



**AQUARIUS
CAPITAL**

CHAPPAQUA CENTRAL SCHOOL DISTRICT

OTHER POSTEMPLOYMENT BENEFITS (OPEB)

REPORTING IN ACCORDANCE WITH GASB 75

FISCAL YEAR

JULY 1, 2018 TO JUNE 30, 2019

**Prepared by: AQUARIUS CAPITAL SOLUTIONS GROUP LLC
Date: May 24, 2019**

May 24, 2019

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, 2018 to June 30, 2019

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, 2018 to June 30, 2019. 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 was the first year of implementation for GASB 75 for the District.

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, 2019 is \$186.3 million, which is based on the projected pay-as-you-go number for fiscal year July 1, 2018 to June 30, 2019 as reported by the District.

Pages 1-2 of the report illustrate the financial projections for the plan as of year-end June 30, 2019 to assist your auditors with accounting for the respective plan year. The report also includes the actuarially determined contribution (page 3), deferred inflows/outflows calculation (page 4) and sensitivity for discount and trend rates (page 5). Although the auditors may only require pages 1-5, 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 May 2019. This is based on a total of 1,009 employees, reflecting the sum of 604 active employees and 405 retired employees. The active population reflects approximately 56.7% of the unfunded accrued liability above, with 183 employees or 30.3% of these actives eligible for retirement. Details of census demographic information are illustrated further in the report on pages 8-10.

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 was 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, 2020 since these rates were 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. The District does not reimbursement for the Income Related Monthly Adjustment Amount (IRMAA) amount, which is the excess/income adjusted portion of the Medicare Part B premium.

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 IV (pages 5-6) of the report includes a sensitivity analysis as of fiscal year-end June 30, 2019 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 3.5%, 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 3.7%. Details of the discount rate assumption are described further in the report in Section V, page 11.

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 18 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 19 of the report.

The ultimate healthcare inflation rates for all seventy-nine (79) scenarios on pages 18-19 are applied for years 2026 and later. All other assumptions are based on the valuation assumptions in the report. These scenarios are illustrated as of July 1, 2018, 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 17 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, 2018 to June 30, 2019 is the second year of implementation under GASB 75, so there is an actuarial gain/loss analysis included on page 7 of the report. Furthermore, calculations of deferred inflows/outflow are illustrated on page 4 of the report.

On page 7 (Section V) of the valuation report, we illustrate an actuarial gain of \$5.5 million (or 2.9% decrease in the June 30, 2018 UAL). This reflects the decrease in the UAL (or OPEB Liability) as of July 1, 2018 as compared to the UAL as reported in the prior year valuation report roll forward to yearend June 30, 2018. The primary drivers of the liability decrease are due the following:

- Change in assumptions (e.g., premium rates for the current year) as compared to the prior year valuation;
- Change in demographics (e.g., average years of service for actives, enrollment by tier); and
- Change plan provisions (e.g., eligibility, contribution rates).

The above liability decreases were partially offset by the liability increase due to the change in discount rate from 3.7% to 3.5% based on the prescribed requirements under GASB 75 as well as the increased number of employee lives valued since the prior valuation.

Details of the actuarial loss including financial projections for each component above, are illustrated on page 7 of the report. The amortization of the actuarial gain/loss is reflected in the financial statements on page 4 of the report under the deferred inflows/outflows.

Demographic Information

Section VI 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 74.5 years, which reflects an average age of 61.5 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 48.6 years and average years of service of 12.3.
- Of the active population, 30.3% of the population (183 employees) is eligible to retire.
- 75.0% actives and 69.9% retirees valued were female.
- Active population includes 124 employees that opted-out of coverage.

The report also includes a comparison of demographics from the prior valuation report, i.e., the July 1, 2017 valuation. See page 10 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 VII-IX. This includes assumptions for health care costs (premium rates through June 30, 2020 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 fifteen additional years for mortality projection consistent with current industry trends in the market.

For additional details on assumptions and definitions, see pages 11-16.

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 12 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, 2020 for the Consortium plan), collective bargaining contracts by bargaining unit, audited financial statements as of June 30, 2018, 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, 2019 reflects the projected pay-as-you-go results for fiscal year July 1, 2018 to June 30, 2019.

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 May 2019 for actives and retirees with details illustrated in Section VI 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 sole purpose of calculating 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 sole intention, i.e., reporting of GASB 75 for financial statements for the District.

A summary of benefits and eligibility are provided in this documentation for illustrative purposes in order to understand the types of benefits reflected in the valuation. We recommend reviewing the District's plan document and collective bargaining agreements for details on eligibility and covered benefits. Information in this report should not be used instead of the District's plan document and/or summary plan description (SPD) when evaluating benefits.

This report does not reflect the impact of GASB 45 since the District migrated to GASB 75 for fiscal year July 1, 2017 to June 30, 2018. Furthermore, the payroll number reported in this valuation is based on a snapshot of annualized payroll information and not actual payroll paid to employees throughout the year.

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 L. Chow
May 24, 2019
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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 reporting of GASB 75 results 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, 2018

CHAPPAQUA CENTRAL SCHOOL DISTRICT

GASB NO. 75

VALUATION AS OF JULY 1, 2018

Prepared by: Aquarius Capital Solutions Group LLC
May 24, 2019



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Chappaqua Central School District
Valuation Roll Forward under GASB No. 74/75 Projected to Year End June 30, 2019

SECTION I: GASB NO. 74/75 REPORTING TO YEAR END JUNE 30, 2019 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, 2019

1 Discount Rate		3.50%
2 Present Value of Future Benefits as of Year End June 30, 2019	\$	225,270,673
3 Total OPEB Liability as of Year End June 30, 2019	\$	186,315,788
4 Plan Fiduciary Net Position as of Year End June 30, 2019	\$	-
5 Net OPEB Liability as of Year End June 30, 2019: (3) - (4)	\$	186,315,788
6 Plan Fiduciary Net Position as a Percentage of OPEB Liability: (4) / (3)		0.00%
7 Total Annual Salary (Compensation) based on Prior Valuation Report	\$	60,350,801
8 Net OPEB Liability as a Percentage of Annual Salary: (5) / (7)		308.72%
9 Total Employee Census Counts for Valuation		
a. Active Employees		604
b. Retired Employees (including vested terminations)		405
c. Subtotal: (8a) + (8b)		<u>1,009</u>

Section B: Projected Expense Calculation as of Year End June 30, 2019

1 Service Cost with Interest - Period July 1, 2018 to June 30, 2019	\$	2,527,367
2 Interest Cost - Period July 1, 2018 to June 30, 2019		
a. Discount Rate		3.50%
b. Total OPEB Liability as of July 1, 2018	\$	182,074,851
c. Actual Benefit Payments - Illustrated as Project for Period July 1, 2018 to June 30, 2019	\$	4,578,919
d. Interest Cost: (2a) x [(2b) - (2c) / 2]	\$	6,292,489
3 Investment Return - Period July 1, 2018 to June 30, 2019	\$	-
4 Employee Contributions - Period July 1, 2018 to June 30, 2019 (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: Page 4, Section B, Line 4	\$	(608,682)
b. Asset (Gain)/Loss: Page 4, Section B, Line 4	\$	-
c. Net (Gain)/Loss: (7a) - (7b)	\$	<u>(608,682)</u>
8 Total Expense - Period July 1, 2018 to June 30, 2019 (1) + (2d) + (3) + (4) + (5) + (6) + (7c)	\$	8,211,174

Note:

Results reflect a roll forward based on the prior year's valuation report with an issue date of .



Chappaqua Central School District
Valuation Roll Forward under GASB No. 74/75 Projected to Year End June 30, 2019

SECTION I: GASB NO. 74/75 REPORTING TO YEAR END JUNE 30, 2019 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, 2019

	<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)	\$ 187,552,988	\$ -	\$ 187,552,988
2 Changes Recognized for Fiscal Year			
a. Service Cost	\$ 2,527,367	\$ -	\$ 2,527,367
b. Interest on Total OPEB Liability: Section B, Line 2d	\$ 6,292,489	\$ -	\$ 6,292,489
c. Change in Benefit Terms: Section B, Line 6	\$ -	\$ -	\$ -
d. Change in Expected to Actual	\$ -	\$ -	\$ -
e. Changes in Assumptions	\$ (5,478,137)	\$ -	\$ (5,478,137)
f. Benefit Payments: Section B, Line 2c	\$ (4,578,919)	\$ -	\$ (4,578,919)
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)	\$ (1,237,200)	\$ -	\$ (1,237,200)
3 Balance Recognized as of End Year - June 30, 2019 (1) + (2k)	\$ 186,315,788	\$ -	\$ 186,315,788

Notes:

- a. Employee contributions are illustrated above as zero since employer contributions are illustrated net of employee contributions.
- b. This fiscal year is the second year of implementation for GASB No. 75 with deferred inflows or outflows of resources illustrated on page 4.
- c. Line 2(e) reflects change in discount rate and updates in collective bargaining agreements from prior valuation to current valuation.



SECTION II: ACTUARIALLY DETERMINED CONTRIBUTION

Summary of Financial Results for Fiscal Year July 1, 2018 to June 30, 2019

1 Discount Rate (See Page 1, Section A, Line 1 of Report)	3.50%
2 Net OPEB Liability Amortization Factor (Present Value 30 Years at 3.5%, as of the Beginning of Year)	19.0358
3 Net OPEB Liability as of Beginning of Fiscal Year (See Page 1, Section B, Line 2b)	\$ 182,074,851
4 Service Cost with Interest (See Page 1, Section B, Line 1)	\$ 6,292,489
5 30 Year Amortization of Net OPEB Liability (3) / (2) * [1 + (1)]	\$ 9,899,635
6 Actuarially Determined Contribution (4) + (5)	\$ 16,192,124
7 Projected Pay-As-You-Go for Fiscal Year July 1, 2018 to June 30, 2019 (See Page 1, Section B, Line 2c)	\$ 4,578,919
8 Total Annual Payroll (See Page 1, Section A, Line 7)	\$ 60,350,801



SECTION III: SUMMARY OF DEFERRED INFLOWS & OUTFLOWS

Section A: Summary of Deferred Inflows & Outflows as of June 30, 2019

	<u>Deferred Outflows</u>	<u>Deferred Inflows</u>
1 Difference Between Actual and Expected Experience	\$ -	\$ -
2 Net Difference Between Expected and Actual Earnings on OPEB Investments	\$ -	\$ -
3 Impact due to Changes in Assumptions (Page 2, Line 2e)	\$ (5,478,137)	\$ -
4 Subtotal: (1) + (2) + (3)	\$ (5,478,137)	\$ -

Section B: Amortization of Deferred Inflows & Outflows as of June 30, 2019

1 Amortization of Difference Between Actual and Expected Experience		
a. Difference Between Actual and Expected Experience	\$ -	
b. Amortization Period in Years: Average Expected Future Working Lifetime		9 Years
c. Annual Amortization Payment for Current Period: (1a) / (1b)	\$ -	
d. Remaining Balance as of the end of the Fiscal Year: (1a) - (1c)	\$ -	
e. Prior Year Amortization Payment	\$ -	
f. Total Amortization Payment for the Current and Prior Periods: (1c) + (1e)	\$ -	
2 Amortization of Net Difference Between Expected and Actual Earnings on OPEB Investments		
a. Difference Between Actual and Expected Experience	\$ -	
b. Amortization Period in Years (Five Years)		5 Years
c. Annual Amortization Payment: (2a) / (2b)	\$ -	
d. Remaining Balance as of the end of the Fiscal Year: (2a) - (2c)	\$ -	
e. Prior Year Amortization Payment	\$ -	
f. Total Amortization Payment for the Current and Prior Periods: (2c) + (2e)	\$ -	
3 Amortization of Impact due to Changes in Assumptions		
a. Impact due to Changes in Assumptions	\$ (5,478,137)	
b. Amortization Period in Years: Average Expected Future Working Lifetime		9 Years
c. Annual Amortization Payment: (3a) / (3b)	\$ (608,682)	
d. Remaining Balance as of the end of the Fiscal Year: (3a) - (3c)	\$ (4,869,455)	
e. Prior Year Amortization Payment	\$ -	
f. Total Amortization Payment for the Current and Prior Periods: (3c) + (3e)	\$ (608,682)	
4 Amortization of Deferred Outflows & Inflows of Resources for Current Year		
a. Amortization of Deferred Outflows of Resources: (1f) + (3f)	\$ (608,682)	
b. Amortization of Deferred Inflows of Resources: (2f)	\$ -	

Notes:

1. The prior valuation did not have any deferred outflows or deferred inflows. As a result, lines 1e, 2e and 3e are zero.
2. The current fiscal year reflects the impact of changes in discount rate since the prior valuation.



SECTION IV: SUMMARY OF SENSITIVITY ANALYSIS FOR DISCOUNT RATE AND HEALTHCARE COST INFLATION

(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, 2019

	Current Valuation Discount Rate <u>3.50%</u>	Discount Rate Less 1% <u>2.50%</u>	Discount Rate Plus 1% <u>4.50%</u>
1 Total OPEB Liability as of Year End June 30, 2019			
a. OPEB Liability	\$ 186,315,788	\$ 229,775,265	\$ 154,384,363
b. Ratio to Current Valuation Assumptions	n/a	123.33%	82.86%
2 Plan Fiduciary Net Position as of Year End June 30, 2019			
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, 2019			
a. OPEB Liability: (1a) - (2a)	\$ 186,315,788	\$ 229,775,265	\$ 154,384,363
b. Ratio to Current Valuation Assumptions	n/a	123.33%	82.86%

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, 2019

	Current Valuation Discount Rate	Trend Rate Less 1%	Trend Rate Plus 1%
1 OPEB Liability as of Year End June 30, 2019			
a. OPEB Liability	\$ 186,315,788	\$ 152,788,608	\$ 236,476,639
b. Ratio to Current Valuation Assumptions	n/a	82.01%	126.92%
2 Plan Fiduciary Net Position as of Year End June 30, 2019			
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, 2019			
a. OPEB Liability: (1a) - (2a)	\$ 186,315,788	\$ 152,788,608	\$ 236,476,639
b. Ratio to Current Valuation Assumptions	n/a	82.01%	126.92%

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



SECTION IV: SUMMARY OF SENSITIVITY ANALYSIS FOR DISCOUNT RATE AND HEALTHCARE COST INFLATION (CONTINUED)

Summary of Financial Results with Sensitivity Analysis (July 1, 2018 Valuation Date)	Base Scenario Val. Discount Rate of <u>3.50%</u>	Sensitivity Analysis Val. Discount Rate of <u>4.50%</u>	Sensitivity Analysis Val. Discount Rate of <u>2.50%</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	604	604	604	604	604
b. Retirees	405	405	405	405	405
c. Subtotal	1,009	1,009	1,009	1,009	1,009
2 Present Value of Future Benefits (PVFB) as of July 1, 2018					
a. Actives	\$ 143,249,376	\$ 108,522,959	\$ 192,757,644	\$ 197,079,970	\$ 108,728,761
b. Retirees	\$ 78,904,946	\$ 70,664,760	\$ 88,841,492	\$ 88,365,801	\$ 71,608,695
c. Subtotal	\$ 222,154,322	\$ 179,187,719	\$ 281,599,136	\$ 285,445,771	\$ 180,337,456
d. % Actives as ratio of Subtotal	64.5%	60.6%	68.5%	69.0%	60.3%
e. Sensitivity Analysis of Subtotal: Ratio to Base Scenario for PVFB		80.7%	126.8%	128.5%	81.2%
3 Accrued Liability (AL) as of July 1, 2018					
a. Actives	\$ 103,169,905	\$ 79,552,126	\$ 136,892,189	\$ 141,180,426	\$ 78,698,801
b. Retirees	\$ 78,904,946	\$ 70,664,760	\$ 88,841,492	\$ 88,365,801	\$ 71,608,695
c. Subtotal	\$ 182,074,851	\$ 150,216,886	\$ 225,733,681	\$ 229,546,227	\$ 150,307,496
d. % Actives as ratio of Subtotal	56.7%	53.0%	60.6%	61.5%	52.4%
e. Sensitivity Analysis of Subtotal: Ratio to Base Scenario for AL		82.5%	124.0%	126.1%	82.6%
4 Assets as of July 1, 2018	\$ -	\$ -	\$ -	\$ -	\$ -
5 Unfunded Accrued Liability (UAL) (3c) - (4)	\$ 182,074,851	\$ 150,216,886	\$ 225,733,681	\$ 229,546,227	\$ 150,307,496
6 Service Cost with Interest					
a. Service Cost at Year End:	\$ 2,527,367	\$ 2,089,662	\$ 3,034,397	\$ 3,555,344	\$ 1,879,400
b. Ratio to Valuation Results for Service Cost		82.7%	120.1%	140.7%	74.4%
7 Pay-As-You-Go Benefits - Illustrated as Projected	\$ 4,578,919	\$ 4,578,919	\$ 4,578,919	\$ 4,578,919	\$ 4,578,919
8 Ratio of AL to Pay-As-You-Go: (3c) / (7)	39.76	32.81	49.30	50.13	32.83
9 Ratio of Service Cost to Pay-As-You-Go: (6a) / (7)	0.55	0.46	0.66	0.78	0.41
10 Average Annual Pay-As-You-Go Benefit per Retiree (7) / (1b)	\$ 11,306	\$ 11,306	\$ 11,306	\$ 11,306	\$ 11,306
11 Three Year Projection of Pay-As-You-Go Costs					
a. Year 1: July 1, 2018 to June 30, 2019: (7)	\$ 4,578,919	\$ 4,578,919	\$ 4,578,919	\$ 4,578,919	\$ 4,578,919
b. Year 2: July 1, 2019 to June 30, 2020	\$ 4,626,620	\$ 4,626,620	\$ 4,626,620	\$ 4,626,620	\$ 4,626,620
c. Year 3: July 1, 2020 to June 30, 2021	\$ 4,890,473	\$ 4,890,473	\$ 4,890,473	\$ 4,895,434	\$ 4,885,547
12 Discount Rate	3.50%	4.50%	2.50%	3.50%	3.50%
13 Interest Cost for Fiscal Year July 1, 2018 to June 30, 2019 (3c) x (12) - (7) x (12) / 2; excludes interest on service cost	\$ 6,292,489	\$ 6,656,734	\$ 5,586,106	\$ 7,953,987	\$ 5,180,631
14 Accrued Liability (AL) as of June 30, 2019 (3c) + (6a) - (7) + (13)	\$ 186,315,788	\$ 154,384,363	\$ 229,775,265	\$ 236,476,639	\$ 152,788,608
15 Assets as of June 30, 2019	\$ -	\$ -	\$ -	\$ -	\$ -
16 Unfunded Accrued Liability (UAL) as of June 30, 2019 (14) - (15)	\$ 186,315,788	\$ 154,384,363	\$ 229,775,265	\$ 236,476,639	\$ 152,788,608
17 Present Value of Future Benefits (PVFB) as of June 30, 2019 (2c) x [1 + (12)] - (7) x [1 + (12) / 2]	\$ 225,270,673	\$ 182,569,222	\$ 284,002,959	\$ 290,777,323	\$ 181,990,217

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



SECTION V: SUMMARY OF ACTUARIAL GAIN/LOSS ANALYSIS COMPARED TO THE PRIOR VALUATION

Summary of Experienced (Gain)/Loss as of July 1, 2018

1 Unfunded Accrued Liability (UAL) as of July 1, 2018 (See Page 4, Line 5 of Report)	\$ 182,074,851
2 Projected Unfunded Accrued Liability as of June 30, 2018 (Reflects prior valuation under GASB75 projected to June 30, 2018)	\$ 187,552,988
3 Experience (Gain)/Loss on Unfunded Accrued Liability as of July 1, 2018 (1) - (2)	\$ (5,478,137)
4 Ratio of (Gain)/Loss to Prior Valuation Unfunded Accrued Liability (3) / (2)	-2.9%
5 Distribution of Experience (Gain)/Loss as of July 1, 2018	
a. Impact due to change in discount rate from 3.7% to 3.5% for the current valuation as prescribed under GASB 75	\$ 7,169,874
b. Impact due to change in premium rates as compared to projections from the prior valuation	(7,100,919)
c. Change in demographics for the active population (e.g., reduction in years of service) since the prior valuation	(2,274,630)
d. Changes in other demographics (e.g., employee counts, enrollment by tier), assumptions and plan provisions (e.g., eligibility, contribution rates)	<u>(3,272,462)</u>
e. Subtotal: (5a) + (5b) + (5c) + (5d)	\$ (5,478,137)

Note:

Actuarial (gain)/loss above is illustrated at the beginning of the fiscal year (i.e., valuation date) for comparison with the prior valuation.



SECTION VI: SUMMARY OF CENSUS INFORMATION

Summary of Retiree Enrollment, by Age Band and Status, calculated as of July 1, 2018

<u>Age Band</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>	<u>% Female</u>
Under 50	1	-	1	100.0%
50 to 54	-	-	-	n/a
55 to 59	7	5	12	58.3%
60 to 64	28	13	41	68.3%
65 to 69	64	22	86	74.4%
70 to 74	59	24	83	71.1%
75 to 79	45	25	70	64.3%
80 to 84	25	7	32	78.1%
85 to 89	35	14	49	71.4%
90 to 94	16	10	26	61.5%
95 +	<u>3</u>	<u>2</u>	<u>5</u>	<u>60.0%</u>
Subtotal	283	122	405	69.9%

	<u>Female</u>	<u>Male</u>	<u>Total</u>	<u>% Female</u>
Pre 65	36	18	54	66.7%
Post 65	<u>247</u>	<u>104</u>	<u>351</u>	<u>70.4%</u>
Subtotal	283	122	405	69.9%
% Pre-65 Retirees	12.7%	14.8%	13.3%	

	<u>Female</u>	<u>Male</u>	<u>Total</u>
Average Age - Pre 65	61.0	61.2	61.1
Average Age - Post 65	76.3	77.2	76.5
Average Age - Total	74.3	74.8	74.5

Note: The valuation reflects twelve (12) surviving dependents.



SECTION VI: SUMMARY OF CENSUS INFORMATION (CONTINUED)

Summary Active Employees by Age Band and Years of Service, calculated as of July 1, 2018

<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	8	-	-	-	-	-	-	-	8	1.3%
25 to 29	15	1	-	-	-	-	-	-	16	2.6%
30 to 34	30	6	2	-	-	-	-	-	38	6.3%
35 to 39	26	9	28	9	-	-	-	-	72	11.9%
40 to 44	23	8	25	20	5	-	-	-	81	13.4%
45 to 49	15	12	10	34	15	2	-	-	88	14.6%
50 to 54	17	12	24	25	13	6	2	-	99	16.4%
55 to 59	16	8	25	20	15	9	3	2	98	16.2%
60 to 64	2	1	22	20	16	8	3	-	72	11.9%
Age 65 +	1	2	6	10	5	1	3	4	32	5.3%
Subtotal	153	59	142	138	69	26	11	6	604	100.0%
% Subtotal	25.3%	9.8%	23.5%	22.8%	11.4%	4.3%	1.8%	1.0%	100.0%	

<u>Actives</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>
Average Age:	48.6	48.8	48.6
Average Years of Service:	11.6	14.5	12.3

<u>Count by Gender</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>	<u>% Female</u>
Total	453	151	604	75.0%

<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	47	183	74.3%
Total	453	151	604	75.0%
% Actives Eligible for Benefits	30.0%	31.1%	30.3%	

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



SECTION VI: SUMMARY OF CENSUS INFORMATION (CONTINUED)

Comparison of Census Information to the Prior Valuation

	<u>July 1, 2018</u>	<u>July 1, 2017</u>	<u>Difference</u>	<u>% Difference</u>
<u>Summary of Counts</u>				
Actives	604 *	600	4	0.7%
Retirees (including Surviving Spouses)	<u>405</u>	<u>395</u>	<u>10</u>	<u>2.5%</u>
Total	1,009	995	14	1.4%
Retiree Counts - % Pre-65	13.3%	13.7%	-0.4%	-2.9%
<u>Average Age</u>				
o Actives - Valuation Age	48.6	48.4	0.2	0.4%
o Actives - Age at Hire	36.3	36.2	0.1	0.3%
o Pre-65 Retirees	61.1	61.5	(0.4)	-0.7%
o Post-65 Retirees	76.6	76.4	0.2	0.3%
o Total Retirees	74.5	74.4	0.1	0.1%
<u>Actives Avg. Years of Service</u>	12.3	12.2	0.1	0.8%
<u>Actives Eligible for Benefits</u>				
o Total	183	179	4	2.2%
% Eligible for Benefits	30.3%	29.8%	0.5%	1.7%
<u>Gender</u>				
% Female - Active	75.0%	75.5%	-0.5%	-0.7%
% Female - Retiree	69.9%	69.1%	0.8%	1.2%

*Note: Thirty-eight (38) employees were impacted by the eligibility (e.g., years of service) change effective for July 1, 2018 for new hires.



SECTION VII: SUMMARY OF ASSUMPTIONS

Municipality	Chappaqua Central School District ("District")		
Valuation Date	July 1, 2018		
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 had replaced GASB No. 45 in the prior fiscal year. Our organization was the consulting actuary for the prior year valuation.		
Discount Rate	3.5%	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 at 3.79%, S&P Municipal Bond 20 Year High Grade Rate Index at 3.29%, Fidelity GA AA 20 Years at 3.42%) as of March 29, 2019. The discount rate for the prior valuation was 3.7%.	
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. Subsidized dental and vision coverage are not provided in retirement with dental and vision solely provided on a retiree pay-all-basis with no implicit or explicit subsidy assumed for these ancillary coverages. For detailed and accurate description of benefits, we recommend that you review the District's plan documents for determining benefits, eligibility, etc. Summaries in this report are illustrative and solely to assist the reviewer to understand the types of benefits that were valued and reflected in this report. These summaries should not be used for any other purposes.		
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. The District is one of fourteen (14) participating schools districts, including Putnam Northern Westchester BOCES, to participate in the Consortium health plan.		
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
	July 1, 2020	7.0%	7.0%
	July 1, 2026 & 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, 2018 to June 30, 2019 for year 1 and plan year July 1, 2019 to June 30, 2020 for Year 2. Both plan years were reflected in the valuation since known premium cost to the District. Medical insured monthly premiums for pre-65 and post-65 retirees for the Consortium are illustrated on page 16 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, 2020 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 49 and an average age for retirees post-65 of age 76 for purposes of developing aging for the valuation. The prior valuation under GASB 75 reflected 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 VII: 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 does not reimburse for the Income Related Monthly Adjustment Amount (IRMAA) amount. The July 1, 2017 valuation reflected an assumption for reimbursement for IRMAA. The District confirmed this valuation that IRMAA was not a reimbursable benefit.
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 reported eight (8) retirees receiving benefits and rates were reflected for these individuals as reported. Retiree life insurance coverage is provided on a fully insured basis through Mutual of Omaha.
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 2019 and projected increases in costs from 2020 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 the District were valued.
Census Information	Participant data was provided by your organization in May 2019. We relied on information as being accurate and we have not conducted any data audits.



SECTION VII: 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., May 2019) 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) YOS, which is based on the current contracts as provided by your organization. For CCT, COSA, Teaching Assistants, and RN/PT, the retirement eligibility increases to fifteen (15) YOS for dates of hire after July 1, 2018 while CSEA increases to ten (10) YOS. The Administration group remains unchanged at five (5) YOS as of July 1, 2018 and is assumed to continue until the next bargaining period for valuation purposes. Thirty-eight (38) employees were impacted by the eligibility (e.g., years of service) change effective for July 1, 2018 for new hires.

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%
2018 to 2019	17.00%	13.50%	16.50%	21.00%
2019 to 2020	17.50%	14.00%	17.00%	22.00%
2020 to 2021	Assume same as above	Assume same as above	17.50%	Assume same as above

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 District's health plan, contribution rate percentages are as follows for future retirees (single or family) after June 30, 2020:

Division	Future Retiree Contribution %
Teachers (CCT)	17.50%
Clerical (COSA)	14.00%
Administration	22.00%
Custodians (CSEA)	17.00%

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 4.50 years, (i.e., from date of table to the valuation date), plus fifteen (15) 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 VII: 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 the District. The valuation reflects twelve (12) surviving dependents.
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 that all 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 coverage in retirement with no dependents. A total of one hundred and twenty four (124) employees elected opt-out, waiver, declined or not eligible for coverage. All of these individuals are reflected in the valuation.
Leave of Absence	One (1) employee is listed as leave of absence and is assumed to return to work. This individual is reflected as an active employee.
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 retired employees were missing date of birth, so no special adjustments were needed. One (1) active employee was missing date of birth so assumed to have a hire age of thirty-six (36) consistent with the average for the prior valuation.
o Dates of Hire	No active employees were missing date of birth, so no special adjustments were needed.
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. Eleven (11) actives were missing salary, so these individuals were assumed to have the same average salary as other reported active employees for valuation purposes.
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.
Plan Summaries	A summary of benefits and eligibility are provided in this documentation for illustrative purposes in order to understand the types of benefits reflected in the valuation. We recommend reviewing the District's plan document for details on eligibility and covered benefits. Information in this report should not be used instead of the District's plan document and/or summary plan description.
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 VIII: 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 IX: SUMMARY OF PLAN COST ASSUMPTIONS

Summary of Plan Costs by Year - Monthly Fully Insured Rates

Retiree Group	Tier	Plan Year 7/17 to 6/18	Plan Year 7/18 to 6/19	Plan Year 7/19 to 6/20	7/18-o-7/17 % Change	7/19-o-7/18 % Change
<i>Pre-65 Medical/Rx Plans:</i>						
PNWHBC	Single	\$ 731.00	\$ 758.00	\$ 781.00	3.7%	3.0%
	Dual	n/a	1,828.00	1,874.00	n/a	2.5%
	Family	1,828.00	1,979.00	2,044.00	8.3%	3.3%
<i>Post-65 Medical/Rx Plans:</i>						
PNWHBC	Single	\$ 658.00	\$ 681.00	\$ 702.00	3.5%	3.1%
	Family - 2 Medicare	1,462.00	1,431.00	1,475.00	-2.1%	3.1%
Medicare Part B Premium	Per Individual	\$ 134.00	\$ 134.00	\$ 135.50	0.0%	1.1%

Notes:

1. 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.
2. The monthly life insurance premium for Mutual of Omaha reflected 5 retirees at \$2.82/month, 2 at \$70.50/month and 1 at \$211.50/month.



SECTION X: 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, 2018 to June 30, 2019	\$ 182,074,851	\$ 2,527,367	\$ 4,578,919	n/a	\$ 6,292,489	\$ 186,315,788
2 Fiscal Year July 1, 2019 to June 30, 2020	186,315,788	2,603,188	4,626,620	1.0%	6,440,087	190,732,443
3 Fiscal Year July 1, 2020 to June 30, 2021	190,732,443	2,681,284	4,890,473	5.7%	6,590,052	195,113,306
4 Fiscal Year July 1, 2021 to June 30, 2022	195,113,306	2,761,723	5,128,504	4.9%	6,739,217	199,485,742
5 Fiscal Year July 1, 2022 to June 30, 2023	199,485,742	2,844,575	5,338,103	4.1%	6,888,584	203,880,798
6 Fiscal Year July 1, 2023 to June 30, 2024	203,880,798	2,929,912	5,580,780	4.5%	7,038,164	208,268,094
7 Fiscal Year July 1, 2024 to June 30, 2025	208,268,094	3,017,809	5,792,482	3.8%	7,188,015	212,681,436
8 Fiscal Year July 1, 2025 to June 30, 2026	212,681,436	3,108,343	6,009,793	3.8%	7,338,679	217,118,665
9 Fiscal Year July 1, 2026 to June 30, 2027	217,118,665	3,201,593	6,244,173	3.9%	7,489,880	221,565,965
10 Fiscal Year July 1, 2027 to June 30, 2028	221,565,965	3,297,641	6,409,446	2.6%	7,642,643	226,096,803
11 Fiscal Year July 1, 2028 to June 30, 2029	226,096,803	3,396,570	6,718,070	4.8%	7,795,822	230,571,125
12 Fiscal Year July 1, 2029 to June 30, 2030	230,571,125	3,498,467	6,973,204	3.8%	7,947,958	235,044,346
13 Fiscal Year July 1, 2030 to June 30, 2031	235,044,346	3,603,421	7,269,682	4.3%	8,099,333	239,477,418
14 Fiscal Year July 1, 2031 to June 30, 2032	239,477,418	3,711,524	7,618,229	4.8%	8,248,391	243,819,104
15 Fiscal Year July 1, 2032 to June 30, 2033	243,819,104	3,822,870	7,924,159	4.0%	8,394,996	248,112,811
16 Fiscal Year July 1, 2033 to June 30, 2034	248,112,811	3,937,556	8,462,817	6.8%	8,535,849	252,123,399
17 Fiscal Year July 1, 2034 to June 30, 2035	252,123,399	4,055,683	8,911,073	5.3%	8,668,375	255,936,384
18 Fiscal Year July 1, 2035 to June 30, 2036	255,936,384	4,177,353	9,291,130	4.3%	8,795,179	259,617,786
19 Fiscal Year July 1, 2036 to June 30, 2037	259,617,786	4,302,674	9,838,740	5.9%	8,914,445	262,996,165
20 Fiscal Year July 1, 2037 to June 30, 2038	262,996,165	4,431,754	10,269,198	4.4%	9,025,155	266,183,876
21 Subtotal - Projected Pay-As-You-Go for Twenty Years: (1) + ... + (20)			\$ 137,875,595			

Notes:

1. Projections are based on the current census population and valuation assumptions. Group is assumed to be closed group with no new hires solely for projection purposes.
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. No plan design, contribution rate or eligibility changes are assumed other than illustrated in the Assumptions section (e.g., only known collective bargaining changes are reflected, etc.)
5. Plan fiduciary net position (assets) is zero so not illustrated in the projects.



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

VALUATION RESULTS FOR THE ACTUARIAL ACCRUED LIABILITY (AAL)

Valuation Date: July 1, 2018

Ultimate Healthcare Cost Trend Scenarios	Discount Rate Scenarios						
	2%	3%	3.5%	4%	5%	6%	7%
3%	\$ 211,855,130	\$ 172,345,204	\$ 156,761,563	\$ 143,316,599	\$ 121,458,862	\$ 104,628,258	\$ 91,408,533
4%	\$ 253,735,789	\$ 202,120,905	\$ 182,074,851	\$ 164,945,942	\$ 137,474,920	\$ 116,690,686	\$ 100,630,695
5%	\$ 317,002,577	\$ 246,368,855	\$ 219,390,610	\$ 196,580,784	\$ 160,545,458	\$ 133,816,045	\$ 113,544,985
6%	\$ 404,845,163	\$ 307,093,864	\$ 270,312,018	\$ 239,509,397	\$ 191,513,451	\$ 156,563,522	\$ 130,525,612
7%	\$ 523,781,575	\$ 388,186,079	\$ 337,861,356	\$ 296,088,846	\$ 231,827,175	\$ 185,833,126	\$ 152,137,585
8%	\$ 685,677,137	\$ 496,955,165	\$ 427,819,779	\$ 370,913,264	\$ 284,425,939	\$ 223,536,262	\$ 179,641,187
9%	\$ 908,088,840	\$ 644,174,319	\$ 548,695,688	\$ 470,737,723	\$ 353,633,293	\$ 272,491,321	\$ 214,903,877

RATIO OF AAL TO CURRENT VALUATION:

Ultimate Healthcare Cost Trend Scenarios	Discount Rate Scenarios						
	2%	3%	3.5%	4%	5%	6%	7%
3%	116.4%	94.7%	86.1%	78.7%	66.7%	57.5%	50.2%
4%	139.4%	111.0%	100.0%	90.6%	75.5%	64.1%	55.3%
5%	174.1%	135.3%	120.5%	108.0%	88.2%	73.5%	62.4%
6%	222.4%	168.7%	148.5%	131.5%	105.2%	86.0%	71.7%
7%	287.7%	213.2%	185.6%	162.6%	127.3%	102.1%	83.6%
8%	376.6%	272.9%	235.0%	203.7%	156.2%	122.8%	98.7%
9%	498.7%	353.8%	301.4%	258.5%	194.2%	149.7%	118.0%

Notes:

1. Trend rate scenarios are for ultimate trend assumptions in Year 2026 and later. Trend rates for Years 2020 to 2025 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, 2018, and reflects additional sensitivity analysis beyond required for GASB 74 & 75.



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

VALUATION RESULTS FOR THE ACTUARIAL ACCRUED LIABILITY (AAL):

Valuation Date: July 1, 2018

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%	\$ 189,525,864	\$ 228,994,451	\$ 578,128,336	\$ 990,729,157	\$ 1,780,870,761	\$ 3,346,790,035
10.0%	\$ 187,822,708	\$ 226,808,016	\$ 571,516,540	\$ 978,793,849	\$ 1,758,678,889	\$ 3,304,230,075
20.0%	\$ 179,305,832	\$ 215,873,697	\$ 538,456,306	\$ 919,117,384	\$ 1,647,718,262	\$ 3,091,430,073
30.0%	\$ 170,789,604	\$ 204,939,152	\$ 505,395,765	\$ 859,440,901	\$ 1,536,757,929	\$ 2,878,630,789
40.0%	\$ 162,272,981	\$ 194,004,662	\$ 472,335,217	\$ 799,764,623	\$ 1,425,797,476	\$ 2,665,830,701

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

Current Valuation Contribution Rates & Trend: \$ 182,074,851

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%	\$ 7,451,013	\$ 46,919,600	\$ 396,053,485	\$ 808,654,306	\$ 1,598,795,910	\$ 3,164,715,184
10%	\$ 5,747,857	\$ 44,733,165	\$ 389,441,689	\$ 796,718,998	\$ 1,576,604,038	\$ 3,122,155,224
20%	\$ (2,769,019)	\$ 33,798,846	\$ 356,381,455	\$ 737,042,533	\$ 1,465,643,411	\$ 2,909,355,222
30%	\$ (11,285,247)	\$ 22,864,301	\$ 323,320,914	\$ 677,366,050	\$ 1,354,683,078	\$ 2,696,555,938
40%	\$ (19,801,870)	\$ 11,929,811	\$ 290,260,366	\$ 617,689,772	\$ 1,243,722,625	\$ 2,483,755,850

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%	104.1%	125.8%	317.5%	544.1%	978.1%	1838.1%
10%	103.2%	124.6%	313.9%	537.6%	965.9%	1814.8%
20%	98.5%	118.6%	295.7%	504.8%	905.0%	1697.9%
30%	93.8%	112.6%	277.6%	472.0%	844.0%	1581.0%
40%	89.1%	106.6%	259.4%	439.3%	783.1%	1464.1%

Notes:

1. Trend rate scenarios are for ultimate trend assumptions in Year 2026 and later. Trend rates for Years 2020 to 2025 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, 2018, and reflects additional sensitivity analysis beyond required for GASB 74 & 75.