



GASB 75 ACTUARIAL VALUATION

Fiscal Year Ending December 31, 2019

CITY OF BINGHAMTON

CONTACT

Suraj M. Datta, ASA, MAAA
suraj.datta@nyhart.com

ADDRESS

Nyhart
8415 Allison Pointe Blvd. Suite 300
Indianapolis, IN 46250

PHONE

General (317) 845-3500
Toll-Free (800) 428-7106
Fax (317) 845-3654

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May 8, 2020

**Chuck Shager
City of Binghamton
38 Hawley Street
Binghamton, NY 13901**

This report summarizes the GASB actuarial valuation for the City of Binghamton 2019 fiscal year. To the best of our knowledge, the report presents a fair position of the funded status of the plan in accordance with GASB Statement No. 75 (Accounting and Financial Reporting by Employers for Post-Employment Benefits Other Than Pensions).

The information presented herein is based on the actuarial assumptions and substantive plan provisions summarized in this report and participant information furnished to us by the Plan Sponsor. We have reviewed the employee census provided by the Plan Sponsor for reasonableness when compared to the prior information provided but have not audited the information at the source, and therefore do not accept responsibility for the accuracy or the completeness of the data on which the information is based. When relevant data may be missing, we may have made assumptions we feel are neutral or conservative to the purpose of the measurement. We are not aware of any significant issues with and have relied on the data provided.

The discount rate, other economic assumptions, and demographic assumptions have been selected by the Plan Sponsor with the concurrence of Nyhart. In our opinion, the actuarial assumptions are individually reasonable and in combination represent our estimate of anticipated experience of the Plan. All calculations have been made in accordance with generally accepted actuarial principles and practice.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following:

- plan experience differing from that anticipated by the economic or demographic assumptions;
- changes in economic or demographic assumptions;
- increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and
- changes in plan provisions or applicable law.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement.

To our knowledge, there have been no significant events prior to the current year's measurement date or as of the date of this report that could materially affect the results contained herein.



Neither Nyhart nor any of its employees has any relationship with the plan or its sponsor that could impair or appear to impair the objectivity of this report. Our professional work is in full compliance with the American Academy of Actuaries "Code of Professional Conduct" Precept 7 regarding conflict of interest. The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Should you have any questions please do not hesitate to contact us.

A handwritten signature in black ink, appearing to read 'S. Datta'.

Suraj M. Datta, ASA, MAAA
Consulting Actuary

Executive Summary

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Summary of Results

Presented below is the summary of GASB 75 results for the fiscal year ending December 31, 2019 compared to the prior fiscal year as shown in the City's Notes to Financial Statement.

	As of December 31, 2018	As of December 31, 2019
Total OPEB Liability	\$ 65,802,280	\$ 70,099,584
Actuarial Value of Assets	\$ 0	\$ 0
Net OPEB Liability	\$ 65,802,280	\$ 70,099,584
Funded Ratio	0.0%	0.0%

	FY 2018	FY 2019
OPEB Expense	\$ 1,200,799	\$ (4,673,131)
Annual Employer Contributions	\$ 2,867,517	\$ 2,287,801

	As of December 31, 2018	As of December 31, 2019
Discount Rate	4.11%	3.26%
Expected Return on Assets	N/A	N/A

	As of December 31, 2019
Total Active Participants	493
Total Retiree Participants	374

The active participants' number above may include active employees who currently have no health care coverage. Refer to Summary of Participants section for an accurate breakdown of active employees with and without coverage.

Executive Summary

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Summary of Results

Below is a breakdown of total GASB 75 liabilities allocated to past and current service compared to the prior year. The table below also provides a breakdown of the Total OPEB Liability allocated to pre- and post- Medicare eligibility. The liability shown below includes explicit (if any) and implicit subsidies. Refer to the Substantive Plan Provisions section for complete information on the Plan Sponsor's GASB subsidies.

Present Value of Future Benefits	As of December 31, 2018	As of December 31, 2019
Active Employees	\$ 76,589,368	\$ 90,880,267
Retired Employees	25,253,092	29,667,581
Total Present Value of Future Benefits	\$ 101,842,460	\$ 120,547,848

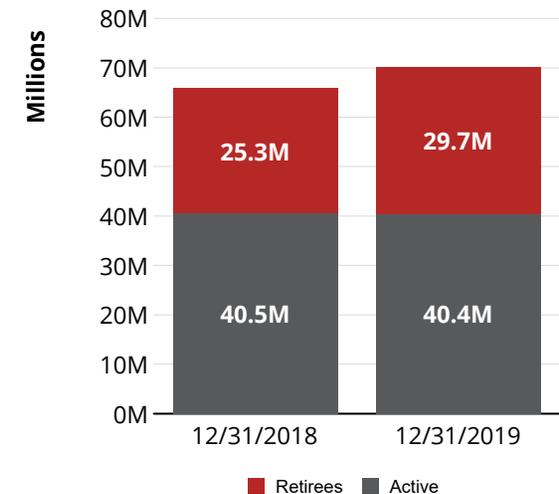
Total OPEB Liability	As of December 31, 2018	As of December 31, 2019
Active Pre-Medicare	\$ 25,921,225	\$ 23,318,272
Active Post-Medicare	14,627,962	17,113,731
Active Liability	\$ 40,549,187	\$ 40,432,003

Retiree Pre-Medicare	\$ 8,965,975	\$ 11,459,492
Retiree Post-Medicare	16,287,118	18,208,089
Retiree Liability	\$ 25,253,093	\$ 29,667,581

Total OPEB Liability	\$ 65,802,280	\$ 70,099,584
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	As of December 31, 2018	As of December 31, 2019
Discount Rate	4.11%	3.26%

Changes In Total OPEB Liability



Present Value of Future Benefits (PVFB) is the amount needed as of December 31, 2019 and December 31, 2018, to fully fund the City's retiree health care subsidies for existing and future retirees and their dependents assuming all actuarial assumptions are met.

Total OPEB Liability is the portion of PVFB considered to be accrued or earned as of December 31, 2019 and December 31, 2018. This amount is a required disclosure in the Required Supplementary Information

GASB Disclosures

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Schedule of Changes in Net OPEB Liability and Related Ratios

OPEB Liability	FY 2019	FY 2018	FY 2017
Total OPEB Liability			
Total OPEB Liability - beginning of year	\$ 65,802,280	\$ 102,233,292	\$ 107,456,019
Service cost	2,895,761	4,416,599	4,538,756
Interest	2,776,949	3,745,694	4,207,633
Change of benefit terms	(4,100,470)	0	(3,818,625)
Changes in assumptions	7,252,913	(8,234,310)	7,988,405
Differences between expected and actual experience	(2,240,048)	(33,491,478)	(14,993,078)
Benefit payments	(2,287,801)	(2,867,517)	(3,145,818)
Net change in total OPEB liability	\$ 4,297,304	\$ (36,431,012)	\$ (5,222,727)
Total OPEB Liability - end of year	\$ 70,099,584	\$ 65,802,280	\$ 102,233,292
Plan Fiduciary Net Position			
Plan fiduciary net position - beginning of year	\$ 0	\$ 0	\$ 0
Contributions - employer	2,287,801	2,867,517	3,145,818
Contributions - active employees	0	0	0
Net investment income	0	0	0
Benefit payments	(2,287,801)	(2,867,517)	(3,145,818)
Trust administrative expenses	0	0	0
Net change in plan fiduciary net position	\$ 0	\$ 0	\$ 0
Plan fiduciary net position - end of year	\$ 0	\$ 0	\$ 0
Net OPEB Liability - end of year	\$ 70,099,584	\$ 65,802,280	\$ 102,233,292
Plan fiduciary net position as % of total OPEB liability	0.0%	0.0%	0.0%
Covered employee payroll	\$ 27,492,208	\$ 29,387,491	\$ 28,811,266
Net OPEB liability as % of covered payroll	255.0%	223.9%	354.8%

GASB Disclosures

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

OPEB Expense

OPEB Expense	FY 2019	FY 2018
Discount Rate		
Beginning of year	4.11%	3.56%
End of year	3.26%	4.11%
Service cost	\$ 2,895,761	\$ 4,416,599
Interest	2,776,949	3,745,694
Change of benefit terms	(4,100,470)	0
Projected earnings on OPEB plan investments	0	0
Reduction for contributions from active employees	0	0
OPEB plan administrative expenses	0	0
Current period recognition of deferred outflows / (inflows) of resources		
Differences between expected and actual experience	\$ (7,246,372)	\$ (6,926,365)
Changes in assumptions	1,001,001	(35,129)
Net difference between projected and actual earnings on OPEB plan investments	0	0
Total current period recognition	\$ (6,245,371)	\$ (6,961,494)
Total OPEB expense	\$ (4,673,131)	\$ 1,200,799

GASB Disclosures

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Deferred Outflows / (Inflows) of Resources

Deferred Outflows / (Inflows) of Resources represents the following items that have not been recognized in the OPEB Expense:

1. Differences between expected and actual experience of the OPEB plan
2. Changes of assumptions
3. Differences between projected and actual earnings in OPEB plan investments (for funded plans only)

The initial amortization period for the first two items noted above is based on expected future service lives while the difference between the projected and actual earnings in OPEB plan investment is amortized over five years. All balances are amortized linearly on a principal only basis and new bases will be created annually for each of the items above.

Differences between expected and actual experience for FYE	Initial Balance	Initial Amortization Period	Annual Recognition	Unamortized Balance as of December 31, 2019
December 31, 2017	\$ (14,993,078)	7	\$ (2,141,868)	\$ (8,567,474)
December 31, 2018	\$ (33,491,478)	7	\$ (4,784,497)	\$ (23,922,484)
December 31, 2019	\$ (2,240,048)	7	\$ (320,007)	\$ (1,920,041)

Changes in assumptions for FYE	Initial Balance	Initial Amortization Period	Annual Recognition	Unamortized Balance as of December 31, 2019
December 31, 2017	\$ 7,988,405	7	\$ 1,141,201	\$ 4,564,802
December 31, 2018	\$ (8,234,310)	7	\$ (1,176,330)	\$ (5,881,650)
December 31, 2019	\$ 7,252,913	7	\$ 1,036,130	\$ 6,216,783

Net Difference between projected and actual earnings in OPEB plan investments for FYE	Initial Balance	Initial Amortization Period	Annual Recognition	Unamortized Balance as of December 31, 2019
December 31, 2017	\$ 0	N/A	\$ 0	\$ 0
December 31, 2018	\$ 0	N/A	\$ 0	\$ 0
December 31, 2019	\$ 0	N/A	\$ 0	\$ 0

GASB Disclosures

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Deferred Outflows / (Inflows) of Resources (Continued)

As of fiscal year ending December 31, 2019	Deferred Outflows	Deferred Inflows
Differences between expected and actual experience	\$ 0	\$ (34,409,999)
Changes in assumptions	10,781,585	(5,881,650)
Net difference between projected and actual earnings in OPEB plan investments	N/A	N/A
Total	\$ 10,781,585	\$ (40,291,649)

Annual Amortization of Deferred Outflows / (Inflows)

The balances as of December 31, 2019 of the deferred outflows / (inflows) of resources will be recognized in OPEB expense in the future fiscal years as noted below.

FYE	Balance
2020	\$ (6,245,371)
2021	\$ (6,245,371)
2022	\$ (6,245,371)
2023	\$ (6,245,375)
2024	\$ (5,244,703)
Thereafter	\$ 716,127

GASB Disclosures

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Sensitivity Results

The following presents the Net OPEB Liability as of December 31, 2019, calculated using the discount rate assumed and what it would be using a 1% higher and 1% lower discount rate.

- The current discount rate is 3.26%.
- The 1% decrease in discount rate would be 2.26%.
- The 1% increase in discount rate would be 4.26%.

As of December 31, 2019	Net OPEB Liability
1% Decrease	\$ 80,782,289
Current Discount Rate	\$ 70,099,584
1% Increase	\$ 61,377,690

The following presents the Net OPEB Liability as of December 31, 2019, using the health care trend rates assumed and what it would be using 1% higher and 1% lower health care trend rates.

- The current health care trend rate starts at an initial rate of 8.00%, decreasing to an ultimate rate of 4.50%.
- The 1% decrease in health care trend rates would assume an initial rate of 7.00%, decreasing to an ultimate rate of 3.50%.
- The 1% increase in health care trend rates would assume an initial rate of 9.00%, decreasing to an ultimate rate of 5.50%.

As of December 31, 2019	Net OPEB Liability
1% Decrease	\$ 59,812,480
Current Trend Rates	\$ 70,099,584
1% Increase	\$ 83,291,080

Projection of GASB Disclosures

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

The Total OPEB Liability (TOL) is expected to change on an annual basis as a result of expected and unexpected events. Under normal circumstances, it is generally expected to have a net increase each year. Below is a list of the most common events affecting the total OPEB liability and whether they increase or decrease the liability.

Expected Events

- Increases in TOL due to additional benefit accruals as employees continue to earn service each year
- Increases in TOL due to interest as the employees and retirees age
- Decreases in TOL due to benefit payments

Unexpected Events

- Increases in TOL when actual premium rates increase more than expected. A liability decrease occurs when the reverse happens.
- Increases in TOL when more new retirements occur than expected or fewer terminations occur than anticipated. Liability decreases occur when the opposite outcomes happen.
- Increases or decreases in TOL depending on whether benefits are improved or reduced.

Projection of Total OPEB Liability (TOL)	FY 2019	FY 2020
TOL as of beginning of year	\$ 65,802,280	\$ 70,099,584
Normal cost as of beginning of year	2,895,761	3,407,897
Exp. benefit payments during the year	(2,287,801)	(2,377,795)
Interest adjustment to end of year	2,776,949	2,357,897
Exp. TOL as of end of year	\$ 69,187,189	\$ 73,487,583
Actuarial Loss / (Gain)	912,395	TBD
Actual TOL as of end of year	\$ 70,099,584	\$ TBD

Discount rate as of beginning of year	4.11%	3.26%
Discount rate as of end of year	3.26%	TBD

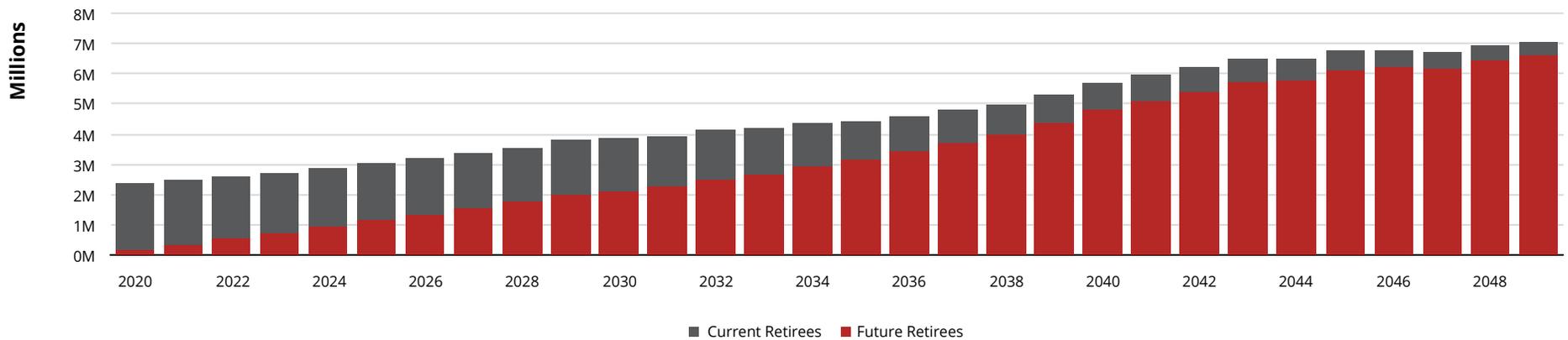
Cash Flow Projections

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

The below projections show the actuarially estimated employer-paid contributions for retiree health benefits for the next thirty years. Results are shown separately for a closed group of current/future retirees. These projections include explicit and implicit subsidies.

FYE	Current Retirees	Future Retirees*	Total	FYE	Current Retirees	Future Retirees*	Total	FYE	Current Retirees	Future Retirees*	Total
2020	\$ 2,220,123	\$ 157,672	\$ 2,377,795	2030	\$ 1,779,236	\$ 2,104,177	\$ 3,883,413	2040	\$ 882,666	\$ 4,821,442	\$ 5,704,108
2021	\$ 2,125,571	\$ 332,674	\$ 2,458,245	2031	\$ 1,661,443	\$ 2,281,830	\$ 3,943,273	2041	\$ 840,673	\$ 5,102,126	\$ 5,942,799
2022	\$ 2,040,000	\$ 530,817	\$ 2,570,817	2032	\$ 1,638,760	\$ 2,492,185	\$ 4,130,945	2042	\$ 797,375	\$ 5,429,895	\$ 6,227,270
2023	\$ 1,965,517	\$ 719,969	\$ 2,685,486	2033	\$ 1,555,562	\$ 2,630,383	\$ 4,185,945	2043	\$ 753,312	\$ 5,739,763	\$ 6,493,075
2024	\$ 1,937,202	\$ 916,586	\$ 2,853,788	2034	\$ 1,432,656	\$ 2,916,824	\$ 4,349,480	2044	\$ 708,751	\$ 5,808,754	\$ 6,517,505
2025	\$ 1,894,387	\$ 1,144,772	\$ 3,039,159	2035	\$ 1,239,464	\$ 3,151,509	\$ 4,390,973	2045	\$ 664,376	\$ 6,133,389	\$ 6,797,765
2026	\$ 1,871,362	\$ 1,324,570	\$ 3,195,932	2036	\$ 1,183,668	\$ 3,412,515	\$ 4,596,183	2046	\$ 595,305	\$ 6,213,659	\$ 6,808,964
2027	\$ 1,854,552	\$ 1,518,418	\$ 3,372,970	2037	\$ 1,120,837	\$ 3,685,377	\$ 4,806,214	2047	\$ 551,038	\$ 6,207,227	\$ 6,758,265
2028	\$ 1,797,327	\$ 1,749,272	\$ 3,546,599	2038	\$ 1,008,048	\$ 3,964,420	\$ 4,972,468	2048	\$ 508,118	\$ 6,443,198	\$ 6,951,316
2029	\$ 1,803,225	\$ 1,986,580	\$ 3,789,805	2039	\$ 947,729	\$ 4,348,436	\$ 5,296,165	2049	\$ 466,845	\$ 6,622,285	\$ 7,089,130

Projected Employer Pay-go Cost



* Projections for future retirees do not take into account future new hires.

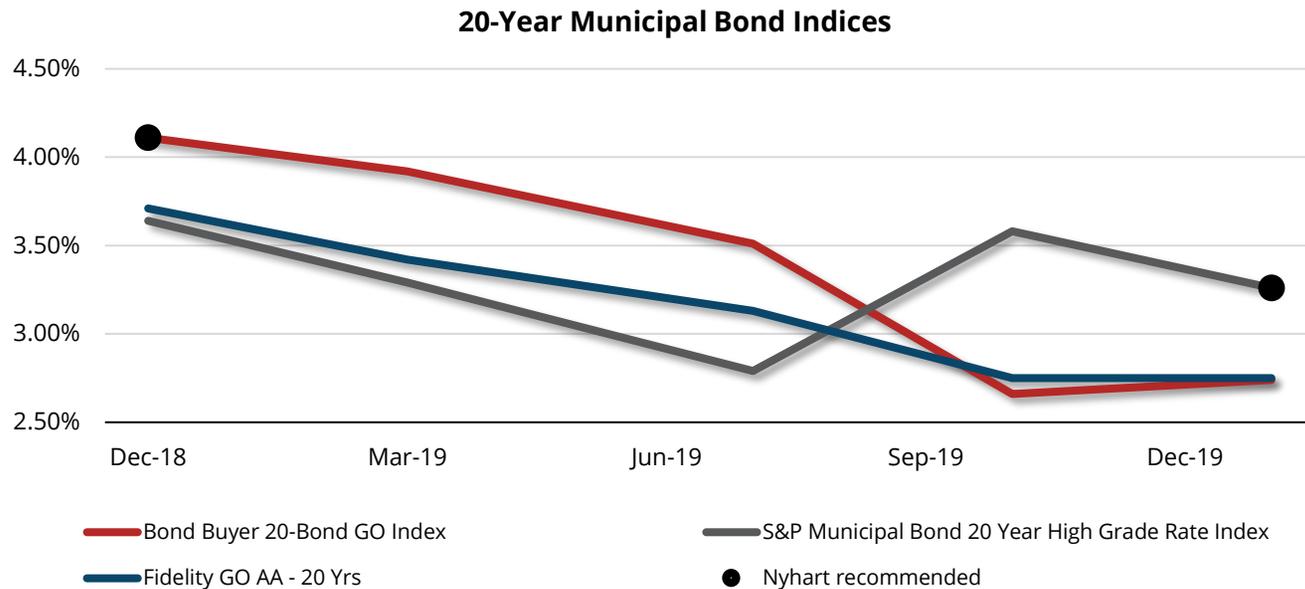
Discussion of Discount Rates

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Under GASB 75, the discount rate used in valuing OPEB liabilities for unfunded plans as of the Measurement Date must be based on a yield for 20-year tax-exempt general obligation municipal bonds with an average rating of AA /Aa or higher (or equivalent quality on another rating scale).

For the current valuation, the discount rate was selected from the range of indices as shown in the table below, where the range is given as the spread between the lowest and highest rate shown.

	Bond Buyer Go 20-Bond Municipal Bond Index	S&P Municipal Bond 20-Year High Grade Rate Index	Fidelity 20-Year Go Municipal Bond Index	Bond Index Range	Actual Discount Rate Used
Yield as of January 1, 2019	4.11%	3.64%	3.71%	3.64% - 4.11%	4.11%
Yield as of December 31, 2019	2.74%	3.26%	2.75%	2.74% - 3.26%	3.26%



Summary of Plan Participants

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Active Employees

Actives with coverage	Single	Non-Single	Total	Avg. Age	Avg. Svc	Salary
Classic	28	97	125	48.7	18.6	\$ 9,377,826
PPO B	68	50	118	36.7	5.3	\$ 7,015,456
HDHP	15	8	23	37.0	4.8	\$ 1,161,960
PPO Teamsters	44	100	144	46.6	14.8	\$ 6,560,260
Total actives with coverage	155	255	410	43.8	12.7	\$ 24,115,502

Actives without coverage	Total	Avg. Age	Avg. Svc	Salary
City	81	41.4	8.5	\$ 3,307,874
Teamsters	2	65.3	25.8	\$ 68,832
Total actives without coverage	83	42.0	8.9	\$ 3,376,706

Active employees who currently have no coverage are assumed not to elect coverage at retirement. They have been excluded from the GASB valuation.

Summary of Plan Participants

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Active Age-Service Distribution

Age	Years of Service										Total	
	< 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up		
Under 25	11	7										18
25 to 29	9	30	11									50
30 to 34	9	31	29	2								71
35 to 39	7	13	19	25	5	1						70
40 to 44	3	7	12	19	26	2						69
45 to 49	1	5	5	12	23	10	8					64
50 to 54	2	4	3	6	12	12	8	3				50
55 to 59	4	2	4	5	11	8	6	8	2			50
60 to 64	2	4	2	6	9	2	1	4	6	3		39
65 to 69				2	3	2				2		9
70 & up		2		1								3
Total	48	105	85	78	89	37	23	15	8	5		493

Summary of Plan Participants

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Retirees

Retirees with coverage	Single	Non-Single	Total	Avg. Age
PPO B	25	38	63	57.3
PPO Teamsters	2	4	6	62.9
Medicare PPO	142	163	305	73.2
Total retirees with coverage	169	205	374	70.4

Retirees enrollment above excludes 17 beneficiaries over the age of 65 who are paying 100% of the cost of coverage and do not generate any GASB liabilities. They have been excluded from the GASB valuation.

Retiree Age Distribution

Age	Retirees
< 45	1
45 to 49	10
50 to 54	13
55 to 59	18
60 to 64	50
65 to 69	99
70 to 74	83
75 to 79	42
80 to 84	34
85 to 89	12
90 & up	12
Total	374

Substantive Plan Provisions

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Eligibility

Employees are eligible for lifetime retiree health benefits once they meet the following eligibility requirements:

1. Civil service:
 - a. Hired prior to 1/1/2007 – eligible to retire based on New York State Employees Retirement System (NYS ERS) eligibility requirements and have 10 years of service
 - b. Hired on/after 1/1/2007 – age 55 with 20 years of service and eligible to retire based on NYS ERS eligibility requirements
2. Teamsters Blue Collar and Supervisory Unit:
 - a. Hired prior to 1/1/2007 – age 55 with 10 years of service and eligible to retire based on NYS ERS eligibility requirements
 - b. Hired on/after 1/1/2007 – age 55 with 20 years of service and eligible to retire based on NYS ERS eligibility requirements
3. Police and Firefighters – 20 years of service
4. Management and Non-Union:
 - a. Hired prior to 1/1/2009 – eligible to retire based on NYS ERS eligibility requirements and have 10 years of service
 - b. Hired on/after 1/1/2009 – age 55 with 20 years of service and eligible to retire based on NYS ERS eligibility requirements

Spouse Benefit

Retiree health coverage continues to surviving spouses of retirees or active employees eligible to retire. Surviving spouses are required to pay the full cost of coverage.

Retiree Cost Sharing

Retirees are required to contribute the portion of premiums not covered by the City's explicit subsidy.

Explicit Subsidy

City pays 70% of the premiums.

Substantive Plan Provisions

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Medical Benefits

Same benefit options are offered to retirees as active employees. The City's pre-Medicare health plans are self-insured. Teamsters health plan and City's post-Medicare health plan are fully-insured and partially experience-rated. The monthly premiums by plan effective on January 1, 2020 are as shown below.

Plan	Groups	Single	2-person*
BCBS PPO B	Pre-65 City or Teamsters Blue Collar retirees	\$ 730.00	\$ 1,765.00
BCBS Preferred Provider PPO	Pre-65 Teamsters retirees	\$ 1,906.26	\$ 3,822.22
BCBS Medicare PPO	Post-65 City or Teamsters Blue Collar retirees	\$ 206.13	\$ 412.26

* City's pre-65 premium rate shown under this column is for family coverage (the City only has 2-tier coverage level: single and family).

Excise Tax

On December 20, 2019, the Further Consolidated Appropriations Act of 2020 was passed in the US Senate. This bill included a repeal of the excise tax on high cost employer sponsored health coverage (also known as the Cadillac tax). For this reason, the impact of the tax on GASB 75 OPEB liabilities has been removed. Previously the City was held liable for 40% of the difference between the plan costs and the cost threshold, when the plan costs were greater than the plan threshold.

Actuarial Methods and Assumptions

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

The actuarial assumptions used in this report represent a reasonable long-term expectation of future OPEB outcomes. As national economic and City experience change over time, the assumptions will be tested for ongoing reasonableness and, if necessary, updated.

There are changes to the actuarial methods and assumptions since the last full GASB valuation, which was for the fiscal year ending December 31, 2017. Refer to Actuary's Notes section for complete information on these changes. For the current year GASB valuation, we have also updated the per capita costs. We expect to update discount rate, health care trend rates, mortality table, and per capita costs again in the next full GASB valuation, which will be for the fiscal year ending December 31, 2021.

Measurement Date	For fiscal year ending December 31, 2019, a December 31, 2019 measurement date was used.
Actuarial Valuation Date	December 31, 2019 with no adjustments to get to the December 31, 2019 measurement date. Liabilities as of January 1, 2019 are based on an actuarial valuation date of January 1, 2018 projected to January 1, 2019 on a "no loss / no gain" basis.
Discount Rate	3.26% as of December 31, 2019 and 4.11% as of January 1, 2019 for accounting disclosure purposes. Refer to the Discussion of Discount Rates section for more information on selection of the discount rate.
Payroll Growth	2.00% per year
Inflation Rate	3.00% per year
Cost Method	Allocation of Actuarial Present Value of Future Benefits for services prior and after the Measurement Date was determined using Entry Age Normal Level % of Salary method where: <ul style="list-style-type: none">• Service Cost for each individual participant, payable from date of employment to date of retirement, is sufficient to pay for the participant's benefit at retirement; and• Annual Service Cost is a constant percentage of the participant's salary that is assumed to increase according to the Payroll Growth.
Employer Funding Policy	Pay-as-you-go cash basis
Census Data	Census information was provided by the City and it was provided in March 2020. We have reviewed it for reasonableness and no material modifications were made to the census data except that participants who were indicated as beneficiaries in the last full valuation are assumed to be beneficiaries in this year's valuation.

Actuarial Methods and Assumptions

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Experience Study

Best actuarial practices call for a periodic assumption review and Nyhart recommends the City to complete an actuarial assumption review (also referred to as an experience study) prior to the fiscal year ending December 31, 2021 valuation. While some assumptions (termination and retirement rates) are the same as those used in the NYS ERS actuarial valuation and are updated as soon as these assumptions are updated, Nyhart recommends that these assumptions be validated against the City's actual historical experience.

Mortality

General Retirees: SOA Pub-2010 Headcount-weighted Total Dataset Mortality Table fully generational using Scale MP-2019

Surviving Spouses: SOA Pub-2010 Headcount-weighted Contingent Survivor Mortality Table fully generational using Scale MP-2019

Turnover Rate

Assumption used to project terminations (voluntary and involuntary) prior to meeting minimum retirement eligibility for retiree health coverage. The rates represent the probability of termination in the next 12 months. The termination rates are based on assumptions used in the NYS ERS actuarial valuation as of April 1, 2015. Sample annual turnover rates are shown below:

Age	General (All Tiers)				General (Tiers 1 - 4)		General (Tiers 5 - 6)	
	<2 YOS	2 YOS	3 YOS	4 YOS	5 - 9 YOS	10+ YOS	5 - 9 YOS	10+ YOS
25	19.0%	13.5%	9.8%	7.2%	4.4%	1.5%	2.7%	3.0%
30	14.7%	12.6%	9.8%	7.4%	4.3%	1.5%	2.6%	3.1%
35	13.9%	10.5%	8.8%	6.6%	4.3%	1.9%	2.6%	3.8%
40	13.1%	9.3%	7.0%	5.5%	4.0%	1.7%	2.4%	3.3%
45	12.3%	8.3%	6.2%	5.3%	3.6%	1.6%	2.1%	3.1%
50	12.6%	7.8%	6.1%	5.0%	3.2%	1.3%	2.0%	2.6%

YOS	Police / Fire
0	6.9%
5	1.2%
10	0.5%
15	0.3%
20	0.2%
25	0.2%

Actuarial Methods and Assumptions

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Disability None

Health Care Coverage Election Rate Active employees with current coverage: 100%
Active employees with no coverage: 0%

Inactive employees with current coverage: 100%
Inactive employees with no coverage: 0%

Spousal Coverage Spousal age and coverage for current retirees is based on actual data.

75% of male and 25% of female employees are assumed to be married at retirement. Husbands are assumed to be three years older than wives.

Retirement Rate The retirement rates are based on assumptions used in the NYS ERS actuarial valuation as of April 1, 2015. Sample annual turnover rates are shown below:

Age	General (Tiers 1 - 4)			General (Tier 5)			General (Tier 6)		
	<20 YOS	20 - 29 YOS	30+ YOS	<20 YOS	20 - 29 YOS	30+ YOS	<20 YOS	20 - 29 YOS	30+ YOS
55	5.6%	9.3%	39.8%	4.5%	7.5%	39.8%	4.5%	7.5%	39.8%
60	5.3%	8.1%	19.2%	4.2%	6.6%	19.2%	4.2%	6.6%	19.2%
62	13.8%	31.7%	29.7%	29.7%	38.5%	73.0%	9.4%	16.2%	22.2%
65	15.3%	25.3%	20.6%	15.3%	25.3%	20.6%	15.3%	25.3%	20.6%
69	14.3%	23.4%	21.9%	14.3%	23.4%	21.9%	14.3%	23.4%	21.9%
70+	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

YOS	Police / Fire
20	22.9%
25	7.7%
30	7.3%
35	13.3%
40	13.3%
50	100.0%

Actuarial Methods and Assumptions

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Per Capita Costs

For the pre-Medicare annual per capita costs:

- For City's health plan, they were calculated based on the City's monthly premium equivalent rate effective on January 1, 2020 actuarially increased using health index factors and current enrollment.
- For the Teamsters health plan, they were calculated based on Teamsters monthly retiree premium rates effective on January 1, 2020 actuarially increased using health index factors and substitute enrollment that is assumed to represent New York State Teamsters Council Health and Hospital Fund members' demographic make-up.

Post-Medicare annual per capita costs are based on the annualized premiums.

Sample annual per capita costs are as shown below:

Age	Non-Teamsters		Teamsters	
	Male	Female	Male	Female
40	\$ 6,226	\$ 8,718	\$ 10,629	\$ 14,883
45	\$ 7,389	\$ 9,276	\$ 12,615	\$ 15,835
50	\$ 8,870	\$ 10,232	\$ 15,143	\$ 17,467
55	\$ 10,771	\$ 11,176	\$ 18,387	\$ 19,079
60	\$ 12,992	\$ 12,451	\$ 22,178	\$ 21,255
64	\$ 14,506	\$ 13,581	\$ 24,763	\$ 23,185
65+	\$ 2,474	\$ 2,474	\$ 2,474	\$ 2,474

The per capita costs represent the cost of coverage for a retiree-only population.

Actuarial standards require the recognition of higher inherent costs for a retired population versus an active population.

The assumed health plan election at retirement for future retirees is as noted below:

1. City retirees are required to enroll in PPO B at retirement.
2. For Teamsters Blue Collar employees, 75% of them are assumed to elect the City's BCBS PPO B plan at retirement with the remaining 25% electing Teamsters BCBS Preferred Provider PPO prior to Medicare eligibility. Upon Medicare eligibility 100% of them are assumed to elect the City's BCBS Medicare PPO plan.
3. For Teamsters Supervisory employees, all of them are assumed to enroll in the Teamsters BCBS Preferred Provider PPO prior to Medicare eligibility and the City's BCBS Medicare PPO B plan once eligible for Medicare.

The costs are assumed to increase with health care trend rates.

Actuarial Methods and Assumptions

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Health Care Trend Rates

FYE	Medical/Rx	FYE	Medical/Rx
2020	8.0%	2024	6.0%
2021	7.5%	2025	5.5%
2022	7.0%	2026	5.0%
2023	6.5%	2027+	4.5%

The initial trend rate was based on a combination of employer history, national trend surveys, and professional judgment.

The ultimate trend rate was selected based on historical medical CPI information.

Retiree Contributions

Retiree contributions are assumed to increase according to health care trend rates.

Explicit Subsidy

The difference between (a) the premium rate and (b) the retiree contribution. Below is an example of the monthly explicit subsidies for a retiree enrolled in BCBS PPO B.

	Premium Rate	Retiree Contribution	Explicit Subsidy
	A	B = 30% x A	C = A - B
Retiree	\$ 730.00	\$ 219.00	\$ 511.00
Spouse	\$ 1,035.00	\$ 310.50	\$ 724.50

Implicit Subsidy

The difference between (a) the per capita cost and (b) the premium rate. Below is an example of the monthly implicit subsidies for a male non-Teamsters retiree age 64 with spouse of the same age enrolled in BCBS PPO B.

	Per Capita Cost	Premium Rate	Implicit Subsidy
	A	B	C = A - B
Retiree	\$ 1,208.83	\$ 730.00	\$ 478.83
Spouse	\$ 1,131.75	\$ 1,035.00	\$ 96.75

All employers that utilize premium rates based on blended active/retiree claims experience will have an implicit subsidy. There is an exception for Medicare plans using a true community-rated premium rate.

Actuarial Methods and Assumptions

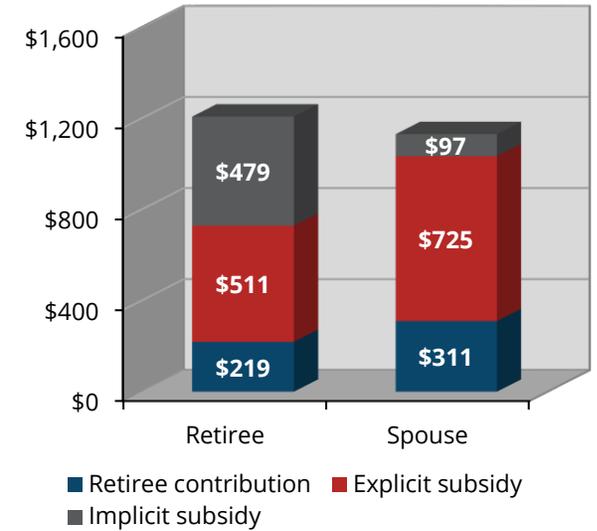
City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

GASB Subsidy Breakdown

Below is a breakdown of the GASB 75 monthly total cost for a male non-Teamsters retiree age 64 with spouse of the same age enrolled in BCBS PPO B.

	Retiree		Spouse	
Retiree contribution	\$	219.00	\$	310.50
Explicit subsidy	\$	511.00	\$	724.50
Implicit subsidy	\$	478.83	\$	96.75
Total monthly cost	\$	1,208.83	\$	1,131.75

GASB Subsidy Breakdown



APPENDIX

The background features a complex geometric design. The top half is a solid dark gray. The bottom half is composed of several overlapping, semi-transparent shapes. On the left, there are white and light gray shapes. On the right, there are large, vibrant red shapes that overlap with the lighter tones. The overall effect is a modern, minimalist aesthetic.

Appendix

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Comparison of Participant Demographic Information

The active participants' number below may include active employees who currently have no health care coverage. Refer to Summary of Participants section for an accurate breakdown of active employees with and without coverage.

	As of December 31, 2017	As of December 31, 2019
Active Participants	511	493
Retired Participants	357	374
Averages for Active		
Age	43.9	43.5
Service	12.8	12.0
Averages for Inactive		
Age	70.3	70.4

Appendix

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

Detailed Actuary's Notes

There has been one substantive plan provision change since the last full valuation, which was for the fiscal year ending December 31, 2017. The required retiree contribution percentage has been increased from 25% to 30% of premium costs. The impact of this change is a decrease in liabilities.

In addition to the above substantive plan provision change, on December 20, 2019, the Further Consolidated Appropriations Act of 2020 was passed in the US Senate. This bill included a repeal of the excise tax on high cost employer sponsored health coverage (also known as the Cadillac tax). For this reason, the impact of the tax on GASB 75 OPEB liabilities has been removed. This change resulted in a decrease in liabilities.

Additionally, the following assumptions have been updated:

1. Mortality table has been updated from SOA RPH-2017 Total Dataset Mortality Table fully generational using scale MP-2017 to SOA Pub-2010 Headcount-weighted Total Dataset Mortality Table fully generational using Scale MP-2019 for general retirees and SOA Pub-2010 Headcount-weighted Contingent Survivor Mortality Table fully generational using Scale MP-2019 for surviving spouses. This caused a slight increase in the City's liabilities.
2. Health care trend rates have been updated from an initial rate of 9.0% decreasing by 0.5% annually to an ultimate rate of 4.5% to an initial rate of 8.0% decreasing by 0.5% annually to an ultimate rate of 4.5%. This change caused an increase in liabilities.
3. Discount rate as of the Measurement Date has been updated to be based on a yield for 20-year tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another rating scale). The prior full valuation used a discount rate of 4.11% as of January 1, 2019. The current full valuation uses a discount rate of 3.26% as of December 31, 2019. This change has caused a significant increase in liabilities for the City.

GLOSSARY

The background features a complex geometric design. The top half is a solid dark gray. Below this, several overlapping triangles in various shades of gray and white create a layered, three-dimensional effect. A prominent bright red triangle is located in the bottom right corner, overlapping the other shapes.

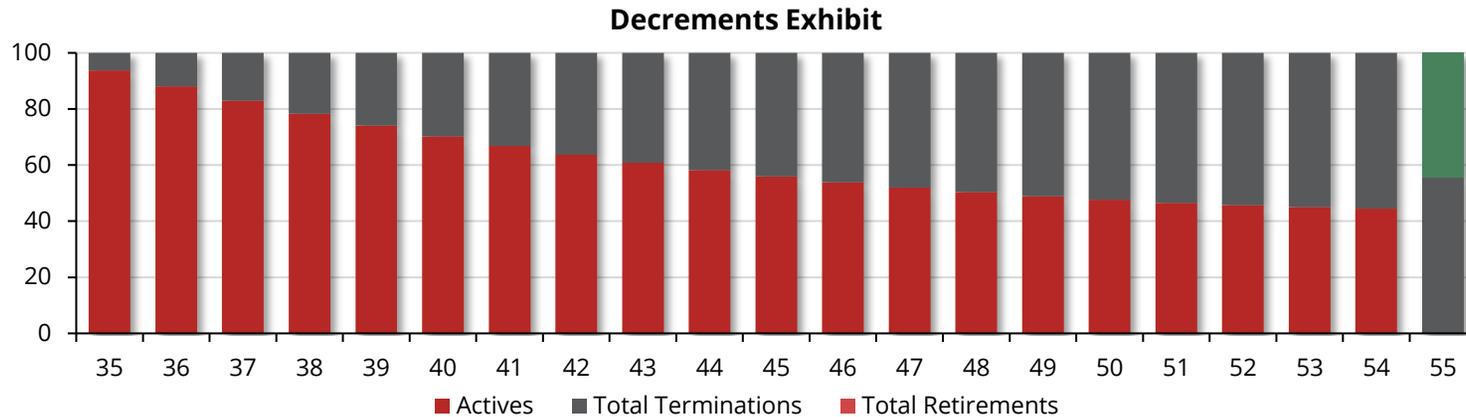
Glossary – Decrements Exhibit

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

The table below illustrates how actuarial assumptions can affect a long-term projection of future liabilities. Starting with 100 employees at age 35, the illustrated actuarial assumptions show that 44.43 employees out of the original 100 are expected to retire and could elect retiree health benefits at age 55.

Age	# Remaining Employees	# of Terminations per Year ¹	# of Retirements per Year	Total Decrements
35	100.000	6.276	0.000	6.276
36	93.724	5.677	0.000	5.677
37	88.047	5.136	0.000	5.136
38	82.911	4.648	0.000	4.648
39	78.262	4.209	0.000	4.209
40	74.053	3.814	0.000	3.814
41	70.239	3.456	0.000	3.456
42	66.783	3.131	0.000	3.131
43	63.652	2.835	0.000	2.835
44	60.817	2.564	0.000	2.564
45	58.253	2.316	0.000	2.316

Age	# Remaining Employees	# of Terminations per Year	# of Retirements per Year	Total Decrements
46	55.938	2.085	0.000	2.085
47	53.853	1.866	0.000	1.866
48	51.987	1.656	0.000	1.656
49	50.331	1.452	0.000	1.452
50	48.880	1.253	0.000	1.253
51	47.627	1.060	0.000	1.060
52	46.567	0.877	0.000	0.877
53	45.690	0.707	0.000	0.707
54	44.983	0.553	0.000	0.553
55	44.430	0.000	44.430	44.430



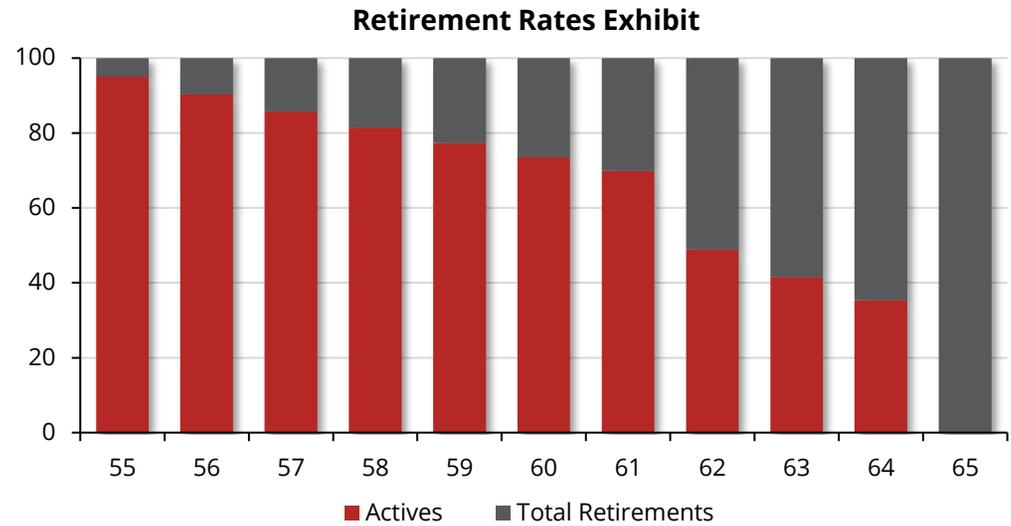
¹ The above rates are illustrative rates and are not used in our GASB calculations.

Glossary – Retirement Rates Exhibit

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

The table below illustrates how actuarial assumptions can affect a long-term projection of future liabilities. The illustrated retirement rates show the number of employees who are assumed to retire annually based on 100 employees age 55 who are eligible for retiree health care coverage. The average age at retirement is 62.0.

Age	Active Employees BOY	Annual Retirement Rates*	# Retirements per Year	Active Employees EOY
55	100.000	5.0%	5.000	95.000
56	95.000	5.0%	4.750	90.250
57	90.250	5.0%	4.513	85.738
58	85.738	5.0%	4.287	81.451
59	81.451	5.0%	4.073	77.378
60	77.378	5.0%	3.869	73.509
61	73.509	5.0%	3.675	69.834
62	69.834	30.0%	20.950	48.884
63	48.884	15.0%	7.333	41.551
64	41.551	15.0%	6.233	35.318
65	35.318	100.0%	35.318	0.000



* The above rates are illustrative rates and are not used in our GASB calculations.

Glossary – Definitions

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

GASB 75 defines several unique terms not commonly employed in the funding of pension and retiree health plans. The definitions of the terms used in the GASB actuarial valuations are noted below.

1. **Actuarial Assumptions** – Assumptions as to the occurrence of future events affecting health care costs, such as: mortality, withdrawal, disablement and retirement; changes in compensation and Government provided health care benefits; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; characteristics of future entrants for Open Group Actuarial Cost Methods; and other relevant items.
2. **Actuarial Cost Method** – A procedure for determining the Actuarial Present Value of Future Benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Service Cost and a Total OPEB Liability.
3. **Actuarially Determined Contribution** - A target or recommended contribution to a defined benefit OPEB plan for the reporting period, determined in accordance with the parameters and in conformity with Actuarial Standards of Practice.
4. **Actuarial Present Value** – The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:
 - a. adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, Social Security, marital status, etc.);
 - b. multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned; and
 - c. discounted according to an assumed rate (or rates) of return to reflect the time value of money.
5. **Deferred Outflow / (Inflow) of Resources** – represents the following items that have not been recognized in the OPEB Expense:
 - a. Differences between expected and actual experience of the OPEB plan
 - b. Changes in assumptions
 - c. Differences between projected and actual earnings in OPEB plan investments (for funded plans only)
6. **Explicit Subsidy** – The difference between (a) the amounts required to be contributed by the retirees based on the premium rates and (b) actual cash contribution made by the employer.
7. **Funded Ratio** – The actuarial value of assets expressed as a percentage of the Total OPEB Liability.

Glossary – Definitions

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

8. **Healthcare Cost Trend Rate** – The rate of change in the per capita health claims costs over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.
9. **Implicit Subsidy** – In an experience-rated healthcare plan that includes both active employees and retirees with blended premium rates for all plan members, the difference between (a) the age-adjusted premiums approximating claim costs for retirees in the group (which, because of the effect of age on claim costs, generally will be higher than the blended premium rates for all group members) and (b) the amounts required to be contributed by the retirees.
10. **OPEB** – Benefits (such as death benefits, life insurance, disability, and long-term care) that are paid in the period after employment and that are provided separately from a pension plan, as well as healthcare benefits paid in the period after employment, regardless of the manner in which they are provided. OPEB does not include termination benefits or termination payments for sick leave.
11. **OPEB Expense** – Changes in the Net OPEB Liability in the current reporting period, which includes Service Cost, interest cost, changes of benefit terms, expected earnings on OPEB Plan investments, reduction of active employees' contributions, OPEB plan administrative expenses, and current period recognition of Deferred Outflows / (Inflows) of Resources.
12. **Pay-as-you-go** – A method of financing a benefit plan under which the contributions to the plan are generally made at about the same time and in about the same amount as benefit payments and expenses becoming due.
13. **Per Capita Costs** – The current cost of providing postretirement health care benefits for one year at each age from the youngest age to the oldest age at which plan participants are expected to receive benefits under the plan.
14. **Present Value of Future Benefits** – Total projected benefits include all benefits estimated to be payable to plan members (retirees and beneficiaries, terminated employees entitled to benefits but not yet receiving them, and current active members) as a result of their service through the valuation date and their expected future service. The actuarial present value of total projected benefits as of the valuation date is the present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment. Expressed another way, it is the amount that would have to be invested on the valuation date so that the amount invested plus investment earnings will provide sufficient assets to pay total projected benefits when due.
15. **Real Rate of Return** – the rate of return on an investment after adjustment to eliminate inflation.

Glossary – Definitions

City of Binghamton GASB 75 Valuation for Fiscal Year Ending December 31, 2019

16. **Select and Ultimate Rates** – Actuarial assumptions that contemplate different rates for successive years. Instead of a single assumed rate with respect to, for example, the investment return assumption, the actuary may apply different rates for the early years of a projection and a single rate for all subsequent years. For example, if an actuary applies an assumed investment return of 8% for year 20W0, then 7.5% for 20W1, and 7% for 20W2 and thereafter, then 8% and 7.5% select rates, and 7% is the ultimate rate.
17. **Service Cost** – The portion of the Actuarial Present Value of projected benefit payments that are attributed to a valuation year by the Actuarial Cost Method.
18. **Substantive Plan** – The terms of an OPEB plan as understood by the employer(s) and plan members.
19. **Total OPEB Liability** – That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of Future Benefits which is attributed to past periods of employee service (or not provided for by the future Service Costs).