65	76.1	77.1	76.4
Average Age - Total	74.2	74.9	74.4



SECTION IV - SUMMARY OF CENSUS INFORMATION (CONTINUED)

Summary Active Employees by Age Band and Years of Service, calculated as of July 1, 2017

<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	10	-	-	-	-	-	-	-	10	1.7%
25 to 29	18	1	-	-	-	-	-	-	19	3.2%
30 to 34	21	7	3	1	-	-	-	-	32	5.3%
35 to 39	20	16	34	3	-	-	-	-	73	12.2%
40 to 44	15	8	30	24	6	-	-	-	83	13.8%
45 to 49	20	12	16	26	9	1	-	-	84	14.0%
50 to 54	18	16	24	26	15	7	2	-	108	18.0%
55 to 59	10	9	32	18	9	12	3	1	94	15.7%
60 to 64	2	4	18	20	15	6	2	1	68	11.3%
Age 65 +	-	1	9	7	6	-	3	3	29	4.8%
Subtotal	134	74	166	125	60	26	10	5	600	100.0%
% Subtotal	22.3%	12.3%	27.7%	20.8%	10.0%	4.3%	1.7%	0.8%	100.0%	

<u>Actives</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>
Average Age:	48.3	48.9	48.4
Average Years of Service:	11.4	14.7	12.2

<u>Count by Gender</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>	<u>% Female</u>
Total	453	147	600	75.5%

<u>Actives by Service Category</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>	<u>% Female</u>
Actives Not Yet Eligible for Benefits	317	104	421	75.3%
Actives Eligible for Benefits	136	43	179	76.0%
Total	453	147	600	75.5%
% Actives Eligible for Benefits	30.0%	29.3%	29.8%	



SECTION IV - SUMMARY OF CENSUS INFORMATION (CONTINUED)

Comparison of Census Information to the Prior Valuation

	<u>July 1, 2017</u>	<u>July 1, 2016</u>	<u>Difference</u>	<u>% Difference</u>
<u>Summary of Counts</u>				
Actives	600	636	(36)	-5.7%
Retirees (including Surviving Spouses)	<u>395</u>	<u>360</u>	<u>35</u>	<u>9.7%</u>
Total	995	996	(1)	-0.1%
Retiree Counts - % Pre-65	13.7%	13.3%	0.4%	3.0%
<u>Average Age</u>				
o Actives - Valuation Age	48.4	49.3	(0.9)	-1.8%
o Actives - Age at Hire	36.2	36.4	(0.2)	-0.5%
o Pre-65 Retirees	61.5	61.7	(0.2)	-0.3%
o Post-65 Retirees	76.4	76.4	-	0.0%
o Total Retirees	74.4	74.5	(0.1)	-0.1%
<u>Actives Avg. Years of Service</u>	12.2	12.9	(0.7)	-5.4%
<u>Actives Eligible for Benefits</u>				
o Total	179	213	(34)	-16.0%
% Eligible for Benefits	29.8%	33.5%	-3.7%	-11.0%
<u>Gender</u>				
% Female - Active	75.5%	74.7%	0.8%	1.1%
% Female - Retiree	69.1%	67.2%	1.9%	2.8%

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



SECTION V - SUMMARY OF ASSUMPTIONS

Municipality	Chappaqua Central School District ("District")			
Valuation Date	July 1, 2017			
Initial Implementation Year for GASB No. 74/75	Implementation Year for GASB 74/75 is July 1, 2017 to June 30, 2018 The impact to financial statements as a result of these new GASB Statements include, but are not limited to, the amount of the OPEB liability to be reported on the financial statements, the selected actuarial cost method, discount rate used, and disclosures in the audited financial statements. Details are described throughout the report.			
Purpose of Work	This report is provided to your organization for the purpose of calculation results under GASB No. 74/75. 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 reasons other than its intention, i.e., reporting of GASB No. 74/75 for financial statements. Pages 1-3 reflect results under GASB No. 74/75. GASB No. 75 will replace GASB No. 45 for this fiscal year. Our organization was the consulting actuary for the prior year GASB 45 calculation.			
Discount Rate	3.7%	The selected discount rate is based on the prescribed discount interest rate methodology under GASB No. 74/75 based on an average of three 20-year bond indices (e.g., Bond Buyer-20 Bond GO, S&P Municipal Bond 20 Year High Grade Rate Index, Fidelity GA AA 20 Years) as of March 28, 2018.		
Assets	Not valued since benefit is unfunded. Assets are zero.			
Expected Return on Assets	n/a			
Information for Valuation	All information was provided by your organization.			
Retirement Assumptions	Valuation of active and retired population.			
Retirement Benefits	Coverage for pre-65 and post-65 retirement benefits. This valuation is provided to a single employer plan.			
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.			
Insurance Coverage and 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 with no other assumed medical plan options available to them.			
Actuarial Cost Method	Entry Age Normal as a Level Percentage of Payroll			
Health Care Cost Trend Assumption	The following assumptions are used for annual healthcare cost inflation (trend):			
		Year	Pre-65	Post 65
	Year 1 Trend	July 1, 2019	7.0%	7.0%
	Ultimate Trend	July 1, 2025 & 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 year July 1, 2017 to June 30, 2018 and plan year July 1, 2018 to June 30, 2019. Both plan years were reflected in the valuation since known premium cost to your organization. Medical insured monthly premiums for pre-65 and post-65 retirees for the Consortium are illustrated on page 14 of the report. These costs are based on 100% before retiree contributions and are assumed to include all administrative expenses and the required PPACA fees due at this time. Plan costs for July 1, 2019 and beyond are trended forward using the trend rates illustrated under the "Health Care Cost Trend Assumptions" section above.			
Projected Benefit Costs	While the plans within the Consortium are assumed to be community rated, Actuarial Standards of Practice No. 6 requires age adjusted costs be measured by estimating the expected costs by age whether or not a pooling or community rating applies. The underlying costs for the Consortium reflect an average age of actives and pre-65 retirees of age 50 and an average age for retirees post-65 of age 75 for purposes of developing aging for the valuation. The prior valuation under GASB 45 did not reflect an assumption for aging.			
Implicit Subsidy	This reflects the difference between the premium rate or cost charged to a retiree for a particular benefit as compared to the estimated rate of cost to the retiree, if those benefits were calculated reflecting retirees as a separate group (rather than their costs bundled with the active population). The results in this valuation reflect an implicit subsidy in the cost projections.			



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% of employees are currently receiving this benefit, which is assumed to be an additional \$140 per month based on current reporting by the District. This assumption is the same as the prior valuation.
Medicare Part D	The District does not reimburse for Medicare Part D premium.
Life Insurance	A small number of retirees are eligible for a non-contributory (District-pay-all) life insurance benefit and costs are reflected in the report. This group reflected six (6) individuals consistent with the prior valuation.
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 included in this valuation are 1) Comparative Effectiveness Research fee, 2) Health Insurance Industry fee, and 3) High Cost Plans Excise Tax ("Cadillac tax"). The Reinsurance Assessment, also initiated with the passing of the PPACA, was a short-term fee levied on fully insured and self-funded employer groups between 2014 and 2016.</p> <p>The Comparative Effectiveness Research fee runs through 2019 and is tax deductible. The initial fee was \$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. The fee was suspended for the 2017 plan year and will resume in 2018 with the estimated fee to be approximately 3.0% to 4.0% of premium. The fee applies to fully insured plans including Medicare Advantage plans and excludes self-funded employer sponsored group health plans. Effective with legislation passed on January 22, 2018, this fee is suspended again for the 2019 plan year but will resume in 2020.</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 2022 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 2022 stated cost limits of:</p> <ul style="list-style-type: none"> o - \$10,200 single / \$27,500 family o - \$11,850 single / \$30,950 family for retirees age 55-64 <p>The 2022 limits above may be increased if higher than expected trends are realized from 2010 through 2022 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 2022 (for example, if the benchmark plan increase is 60% between 2010 and 2022, the cost limits will increase by the excess over 55% or 5%.) The final 2022 limits will increase by CPI + 1% for 2023 and by CPI thereafter. For this valuation, it is assumed that CPI will be 3% in 2023 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 2018 and projected increases in costs from 2019 through 2022 as listed in the "Health Care Cost Trend Assumption" above. For each year from 2022 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 a TPA or insurer will be passed on to the entity through increased premiums or costs (whether billed separately or not.)</p> <p>This valuation includes changes to the Cadillac tax based on legislation passed on January 22, 2018, which delays the implementation of the tax to January 1, 2022 as well as continuing to allow 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 described above.</p>
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 tax imposed by the Patient Protection and Affordable Care Act (PPACA) described in detail above.
% Future Retirees Opting Out	It is assumed that 100% participation for those covered as actives. All eligible active and retiree employee records provided by your organization were valued.
Census Information	Participant data was provided by your organization in March 2018. We relied on information as being accurate and we have not conducted any data audits.



SECTION V - SUMMARY OF ASSUMPTIONS (CONTINUED)

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., March 2018) into the plan.

Retirement System Valuation is based on the most recent New York State Employees' Retirement System (ERS), and the New York State Teachers' Retirement System (TRS). ERS and TRS tables were based on version released in 2015.

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 your organization.

Retiree Contribution Rates Retiree contribution rates vary by employee class and date of retirement. Contributions are based on a percentage of premium and are the same for employee and family coverage. Below is a summary of retiree contribution percentages. 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%

Mortality RP 2014 Healthy Male and Female Tables are based on the Employee and Healthy Annuitant Tables for both pre & post retirement projected with mortality improvements using Projection Scale AA for 3.50 years, (i.e., from date of table to the valuation date), plus ten (10) years additional mortality improvement.

Turnover Assumptions This reflects rate of separation from the active plan and excludes retirement and disability. Turnover table varies by years of service with rates of turnover based on TRS and ERS.

Disability Assumptions This reflects disability assumptions from the active plan and is based on age. This is the assumption used for the TRS and ERS.

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 TRS and ERS.

Payroll Information Payroll information was provided and reflected in this valuation. Benefit and retiree contribution rates are not based on payroll so this information was not necessary for prior valuations. For this valuation, the actuarial cost method is Entry Age Normal (EAN) as a percentage of salary, so salary increase assumptions were required. We assumed 3.0% annual increase for this valuation.

Valuation of Spouses & Marital Status Spouses are valued for benefits similar to retired employees. Current retirees with spouses are assumed to be married to those spouses at and throughout retirement while those without spouses (or not covering a spouse) are assumed to be single at and throughout retirement.



SECTION V - SUMMARY OF ASSUMPTIONS (CONTINUED)

Spouse Age Assumptions	It is assumed that female spouses are three years younger than male employees and male spouses are three years older than female employees unless actual spouse date of birth information is provided. Spousal dates of birth were not provided so the above age assumption for spouses were used. Employees with family coverage are assumed to continue family coverage 80% of the time in retirement.
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 your organization.
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 115 employees elected opt-out, waiver or declined coverage. Individuals are assumed to elect single coverage in retirement.
Leave of Absence	There were two (2) 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 & Terminated Participants	There were no individuals listed as COBRA or terminated from the plan.
Missing Census Information	
o Dates of Birth	No active employees or retirees were missing date of birth, so no special adjustments were needed.
o Dates of Hire	One (1) active employee was missing date of hire, so assumed to have thirteen (13) years of service, which is the service average for your organization in the prior valuation.
o Gender	No individuals were missing gender, so no special adjustments were needed.
o Coverage Tier	No enrolled employees were missing coverage tier, so no special adjustments were needed.
o Salary	Individual salary was provided and used for the valuation. Twelve (12) actives were missing salary, so these individuals were assumed to have the same average salary as other employees.
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.
Eligible Population	Population reflects all benefit eligible employees provided. Any new hires after date of data collection are not reflected herein.
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 judgement 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 No. 43/45 & 74/75	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 & 74/75. We rely on the opinion of your organization and auditor for this determination.
Employee Contracts & Collective Bargaining Agreements	Employee contracts and collective bargaining agreements specific to retiree benefits were reviewed for this valuation. Furthermore, results were also based on information as provided by your organization. Contract information was available by contract year from the District's website and includes contracts for the following groups: (1) Chappaqua Administrators Association; (2) Chappaqua Congress of Teachers, including Teachers and Teaching Assistants; Chappaqua Office Staff Association; (3) Civil Service Employees Association; and (4) Other Groups. The Other category includes contracts for Nurses, OT, PT, Athletic Trainer, LPN, and Superintendents.
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

Other Post Employment Benefits (OPEB)	Medical, dental, vision, life and other health benefits provided to terminated or retired employees including their dependents and beneficiaries.
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.
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 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 service to total service to retirement eligibility for that employee. This is consistent with the Total OPEB Liability under GASB 74 & 75 reporting.
Unfunded Accrued Liability (UAL)	This is the excess of the AL over Plan Fiduciary Net Position (OPEB trust assets). This would also be referred to as the Total Net OPEB Liability, reflecting the Total OPEB Liability less the Plan Fiduciary Net Position.
Actuarial Cost Method	A procedure for allocating the Actuarial Present Value of Future Benefits (PVFB) to time periods, usually in the form of Normal Cost and an Accrued Liability (AL). This actuarial cost method is prescribed under GASB 74 & 75.
Service Cost (Normal Cost)	The proportion of the PVFB of a plan's 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.
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.
Plan Fiduciary Net Position	The current market value of assets placed in an irrevocable OPEB trust.
Closed Group Valuation	This means that it does not consider the Actuarial PVFB associated with future entrants.
Decrement Rates	This includes mortality, turnover, disability and retirement rate assumptions. This is used to determine the likelihood of an 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.
Covered Payroll	The payroll of the active employees that are provided OPEB 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. This was the most common method used under GASB No. 45.
Individual Entry Age Normal	This is an actuarial cost method whereby costs are determined as of the entry age of the employee until his/her exiting of active service. This allocation can be done on a level dollar or level percentage of pay. This method is prescribed under GASB No. 75 with the valuation done on a level percentage of pay.
Deferred Inflows/Outflows of Resources	This reflects amounts resulting from experience gains/losses that have not been recognized in the current OPEB expense calculations, but will be potentially reflected in future years.
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.
Substantive Plan	The terms of the OPEB plan as understood by the employer and its plan members. The plan is assumed to be a single employer plan unless noted otherwise in the report.
Recognition Year for GASB No. 74 & 75	The effective date for reporting GASB No. 74 is for fiscal years beginning after June 15, 2016. The effective date for reporting GASB No. 75 is for fiscal years beginning after June 15, 2017. GASB No. 74 & 75 replaced GASB No 43 & 45.
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 - SUMMARY OF CLAIM COST ASSUMPTIONS

Summary of Plan Costs by Year - Monthly Fully Insured Rates

<u>Retiree Group</u>	<u>Tier</u>	<u>Plan Year 7/16 to 6/17</u>	<u>Plan Year 7/17 to 6/18</u>	<u>Plan Year 7/18 to 6/19</u>	<u>7/17-o-7/16 % Change</u>	<u>7/18-o-7/17 % Change</u>
<i>Pre-65 Medical/Rx Plans:</i>						
PNWHBC	Single	\$ 677.00	\$ 731.00	\$ 758.00	8.0%	3.7%
	Dual	n/a	n/a	1,828.00	n/a	n/a
	Family	1,693.00	1,828.00	1,979.00	8.0%	8.3%
<i>Post-65 Medical/Rx Plans:</i>						
PNWHBC	Single	\$ 610.00	\$ 658.00	\$ 681.00	7.9%	n/a
	Family - 2 Medicare	\$ 1,354.00	\$ 1,462.00	\$ 1,431.00	8.0%	-2.1%
Medicare Part B Premium	Per Individual	\$ 121.80	\$ 134.00	\$ 134.00	10.0%	0.0%

Notes:

Pre-65 and post-65 retiree premium rates above are based on the PNWHBC rates for the effective dates indicated above and are based on 100% before retiree contributions. These premium rates are assumed to include all administrative costs and PPACA fees required at this time.



SECTION VIII: TWENTY (20) YEAR FORECAST OF PAY-AS-YOU-GO COSTS AND TOTAL OPEB LIABILITY FOR CURRENT POPULATION

Fiscal Year	Total OPEB Liability at Beginning of Year	Annual Service Cost with Interest	Annual Projected Pay-As-You-Go	Projected Pay-As-You-Go Year over Year % Increase (Decrease)	Annual Interest Cost	Total OPEB Liability at End of Year
1 Fiscal Year July 1, 2017 to June 30, 2018	\$ 184,082,202	\$ 2,194,861	\$ 5,434,577	n/a	\$ 6,710,502	\$ 187,552,988
2 Fiscal Year July 1, 2018 to June 30, 2019	187,552,988	2,260,707	5,402,935	-0.6%	6,839,506	191,250,266
3 Fiscal Year July 1, 2019 to June 30, 2020	191,250,266	2,328,528	5,439,897	0.7%	6,975,622	195,114,519
4 Fiscal Year July 1, 2020 to June 30, 2021	195,114,519	2,398,384	5,915,826	8.7%	7,109,794	198,706,871
5 Fiscal Year July 1, 2021 to June 30, 2022	198,706,871	2,470,336	6,166,955	4.2%	7,238,066	202,248,318
6 Fiscal Year July 1, 2022 to June 30, 2023	202,248,318	2,544,446	6,402,176	3.8%	7,364,748	205,755,336
7 Fiscal Year July 1, 2023 to June 30, 2024	205,755,336	2,620,779	6,599,754	3.1%	7,490,852	209,267,213
8 Fiscal Year July 1, 2024 to June 30, 2025	209,267,213	2,699,402	6,858,081	3.9%	7,616,012	212,724,546
9 Fiscal Year July 1, 2025 to June 30, 2026	212,724,546	2,780,384	7,126,070	3.9%	7,738,976	216,117,836
10 Fiscal Year July 1, 2026 to June 30, 2027	216,117,836	2,863,796	7,404,306	3.9%	7,859,380	219,436,706
11 Fiscal Year July 1, 2027 to June 30, 2028	219,436,706	2,949,710	7,618,254	2.9%	7,978,220	222,746,382
12 Fiscal Year July 1, 2028 to June 30, 2029	222,746,382	3,038,201	7,991,357	4.9%	8,093,776	225,887,002
13 Fiscal Year July 1, 2029 to June 30, 2030	225,887,002	3,129,347	8,233,136	3.0%	8,205,506	228,988,719
14 Fiscal Year July 1, 2030 to June 30, 2031	228,988,719	3,223,227	8,528,119	3.6%	8,314,812	231,998,639
15 Fiscal Year July 1, 2031 to June 30, 2032	231,998,639	3,319,924	8,912,600	4.5%	8,419,067	234,825,030
16 Fiscal Year July 1, 2032 to June 30, 2033	234,825,030	3,419,522	9,190,927	3.1%	8,518,494	237,572,119
17 Fiscal Year July 1, 2033 to June 30, 2034	237,572,119	3,522,108	9,663,708	5.1%	8,611,390	240,041,909
18 Fiscal Year July 1, 2034 to June 30, 2035	240,041,909	3,627,771	10,082,203	4.3%	8,695,030	242,282,507
19 Fiscal Year July 1, 2035 to June 30, 2036	242,282,507	3,736,604	10,354,354	2.7%	8,772,897	244,437,654
20 Fiscal Year July 1, 2036 to June 30, 2037	244,437,654	3,848,702	10,808,692	4.4%	8,844,232	246,321,896
21 Subtotal - Projected Pay-As-You-Go for Twenty Years: (1) + ... + (20)			\$ 154,133,927			

Notes:

1. Projections are based on the current census population and valuation assumptions. Group is assumed to be closed group with no new hires.
2. The above costs are net of retiree contribution rates.
3. Service cost is assumed for illustrative purposes to increase based on the assumed salary increase assumption on a year-over-year basis.
4. Plan fiduciary net position (assets) is zero so not illustrated in the projects.



SECTION IX: FORTY NINE (49) SCENARIOS FOR DISCOUNT RATES AND HEALTHCARE COST TREND RATES

VALUATION RESULTS FOR THE ACTUARIAL ACCRUED LIABILITY (AAL)

Valuation Date: July 1, 2017

Ultimate Healthcare Cost Trend Scenarios	Discount Rate Scenarios						
	2%	3%	3.7%	4%	5%	6%	7%
3%	\$ 222,285,567	\$ 183,171,427	\$ 161,946,730	\$ 154,051,507	\$ 131,844,133	\$ 114,539,705	\$ 100,797,317
4%	\$ 260,594,587	\$ 210,707,016	\$ 184,082,202	\$ 174,270,419	\$ 146,973,931	\$ 126,049,958	\$ 109,682,333
5%	\$ 317,170,162	\$ 250,483,073	\$ 215,585,760	\$ 202,868,409	\$ 167,950,865	\$ 141,712,989	\$ 121,563,225
6%	\$ 398,092,744	\$ 306,689,791	\$ 259,724,604	\$ 242,789,609	\$ 196,879,460	\$ 163,051,711	\$ 137,554,541
7%	\$ 508,683,703	\$ 382,573,317	\$ 318,836,008	\$ 296,074,518	\$ 235,080,733	\$ 190,948,989	\$ 158,263,296
8%	\$ 659,193,264	\$ 484,397,957	\$ 397,412,037	\$ 366,628,733	\$ 285,036,048	\$ 227,007,745	\$ 184,741,745
9%	\$ 865,350,586	\$ 621,791,177	\$ 502,370,346	\$ 460,475,593	\$ 350,590,117	\$ 273,726,650	\$ 218,639,367

RATIO OF AAL TO CURRENT VALUATION:

Ultimate Healthcare Cost Trend Scenarios	Discount Rate Scenarios						
	2%	3%	3.7%	4%	5%	6%	7%
3%	120.8%	99.5%	88.0%	83.7%	71.6%	62.2%	54.8%
4%	141.6%	114.5%	100.0%	94.7%	79.8%	68.5%	59.6%
5%	172.3%	136.1%	117.1%	110.2%	91.2%	77.0%	66.0%
6%	216.3%	166.6%	141.1%	131.9%	107.0%	88.6%	74.7%
7%	276.3%	207.8%	173.2%	160.8%	127.7%	103.7%	86.0%
8%	358.1%	263.1%	215.9%	199.2%	154.8%	123.3%	100.4%
9%	470.1%	337.8%	272.9%	250.1%	190.5%	148.7%	118.8%

Notes:

1. Trend rate scenarios are for ultimate trend assumptions in Year 2025 and later. Trend rates for Years 2019 to 2024 as per valuation report.
2. Current valuation results are based on the current discount rate and trend assumptions for the valuation.
3. Current valuation results illustrated as of July 1, 2017, and reflects additional sensitivity analysis beyond required for GASB 74 & 75.



SECTION X: THIRTY (30) ADDITIONAL SCENARIOS BASED ON TREND AND RETIREE CONTRIBUTIONS

VALUATION RESULTS FOR THE ACTUARIAL ACCRUED LIABILITY (AAL):

Valuation Date: July 1, 2017

Future Retirees Contribution Rates	<u>Ultimate Healthcare Cost Trend Scenarios</u>					
	<u>4%</u>	<u>5%</u>	<u>9%</u>	<u>11%</u>	<u>13%</u>	<u>15%</u>
8.0%	\$ 193,747,636	\$ 228,026,902	\$ 540,881,961	\$ 906,677,408	\$ 1,600,042,840	\$ 2,964,337,869
10.0%	\$ 192,174,922	\$ 226,041,964	\$ 534,996,064	\$ 896,114,983	\$ 1,580,503,174	\$ 2,927,001,097
20.0%	\$ 184,311,342	\$ 216,118,906	\$ 505,567,519	\$ 843,304,086	\$ 1,482,805,187	\$ 2,740,316,872
30.0%	\$ 176,448,211	\$ 206,195,522	\$ 476,138,590	\$ 790,492,942	\$ 1,385,107,317	\$ 2,553,632,966
40.0%	\$ 168,585,149	\$ 196,271,993	\$ 446,710,042	\$ 737,682,092	\$ 1,287,409,271	\$ 2,366,948,834

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

Current Valuation Contribution Rates & Trend: \$ 184,082,202

Future Retirees Contribution Rates	<u>Ultimate Healthcare Cost Trend Scenarios</u>					
	<u>4%</u>	<u>5%</u>	<u>9%</u>	<u>11%</u>	<u>13%</u>	<u>15%</u>
8%	\$ 9,665,434	\$ 43,944,700	\$ 356,799,759	\$ 722,595,206	\$ 1,415,960,638	\$ 2,780,255,667
10%	\$ 8,092,720	\$ 41,959,762	\$ 350,913,862	\$ 712,032,781	\$ 1,396,420,972	\$ 2,742,918,895
20%	\$ 229,140	\$ 32,036,704	\$ 321,485,317	\$ 659,221,884	\$ 1,298,722,985	\$ 2,556,234,670
30%	\$ (7,633,991)	\$ 22,113,320	\$ 292,056,388	\$ 606,410,740	\$ 1,201,025,115	\$ 2,369,550,764
40%	\$ (15,497,053)	\$ 12,189,791	\$ 262,627,840	\$ 553,599,890	\$ 1,103,327,069	\$ 2,182,866,632

RATIO OF AAL TO CURRENT VALUATION:

Future Retirees Contribution Rates	<u>Ultimate Healthcare Cost Trend Scenarios</u>					
	<u>4%</u>	<u>5%</u>	<u>9%</u>	<u>11%</u>	<u>13%</u>	<u>15%</u>
8%	105.3%	123.9%	293.8%	492.5%	869.2%	1610.3%
10%	104.4%	122.8%	290.6%	486.8%	858.6%	1590.1%
20%	100.1%	117.4%	274.6%	458.1%	805.5%	1488.6%
30%	95.9%	112.0%	258.7%	429.4%	752.4%	1387.2%
40%	91.6%	106.6%	242.7%	400.7%	699.4%	1285.8%

Notes:

1. Trend rate scenarios are for ultimate trend assumptions in Year 2025 and later. Trend rates for Years 2019 to 2024 as per valuation report.
2. Current valuation results are based on the current discount rate, trend assumptions and retiree contribution rates for the valuation.
3. Updates to future retiree contribution rates only. Current retirees based on current percentages.
4. Current valuation results illustrated as of July 1, 2017, and reflects additional sensitivity analysis beyond required for GASB 74 & 75.