



FUNDING, PA 202, AND GASB 74/75

ACTUARIAL VALUATION
Fiscal Year Ending November 30, 2022

CITY OF LIVONIA
RETIREE HEALTH AND
DISABILITY BENEFITS PLAN

CONTACT

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April 13, 2023

**Michael Slater
City of Livonia
33000 Civic Center Drive
Livonia, MI 48154**

This report summarizes the GASB actuarial valuation for the City of Livonia 2021/22 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. 74 (Financial Reporting for Post-Employment Benefit Plans Other Than Pension Plans) and GASB Statement No. 75 (Accounting and Financial Reporting by Employers for Post-Employment Benefits Other Than Pensions). This report may not be appropriate for other purposes. Please contact Nyhart prior to disclosing this report to any other party or relying on its content for any purpose other than that explained above. Failure to do so may result in misrepresentation or misinterpretation of this report.

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. Asset information has been provided to us by the trustee. 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 are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States.

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

A handwritten signature in black ink that reads "John Mallows". The signature is written in a cursive style.

John Mallows, FSA, MAAA
Actuary

A handwritten signature in black ink that reads "Cody Kocher". The signature is written in a cursive style.

Cody Kocher, ASA, MAAA
Actuary

Executive Summary

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Summary of Results

Presented below is the summary of GASB 75 results for the fiscal year ending November 30, 2022 compared to the prior fiscal year as shown in the City's Notes to Financial Statement.

	As of November 30, 2021	As of November 30, 2022
Total OPEB Liability	\$ 204,403,511	\$ 218,392,030
Market Value of Assets	\$ (138,324,771)	\$ (121,774,444)
Net OPEB Liability	\$ 66,078,740	\$ 96,617,586
Funded Ratio	67.7%	55.8%

	FY 2020/21	FY 2021/22
OPEB Expense	\$ (9,439,266)	\$ (8,050,169)
Annual Employer Contributions	\$ 5,529,951	\$ 3,413,483
Actuarially Determined Contribution	\$ 4,031,442	\$ 3,018,366

	As of November 30, 2021	As of November 30, 2022
Discount Rate	7.20%	7.10%
Expected Return on Assets	7.20%	7.10%

	As of November 30, 2022
Total Active Participants	478
Total Retiree Participants	724

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.

* Prior results consistent with the FY 2021 GASB Report and Actuarial Valuation as of 11/30/2021 as provided by Foster and Foster.

Executive Summary

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

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 November 30, 2021	As of November 30, 2022
Active Employees	\$ 65,818,656	\$ 49,078,746
Retired Employees	155,611,087	178,460,878
Total Present Value of Future Benefits	\$ 221,429,743	\$ 227,539,624

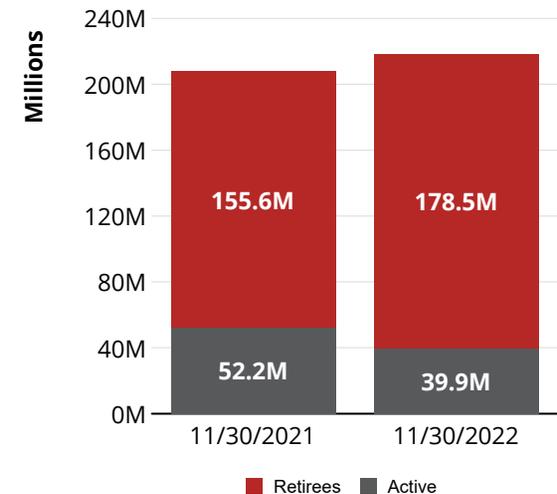
Total OPEB Liability	As of November 30, 2021	As of November 30, 2022
Active Pre-Medicare	\$ 18,490,103	\$ 13,173,279
Active Post-Medicare	33,722,795	26,757,873
Active Liability	\$ 52,212,898	\$ 39,931,152

Retiree Pre-Medicare	\$ 28,178,400	\$ 36,578,078
Retiree Post-Medicare	127,432,687	141,882,800
Retiree Liability	\$ 155,611,087	\$ 178,460,878

Total OPEB Liability	\$ 204,403,511	\$ 218,392,030
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	As of November 30, 2021	As of November 30, 2022
Discount Rate	7.20%	7.10%

Changes In Total OPEB Liability



Present Value of Future Benefits (PVFB) is the amount needed as of November 30, 2022 and November 30, 2021, 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 November 30, 2022 and November 30, 2021. This amount is a required disclosure in the Required Supplementary Information

* Prior results consistent with the FY 2021 GASB Report and Actuarial Valuation as of 11/30/2021 as provided by Foster and Foster.

GASB Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Schedule of Changes in Net OPEB Liability and Related Ratios

OPEB Liability	FY 2021/22	FY 2020/21	FY 2019/20	FY 2018/19	FY 2017/18
Total OPEB Liability					
Total OPEB Liability - beginning of year	\$ 204,403,511	\$ 207,550,435	\$ 211,268,799	\$ 288,458,743	\$ 241,182,425
Service cost	2,003,858	1,638,292	2,753,080	5,782,551	5,181,469
Interest	14,545,843	14,973,640	15,505,638	14,135,767	12,715,690
Change of benefit terms	0	5,428,511	0	0	0
Changes in assumptions	71,910	(10,851,167)	538,411	(74,592,646)	51,279,390
Differences between expected and actual experience	6,285,460	(6,049,507)	(13,380,004)	(14,440,265)	(14,191,268)
Benefit payments	(8,918,552)	(8,286,693)	(9,135,489)	(8,075,351)	(7,708,963)
Net change in total OPEB liability	\$ 13,988,519	\$ (3,146,924)	\$ (3,718,364)	\$ (77,189,944)	\$ 47,276,318
Total OPEB Liability - end of year	\$ 218,392,030	\$ 204,403,511	\$ 207,550,435	\$ 211,268,799	\$ 288,458,743
Plan Fiduciary Net Position					
Plan fiduciary net position - beginning of year	\$ 138,324,771	\$ 122,755,757	\$ 115,581,878	\$ 105,989,115	\$ 110,340,110
Contributions - employer	3,413,483	5,529,951	5,331,203	4,939,531	4,499,322
Contributions - active employees	347,962	375,139	389,287	426,231	473,346
Net investment income	(11,342,121)	18,004,347	10,638,551	12,351,227	(1,556,471)
Benefit payments	(8,918,552)	(8,286,693)	(9,135,489)	(8,075,351)	(7,708,963)
Trust administrative expenses	(51,099)	(53,730)	(49,673)	(48,875)	(58,229)
Net change in plan fiduciary net position	\$ (16,550,327)	\$ 15,569,014	\$ 7,173,879	\$ 9,592,763	\$ (4,350,995)
Plan fiduciary net position - end of year	\$ 121,774,444	\$ 138,324,771	\$ 122,755,757	\$ 115,581,878	\$ 105,989,115
Net OPEB Liability - end of year	\$ 96,617,586	\$ 66,078,740	\$ 84,794,678	\$ 95,686,921	\$ 182,469,628
Plan fiduciary net position as % of total OPEB liability	55.8%	67.7%	59.1%	54.7%	36.7%
Covered employee payroll	\$ 31,908,756	\$ 38,631,666	\$ 36,744,168	\$ 35,774,188	\$ 36,890,435
Net OPEB liability as % of covered payroll	302.8%	171.0%	230.8%	267.5%	494.6%

* Prior results consistent with the FY 2021 GASB Report and Actuarial Valuation as of 11/30/2021 as provided by Foster and Foster unless annual financial statements show amounts that differ.

GASB Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Schedule of Changes in Net OPEB Liability and Related Ratios (Continued)

OPEB Liability	FY 2016/17
Total OPEB Liability	
Total OPEB Liability - beginning of year	\$ 197,133,647
Service cost	4,381,818
Interest	12,061,649
Change of benefit terms	0
Changes in assumptions	24,668,349
Differences between expected and actual experience	9,974,080
Benefit payments	(7,037,118)
Net change in total OPEB liability	\$ 44,048,778
Total OPEB Liability - end of year	\$ 241,182,425
Plan Fiduciary Net Position	
Plan fiduciary net position - beginning of year	\$ 96,645,668
Contributions - employer	5,087,462
Contributions - active employees	484,737
Net investment income	15,195,332
Benefit payments	(7,037,118)
Trust administrative expenses	(35,971)
Net change in plan fiduciary net position	\$ 13,694,442
Plan fiduciary net position - end of year	\$ 110,340,110
Net OPEB Liability - end of year	\$ 130,842,315
Plan fiduciary net position as % of total OPEB liability	45.7%
Covered employee payroll	\$ 34,729,209
Net OPEB liability as % of covered payroll	376.8%

* Prior results consistent with the FY 2021 GASB Report and Actuarial Valuation as of 11/30/2021 as provided by Foster and Foster unless annual financial statements show amounts that differ.

GASB Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Schedule of Employer Contributions

The Actuarially Determined Contributions (ADC) shown below are based on the Annual Required Contribution (ARC) calculated in prior GASB 45 actuarial valuations as shown in the City's financial statements.

	FY 2021/22	FY 2020/21	FY 2019/20	FY 2018/19	FY 2017/18
Actuarially Determined Contribution (ADC)	\$ 3,018,366	\$ 4,031,442	\$ 3,251,858	\$ 4,054,515	\$ 4,018,307
Contributions in relation to the ADC	3,413,483	5,529,951	5,331,203	4,924,890	4,499,324
Contribution deficiency/(excess)	\$ (395,117)	\$ (1,498,509)	\$ (2,079,345)	\$ (870,375)	\$ (481,017)
Covered employee payroll	\$ 31,908,756	\$ 38,631,666	\$ 36,744,168	\$ 35,774,188	\$ 36,890,435
Contribution as a % of covered payroll	10.7%	14.3%	14.5%	13.8%	12.2%

	FY 2016/17	FY 2015/16	FY 2014/15	FY 2013/14	FY 2012/13
Actuarially Determined Contribution (ADC)	\$ 4,517,014	\$ 5,108,040	\$ 5,907,902	\$ 7,066,283	\$ 7,078,024
Contributions in relation to the ADC	5,087,462	4,665,664	5,361,926	6,388,086	6,443,612
Contribution deficiency/(excess)	\$ (570,448)	\$ 442,376	\$ 545,976	\$ 678,197	\$ 634,412
Covered employee payroll	\$ 34,729,209	\$ 31,408,000	\$ 30,560,000	\$ 30,964,000	\$ 32,871,000
Contribution as a % of covered payroll	14.6%	14.9%	17.5%	20.6%	19.6%

*Prior results consistent with the FY 2021 GASB Report and Actuarial Valuation as of 11/30/2021 as provided by Foster and Foster.

GASB Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

OPEB Expense

OPEB Expense	FY 2021/22	FY 2020/21
Discount Rate		
Beginning of year	7.20%	7.30%
End of year	7.10%	7.20%
Service cost		
	\$ 2,003,858	\$ 1,638,292
Interest	14,545,843	14,973,640
Change of benefit terms	0	5,428,511
Projected earnings on OPEB plan investments	(9,775,147)	(8,872,281)
Reduction for contributions from active employees	0	0
OPEB plan administrative expenses	51,099	53,728
Current period recognition of deferred outflows / (inflows) of resources		
Differences between expected and actual experience	\$ (2,339,137)	\$ (14,482,076)
Changes in assumptions	(15,509,522)	(6,928,462)
Net difference between projected and actual earnings on OPEB plan investments	2,972,837	(1,250,618)
Total current period recognition	\$ (14,875,822)	\$ (22,661,156)
Total OPEB expense	\$ (8,050,169)	\$ (9,439,266)

* Prior year results consistent with the FY 2021 GASB Report and Actuarial Valuation as of 11/30/2021 as provided by Foster and Foster.

GASB Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

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 November 30, 2022
November 30, 2017	\$ 0	N/A	\$ 0	\$ 0
November 30, 2018	\$ (14,191,268)	4	\$ (990,088)	\$ 0
November 30, 2019	\$ (14,440,265)	4	\$ (3,281,878)	\$ (1,312,753)
November 30, 2020	\$ (13,380,004)	2	\$ 0	\$ 0
November 30, 2021	\$ (6,049,507)	5	\$ (1,209,901)	\$ (3,629,705)
November 30, 2022	\$ 6,285,460	2	\$ 3,142,730	\$ 3,142,730

Changes in assumptions for FYE	Initial Balance	Initial Amortization Period	Annual Recognition	Unamortized Balance as of November 30, 2022
November 30, 2017	\$ 0	N/A	\$ 0	\$ 0
November 30, 2018	\$ 51,279,390	4	\$ 3,577,630	\$ 0
November 30, 2019	\$ (74,592,646)	4	\$ (16,952,874)	\$ (6,781,150)
November 30, 2020	\$ 538,411	2	\$ 0	\$ 0
November 30, 2021	\$ (10,851,167)	5	\$ (2,170,233)	\$ (6,510,701)
November 30, 2022	\$ 71,910	2	\$ 35,955	\$ 35,955

GASB Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Deferred Outflows / (Inflows) of Resources (Continued)

Net Difference between projected and actual earnings in OPEB plan investments for FYE	Initial Balance	Initial Amortization Period	Annual Recognition	Unamortized Balance as of November 30, 2022
November 30, 2018	\$ 9,727,184	5	\$ 1,945,438	\$ 0
November 30, 2019	\$ (4,520,677)	5	\$ (904,135)	\$ (904,137)
November 30, 2020	\$ (2,327,533)	5	\$ (465,507)	\$ (931,012)
November 30, 2021	\$ (9,132,066)	5	\$ (1,826,413)	\$ (5,479,240)
November 30, 2022	\$ 21,117,268	5	\$ 4,223,454	\$ 16,893,814

As of fiscal year ending November 30, 2022	Deferred Outflows	Deferred Inflows
Differences between expected and actual experience	\$ 3,142,730	\$ (4,942,458)
Changes in assumptions	35,955	(13,291,851)
Net difference between projected and actual earnings in OPEB plan investments	9,579,425	0
Total	\$ 12,758,110	\$ (18,234,309)

Annual Amortization of Deferred Outflows / (Inflows)

The balances as of November 30, 2022 of the deferred outflows / (inflows) of resources will be recognized in OPEB expense in the future fiscal years as noted below.

FYE	Balance
2023	\$ (7,267,955)
2024	\$ (1,448,598)
2025	\$ (983,098)
2026	\$ 4,223,452
2027	\$ 0
Thereafter	\$ 0

GASB Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Sensitivity Results

The following presents the Net OPEB Liability as of November 30, 2022, 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 7.10%.
- The 1% decrease in discount rate would be 6.10%.
- The 1% increase in discount rate would be 8.10%.

As of November 30, 2022	Net OPEB Liability
1% Decrease	\$ 124,762,158
Current Discount Rate	\$ 96,617,586
1% Increase	\$ 73,468,089

The following presents the Net OPEB Liability as of November 30, 2022, 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 7.50%, decreasing to an ultimate rate of 4.50%.
- The 1% decrease in health care trend rates would assume an initial rate of 6.50%, decreasing to an ultimate rate of 3.50%.
- The 1% increase in health care trend rates would assume an initial rate of 8.50%, decreasing to an ultimate rate of 5.50%.

As of November 30, 2022	Net OPEB Liability
1% Decrease	\$ 72,874,542
Current Trend Rates	\$ 96,617,586
1% Increase	\$ 125,332,392

GASB Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Asset Information

Asset Breakdown	FY 2020/21	FY 2021/22
Assets		
Cash and deposits	\$ 129,669	\$ 150,961
Other Short Term Investments	4,743,826	4,363,157
Total cash	\$ 4,873,495	\$ 4,514,118
Receivables		
Receivables	\$ 1,446,811	\$ 440,184
Accrued interest	0	0
Total receivables	\$ 1,446,811	\$ 440,184
Investments		
Fixed income	\$ 34,470,140	\$ 27,998,869
Equities	98,098,598	88,330,818
Other Investments	923,169	946,107
Total investments	\$ 133,491,907	\$ 117,275,794
Total Assets	\$ 139,812,213	\$ 122,230,096
Liabilities		
Payables		
Accounts Payable	\$ 1,487,442	\$ 455,652
Securities lending expense	0	0
Total liabilities	\$ 1,487,442	\$ 455,652
Net Position Restricted to OPEB	\$ 138,324,771	\$ 121,774,444

* Prior year results consistent with the FY 2021 GASB Report and Actuarial Valuation as of 11/30/2021 as provided by Foster and Foster.

GASB Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Asset Information (Continued)

Asset Reconciliation	FY 2020/21	FY 2021/22
Additions		
Contributions Received		
Employer	\$ 5,529,951	\$ 3,413,483
Active employees	375,139	347,962
Total contributions	\$ 5,905,090	\$ 3,761,445
Investment Income		
Net increase in fair value of investments	\$ 15,558,337	\$ (16,644,202)
Interest and dividends	2,822,785	5,640,858
Investment expense, other than from securities lending	(376,775)	(338,777)
Securities lending income	0	0
Securities lending expense	0	0
Net investment income	\$ 18,004,347	\$ (11,342,121)
Total additions	\$ 23,909,437	\$ (7,580,676)
Deductions		
Benefit payments	\$ 8,286,693	\$ 8,918,552
Administrative expenses	53,728	51,099
Other	0	0
Total deductions	\$ 8,340,423	\$ 8,969,651
Net increase in net position	\$ 15,569,014	\$ (16,550,327)
Net position restricted to OPEB		
Beginning of year	\$ 122,755,757	\$ 138,324,771
End of year	\$ 138,324,771	\$ 121,774,444

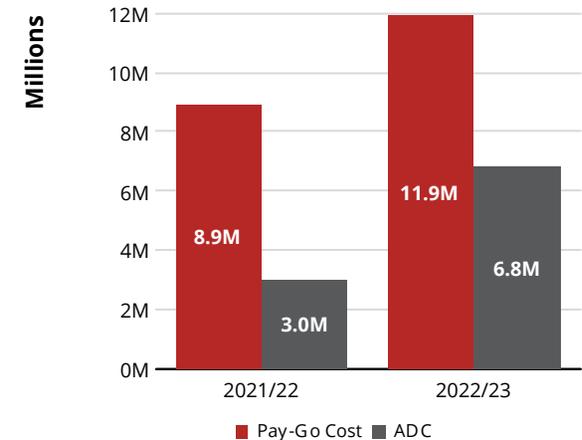
* Prior year results consistent with the FY 2021 GASB Report and Actuarial Valuation as of 11/30/2021 as provided by Foster and Foster.

Actuarially Determined Contributions

City of Livonia GASB 74/75 Valuation For Fiscal Year Ending November 30, 2022

	FY 2021/22	FY 2022/23
Discount rate (Funding)	7.20%	7.10%
Payroll growth factor used for amortization	3.00%	3.00%
Actuarial cost method	Entry Age Normal Level % of Salary	Entry Age Normal Level % of Salary
Amortization type	Level % of Salary	Level % of Salary
Amortization period (years)	26	25
Actuarial Accrued Liability (AAL) - beginning of year	\$ 204,403,511	\$ 218,392,030
Actuarial Value of Assets (AVA) - beginning of year	(129,932,688)	(131,191,254)
Unfunded AAL - beginning of year	\$ 74,470,823	\$ 87,200,776
Normal Cost	\$ 1,350,744	\$ 999,891
Amortization of Unfunded AAL	1,667,622	5,357,195
Total normal cost plus amortization	\$ 3,018,366	\$ 6,357,086
Interest to end of year	0	451,353
Actuarially Determined Contribution - Preliminary	\$ 3,018,366	\$ 6,808,439
Expected Benefit Payments	8,918,552	11,939,498
Actuarially Determined Contribution - Final	\$ 3,018,366	\$ 6,808,439

Cash Vs Accrual Accounting



Actuarially Determined Contribution (ADC) is the target or recommended contribution to a defined benefit OPEB plan, which if paid on an ongoing basis, will provide sufficient resources to fund future costs for services to be earned and liabilities attributed to past services. This is typically higher than the pay-as-you-go cost because it includes recognition of employer costs expected to be paid in future accounting periods.

* Prior year results consistent with the FY 2021 GASB Report and Actuarial Valuation as of 11/30/2021 as provided by Foster and Foster.

Projection of GASB Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

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 health care costs 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 2021/22	FY 2022/23
TOL as of beginning of year	\$ 204,403,511	\$ 218,392,030
Normal cost as of beginning of year	2,003,858	1,347,853
Exp. benefit payments during the year	(8,918,552)	(11,939,498)
Interest adjustment to end of year	14,545,843	15,184,947
Exp. TOL as of end of year	\$ 212,034,660	\$ 222,985,332
Actuarial Loss / (Gain)	6,357,370	TBD
Actual TOL as of end of year	\$ 218,392,030	\$ TBD

Discount rate as of beginning of year	7.20%	7.10%
Discount rate as of end of year	7.10%	TBD

Projection of Actuarial Value of Assets (AVA)	FY 2021/22	FY 2022/23
AVA as of beginning of year	\$ 138,324,771	\$ 121,774,444
Exp. employer contributions during the year	3,413,483	6,808,439
Exp. benefit payments during the year	(8,918,552)	(11,939,498)
Expected investment income	9,775,147	8,477,264
Exp. Trust administrative expenses	(51,099)	(52,545)
Exp. AVA as of end of year	\$ 142,891,712	\$ 125,416,066
Differences between expected and actual experience	(21,117,268)	TBD
AVA as of end of year	\$ 121,774,444	\$ TBD

Expected asset return as of beginning of year	7.20%	7.10%
Expected asset return as of end of year	7.10%	TBD

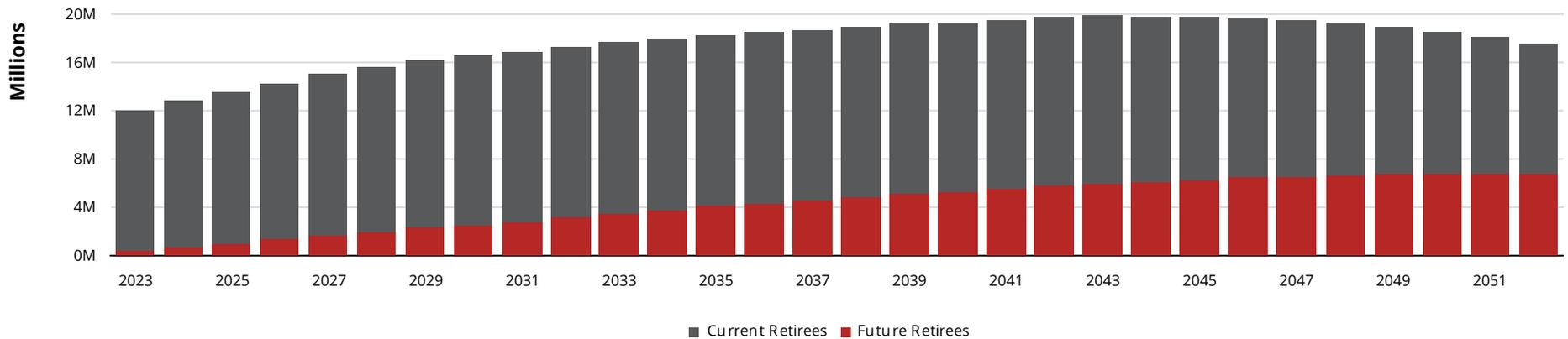
Cash Flow Projections

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

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
2023	\$ 11,533,848	\$ 405,651	\$ 11,939,499	2033	\$ 14,124,234	\$ 3,465,063	\$ 17,589,297	2043	\$ 13,851,889	\$ 5,972,275	\$ 19,824,164
2024	\$ 12,166,074	\$ 715,544	\$ 12,881,618	2034	\$ 14,154,158	\$ 3,753,651	\$ 17,907,809	2044	\$ 13,693,445	\$ 6,088,437	\$ 19,781,882
2025	\$ 12,497,656	\$ 1,007,294	\$ 13,504,950	2035	\$ 14,151,444	\$ 4,072,209	\$ 18,223,653	2045	\$ 13,480,025	\$ 6,233,261	\$ 19,713,286
2026	\$ 12,875,313	\$ 1,321,056	\$ 14,196,369	2036	\$ 14,194,969	\$ 4,328,067	\$ 18,523,036	2046	\$ 13,186,160	\$ 6,436,325	\$ 19,622,485
2027	\$ 13,349,556	\$ 1,665,552	\$ 15,015,108	2037	\$ 14,134,883	\$ 4,509,776	\$ 18,644,659	2047	\$ 12,877,908	\$ 6,539,043	\$ 19,416,951
2028	\$ 13,630,380	\$ 1,942,226	\$ 15,572,606	2038	\$ 14,070,800	\$ 4,840,436	\$ 18,911,236	2048	\$ 12,558,676	\$ 6,603,487	\$ 19,162,163
2029	\$ 13,792,339	\$ 2,289,564	\$ 16,081,903	2039	\$ 14,037,283	\$ 5,154,842	\$ 19,192,125	2049	\$ 12,126,386	\$ 6,715,747	\$ 18,842,133
2030	\$ 14,032,390	\$ 2,549,659	\$ 16,582,049	2040	\$ 13,948,834	\$ 5,283,585	\$ 19,232,419	2050	\$ 11,711,273	\$ 6,796,260	\$ 18,507,533
2031	\$ 14,013,898	\$ 2,809,840	\$ 16,823,738	2041	\$ 13,999,212	\$ 5,497,736	\$ 19,496,948	2051	\$ 11,243,261	\$ 6,800,288	\$ 18,043,549
2032	\$ 14,055,296	\$ 3,198,614	\$ 17,253,910	2042	\$ 13,977,047	\$ 5,782,033	\$ 19,759,080	2052	\$ 10,734,389	\$ 6,746,039	\$ 17,480,428

Projected Employer Pay-go Cost



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

Discussion of Discount Rates

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Under GASB 74, the discount rate used in valuing OPEB liabilities for funded plans as of the Measurement Date must be based on the long-term expected rate of return on OPEB plan investments that are expected to be used to finance future benefit payments to the extent that (a) they are sufficient to pay for the projected benefit payments and (b) the OPEB plan assets are invested using a strategy that will achieve that return. When the OPEB plan investments are insufficient to cover future benefit payments, 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) must be used.

For the current valuation:

The long-term expected rate of return on OPEB Plan investment is assumed to be 7.10%. As of November 30, 2022, the rate of return is consistent with the rate used in the ERS GASB 67&68 disclosure report.

2. The historical returns for four municipal bond indexes are shown below for illustration purposes. These bond indexes, if needed, would have been used to define a range of acceptable discount rates OPEB plans whose funding policy is insufficient to cover projected benefit expenses.

Yield as of	December 1, 2021	November 30, 2022
Bond Buyer Go 20-Bond Municipal Bond Index	2.13%	3.65%
S&P Municipal Bond 20-Year High Grade Rate Index	2.23%	4.19%
Fidelity 20-Year Go Municipal Bond Index	1.86%	3.89%
Bond Index Range	1.86% - 2.23%	3.65% - 4.19%

3. The final equivalent single discount rate used for this year's valuation is 7.10% as of November 30, 2022 and 7.20% as of December 1, 2021 as the OPEB Trust is expected to have sufficient funds to pay for all future projected benefit payments based on the City's funding policy of contributing the ADC annually.

Summary of Plan Participants

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Eligible Active Employees

Actives	Defined Contribution Plan		Defined Benefit Plan	Total	Avg. Age	Avg. Svc	Salary
	Non-RHSP	RHSP					
Eligible for Retiree Health Care	127	4	70	201	53.8	21.8	\$ 16,547,516
Eligible for Disability Benefits Only		277		277	43.6	5.0	\$ 15,361,240

*The 277 active employees participating in the Defined Contribution plan who were hired after the applicable cut-off date and hence, were not eligible to participate and receive retiree health benefits from this plan in future are eligible to receive disability benefits and have been included in the valuation.

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	9	7	1								17
25 to 29	5	13	14								32
30 to 34	3	19	17	5							44
35 to 39	3	9	17	10	8						47
40 to 44	3	7	10	5	12	9					46
45 to 49	5	12	15	3	4	17	3				59
50 to 54	4	13	22	6	10	15	11				81
55 to 59	1	9	14	4	4	5	5	8	4		54
60 to 64		9	15	6	12	12	7	3	1	1	66
65 to 69	1	2	7	3	1	6	1	2	1	1	25
70 & up			1	1		1	3			1	7
Total	34	100	133	43	51	65	30	13	6	3	478

Summary of Plan Participants

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Inactive Employees

Inactives with coverage	Defined Contribution Plan	Defined Benefit Plan	Total	Avg. Age
Retirees	182	495	677	70.9
Inactive Vested participants	28	3	31	49.9
Disabled retirees	8	0	8	63.6
Total inactives with coverage	218	498	716	69.9

Retiree Age Distribution

Age	Retirees
< 45	
45 to 49	6
50 to 54	37
55 to 59	69
60 to 64	100
65 to 69	99
70 to 74	120
75 to 79	104
80 to 84	73
85 to 89	38
90 & up	31
Total	677

Substantive Plan Provisions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Participation

Plan covers all permanent part-time and full-time AFSCME employees hired before 9/8/2011, LPOA employees hired before 11/2/2011, LCOA, Command, LFFU, and District Court employees hired before 12/1/2012. Members hired after these dates participate in a Retiree Health Savings Plan (RHSP) and will not be eligible for retiree health benefits from the VEBA.

Eligibility

Retirement eligibility requirements for **Defined Benefit plan** participants are as shown below:

1. General – earlier of:
 - a. Any age with 30 years of service
 - b. Age 55 with 10 years of service; permanent part-time General members need only 10 calendar years of membership instead of 10 years of credited service
2. Police – earlier of:
 - a. Any age with 25 years of service
 - b. Age 52 with 10 years of service
 - c. Age 50 with 10 years of service but less than 25 years of service (early retirement)
3. Fire – earlier of:
 - a. Any age with 25 years of service
 - b. Age 52 with 10 years of service
 - c. Age 50 with 10 years of service (early retirement)
4. All members: Receipt of disability retirement benefit or death in service survivor benefit

Retirement eligibility requirements for **Defined Contribution plan** participants are as shown below:

1. General: Age 55 with 10 years of service
2. Police – earlier of:
 - a. Any age with 25 years of service
 - b. Age 52 with 10 years of service
3. Fire – earlier of:
 - a. Any age with 27 years of service
 - b. Age 52 with 10 years of service
4. All members: Receipt of disability retirement benefit

Substantive Plan Provisions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Medical Benefits

Effective August 1, 2022, Medicare health plans are fully-insured. Pre-65 health plans and Rx benefits are self-insured. The monthly premium rates by plan effective March 1, 2022 are as shown below.

Health Plans	Non-Medicare		Medicare	
	Single	Dual	Single	Dual
0085	\$ 629.96	\$ 1,511.90	\$ 724.96	\$ 1,449.93
0084	\$ 709.09	\$ 1,701.83	\$ 774.33	\$ 1,548.67
0086	\$ 563.35	\$ 1,352.04	\$ 656.34	\$ 1,312.69
0087	\$ 779.90	\$ 1,871.74	\$ 697.74	\$ 1,395.49
0088	\$ 859.03	\$ 2,061.67	\$ 747.11	\$ 1,494.23
0089	\$ 701.48	\$ 1,683.56	\$ 630.58	\$ 1,261.17
0081	\$ 710.02	\$ 1,704.06	\$ 643.75	\$ 1,287.51
0082	\$ 869.35	\$ 2,086.44	\$ 763.03	\$ 1,526.07
0083	\$ 790.22	\$ 1,896.51	\$ 713.66	\$ 1,427.33
0073	\$ 790.11	\$ 1,896.25	\$ 713.57	\$ 1,427.15
0074	\$ 824.79	\$ 1,979.50	\$ 730.92	\$ 1,461.85
0057	\$ 802.74	\$ 1,926.56	\$ 721.60	\$ 1,443.21
0058	\$ 871.68	\$ 2,092.05	\$ 762.06	\$ 1,524.13
0059	\$ 842.88	\$ 2,022.89	\$ 762.06	\$ 1,524.13
0060	\$ 831.58	\$ 1,995.79	\$ 755.80	\$ 1,511.61
0061	\$ 858.75	\$ 2,060.98	\$ 766.15	\$ 1,532.31
0062	\$ 851.12	\$ 2,042.67	\$ 754.38	\$ 1,508.77
0063	\$ 850.04	\$ 2,040.09	\$ 755.82	\$ 1,511.65
0064	\$ 848.74	\$ 2,036.97	\$ 753.81	\$ 1,507.63
0065	\$ 848.56	\$ 2,036.53	\$ 753.75	\$ 1,507.51
0066	\$ 833.47	\$ 2,000.33	\$ 741.85	\$ 1,483.71
0067	\$ 562.90	\$ 1,350.95	\$ 324.56	\$ 649.13
0068	\$ 834.24	\$ 2,002.18	\$ 759.91	\$ 1,519.83
0069	\$ 862.83	\$ 2,070.79	\$ 759.91	\$ 1,519.83
0070	\$ 831.58	\$ 1,995.79	\$ 755.80	\$ 1,511.61
0071	\$ 871.68	\$ 2,092.05	\$ 762.06	\$ 1,524.13
0072	\$ 860.17	\$ 2,064.40	\$ 755.80	\$ 1,511.61
0044	\$ 864.45	\$ 2,074.66	\$ 774.95	\$ 1,549.91
0045	\$ 832.53	\$ 1,998.07	\$ 754.38	\$ 1,508.77

Substantive Plan Provisions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Medical Benefits (continued) Health Plans	Non-Medicare		Medicare	
	Single	Dual	Single	Dual
0046	\$ 856.10	\$ 2,054.63	\$ 763.48	\$ 1,526.97
0047	\$ 848.47	\$ 2,036.32	\$ 751.71	\$ 1,503.42
0050	\$ 841.63	\$ 2,019.89	\$ 748.01	\$ 1,496.03
0051	\$ 840.33	\$ 2,016.77	\$ 746.00	\$ 1,492.01
0052	\$ 827.59	\$ 1,986.20	\$ 740.43	\$ 1,480.87
0053	\$ 828.92	\$ 1,989.40	\$ 734.24	\$ 1,468.49
0054	\$ 839.50	\$ 2,014.80	\$ 742.89	\$ 1,485.79
0055	\$ 831.64	\$ 1,995.93	\$ 736.99	\$ 1,473.99
0056	\$ 819.07	\$ 1,965.75	\$ 736.99	\$ 1,473.99

Disability Benefit

Employees are eligible for retiree health benefits if they become disabled in the line of duty without any age or years of service requirement. Ten years of service is required for non-duty disability.

An additional cost-of-living allowance is paid to disability retirees. The monthly amount is determined as follows:

- (1) For disability retirees (except as noted on the following pages):
 - (a) \$20 per month for a one-year period commencing one year after retirement.
 - (b) \$40 per month for a one-year period commencing two years after retirement.
 - (c) \$60 per month for a one-year period commencing three years after retirement.
 - (d) \$80 per month for a one-year period commencing four years after retirement.
 - (e) \$100 per month for a one-year period commencing five years after retirement.
 - (f) \$120 per month commencing six years after retirement.

Substantive Plan Provisions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Disability Benefit (continued)

(2) For General disability retirees who retire on or after December 1, 2007:

- (a) \$25 per month for one year period commencing one year after retirement.
- (b) \$50 per month for one year period commencing two years after retirement.
- (c) \$75 per month for one year period commencing three years after retirement.
- (d) \$100 per month for one year period commencing four years after retirement.
- (e) \$125 per month for one year period commencing five years after retirement.
- (f) \$150 per month for one year period commencing six years after retirement.
- (g) \$175 per month for one year period commencing seven years after retirement.
- (h) \$200 per month for one year period commencing eight years after retirement.
- (i) \$225 per month for one year period commencing nine years after retirement.
- (j) \$250 per month commencing ten years after retirement.

(3) For Fire disability retirees who retire on or after March 20, 2008 and before December 1, 2008:

- (a) \$20 per month for one year period commencing one year after retirement.
- (b) \$40 per month for one year period commencing two years after retirement.
- (c) \$60 per month for one year period commencing three years after retirement.
- (d) \$80 per month for one year period commencing four years after retirement.
- (e) \$100 per month for one year period commencing five years after retirement.
- (f) \$120 per month for one year period commencing six years after retirement.
- (g) \$140 per month for one year period commencing seven years after retirement.
- (h) \$160 per month for one year period commencing eight years after retirement.
- (i) \$180 per month for one year period commencing nine years after retirement.
- (j) \$200 per month commencing ten years after retirement.

Substantive Plan Provisions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

(4) For Police and Fire disability retirees who retire on or after December 1, 2008:

- (a) \$25 per month for one year period commencing one year after retirement.
- (b) \$50 per month for one year period commencing two years after retirement.
- (c) \$75 per month for one year period commencing three years after retirement.
- (d) \$100 per month for one year period commencing four years after retirement.
- (e) \$125 per month for one year period commencing five years after retirement.
- (f) \$150 per month for one year period commencing six years after retirement.
- (g) \$175 per month for one year period commencing seven years after retirement.
- (h) \$200 per month for one year period commencing eight years after retirement.
- (i) \$225 per month for one year period commencing nine years after retirement.
- (j) \$250 per month commencing ten years after retirement.

(5) Fire members retiring on or after October 17, 2016, and LPOA, LLSA and Police Command on or after December 1, 2017, in addition to (4) above:

- (k) \$275 per month for one year period commencing eleven years after retirement.
- (l) \$300 per month for one year period commencing twelve years after retirement.
- (m) \$325 per month for one year period commencing thirteen years after retirement.
- (n) \$350 per month for one year period commencing fourteen years after retirement.
- (o) \$375 per month commencing fifteen years after retirement.

Substantive Plan Provisions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Spouse Benefit

Defined Benefit Plan:

- a. Upon death of a retiree or upon death of an active employee who met retirement eligibility requirements: Coverage continues to the surviving spouse upon retiree's death until age 65 or life if spouse is receiving a joint & survivor pension benefit
- b. Upon death of an active employee who did not meet retirement eligible requirements: COBRA benefits are available to the surviving spouse

Defined Contribution Plan:

- a. Upon death of a retiree or upon death of an active employee who met retirement eligibility requirements: Coverage continues to surviving spouse upon retiree's death until age 65 or life if spouse is receiving a joint & survivor pension benefit
- b. Upon death of an active employee who did not meet retirement eligible requirements: COBRA benefits are available to the surviving spouse

Retiree Cost Sharing

100% City-paid health benefits are provided to grandfathered retirees:

- a. General: retired before 12/1/2006
- b. Police: retired before 3/1/2014
- c. Fire: retired before 12/1/2012

All other retirees and future retirees pay a premium, with a minimum of \$35 and maximum of \$250 per month. Those who elect the higher benefit plan (POS Blue Choice) also pay the difference in cost between the CB3 plan and the Blue Choice plan with no cap. These copays would be in addition to the percentage sharing noted below for retirees with less than 25 years of service.

Substantive Plan Provisions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Retiree Cost Sharing (continued)

Non-grandfathered and future retirees are expected to pay monthly contribution for health coverage as outlined below.

General - hired after 3/16/1997 and before 9/8/2011

Age service requirement	% of Premium paid by City	% of Premium paid by Retiree
55 & 10	50%	50%
55 & 15	60%	40%
55 & 20	75%	25%
55 & 25	100%	0%

Participant also pays \$35 per month in addition to the amount above based on age and service

Police Officers, Sergeants, and Lieutenants –

PO hired after 11/23/1998 and before 11/2/2011, Command hired after 12/7/1997 and before 12/1/2012

Age service requirement	% of Premium paid by City	% of Premium paid by Retiree
52 & 10	50%	50%
52 & 15	60%	40%
52 & 20	75%	25%
25 years of service	100%	0%

Participant also pays \$35 per month in addition to the amount above based on age and service

Police Chief, Deputy and Captains - hired after 12/7/1997 and before 12/1/2012:

Age service requirement	% of Premium paid by City	% of Premium paid by Retiree
50 & 10	50%	50%
50 & 15	60%	40%
50 & 20	75%	25%
50 & 25 or 27 years of service	100%	0%

Participant also pays \$35 per month in addition to the amount above based on age and service

Substantive Plan Provisions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Retiree Cost Sharing (continued)

Fire-Hired after 6/30/1998 and before 12/1/2012:

<u>Age service requirement</u>	<u>% of Premium paid by City</u>	<u>% of Premium paid by Retiree</u>
52 & 10	50%	50%
52 & 15	60%	40%
52 & 20	75%	25%
50 & 25 or 27 years of service	100%	0%

Participant also pays \$35 per month in addition to the amount above based on age and service

Active Cost Sharing

2% of Pay

Summary of Key Actuarial Assumptions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

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.

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.

There are changes to the actuarial methods and assumptions since the last GASB valuation, which was for the fiscal year ending November 30, 2020. 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 mortality table, health care trend rates, and per capita costs again in the next full GASB valuation, which will be for the fiscal year ending November 30, 2022.

Measurement Date	For fiscal year ending November 30, 2022, a November 30, 2022 measurement date was used.
Actuarial Valuation Date	November 30, 2022 with no adjustments to get to the November 30, 2022 measurement date.
Discount Rate	7.10% as of November 30, 2022 and 7.20% as of December 1, 2021 for accounting disclosure purposes. Refer to the Discussion of Discount Rates section for more information on selection of the discount rate.
Inflation Rate	3.00% per year The inflation rate is based on the current economic environment and future expectations.
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.

Summary of Key Actuarial Assumptions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Payroll Growth

3.00% for general wage inflation (includes 2.50% general price inflation plus 0.50% real wage inflation) plus merit / productivity growth as shown below. The payroll growth assumption is based on the experience study conducted in July, 2021. Sample merit/productivity increases are shown in the table below.

Age	DB	General DC	Police DC	Fire DC
20	4.0%	11.00%	9.00%	11.00%
25	4.0%	9.00%	6.00%	7.00%
30	4.0%	7.00%	4.50%	3.00%
35	4.0%	6.00%	3.50%	2.50%
40	4.0%	5.00%	2.75%	2.00%
45	4.0%	3.00%	2.00%	1.75%
50	4.0%	2.50%	1.50%	1.50%
55	4.0%	2.00%	1.00%	1.25%
60	4.0%	1.50%	1.00%	1.00%
65	4.0%	1.00%	1.00%	1.00%

Employer Funding Policy

The City contributes the Actuarially Determined Contribution annually to an OPEB Trust. A closed amortization period of 27 years was used for FYE 2020 and 26 years for FYE 2021 for the ADC amortization period. A level % of pay amortization method was used as well.

Census Data

Census information was provided by the City and it was provided in January 2023. We have reviewed it for reasonableness and no material modifications were made to the census data. Spouse coverage information was not provided for retirees. A percent married assumption was used to determine the proportion of retirees who elected spouse coverage.

Experience Study

Best actuarial practices call for a periodic assumption review (also referred to as an experience study), and last experience study was conducted in 2021. Nyhart recommends the City to complete an actuarial assumption review every three to five years.

Health Care Coverage Election Rate

70% of general and 100% of Police and Fire active employees are assumed to elect coverage at retirement. 100% of existing retirees are assumed to continue coverage in the future. The election rates assumption was set based on the experience study conducted in July 2021.

Summary of Key Actuarial Assumptions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Spousal Coverage

Spouse coverage information was not provided for retirees. A percent married assumption was used to determine the proportion of retirees who elected spouse coverage.

85% of pre-65 active employees and retirees, and 70% of post-65 active employees and retirees are assumed to be married and elect coverage for their spouse at retirement.

The assumption is consistent with the spousal coverage assumption used in the valuation for fiscal year ending on November 30, 2020 and November 30, 2021, and it will be evaluated for reasonableness as new census is collected for each full valuation.

Mortality

General Employees and Healthy retirees: SOA Pub-2010 General Headcount Weighted Mortality Table fully generational using Scale MP-2021

Police and Fire Employees and Healthy retirees: SOA Pub-2010 Public Safety Headcount Weighted Mortality Table fully generational using Scale MP-2021

Disabled Retirees: 80% of SOA Pub-2010 General Headcount Weighted Mortality Table fully generational using Scale MP-2021

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 turnover rates were set based on the experience study conducted in July, 2021.

Sample annual turnover rates for Defined Benefit participants are shown below:

Sample Ages	YOS	DB General	DB Police	DB Fire
25	5 & over	4.00%	1.62%	1.62%
30		3.50%	1.40%	1.40%
35		3.25%	0.83%	0.83%
40		2.00%	0.32%	0.32%
45		1.25%	0.18%	0.18%
50		1.25%	0.18%	0.18%
55		0.75%	0.18%	0.18%
60		0.50%	0.18%	0.18%

Summary of Key Actuarial Assumptions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Sample annual turnover rates for DC participants are shown below:

Sample Ages	YOS	DC General	DC Police	DC Fire
All ages	0	10.00%	10.00%	9.00%
	1	9.00%	9.00%	7.00%
	2	8.00%	8.00%	5.00%
	3	7.00%	7.00%	4.00%
	4	7.00%	7.00%	3.00%
25	5 & over	5.00%	5.00%	3.00%
30		3.00%	3.00%	2.00%
35		2.00%	3.00%	1.00%
40		2.00%	2.50%	0.50%
45		2.00%	2.50%	0.20%
50		2.00%	2.00%	0.20%
55		2.00%	2.00%	0.20%
60		2.00%	2.00%	0.20%

Summary of Key Actuarial Assumptions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Retirement Rate

The rates represent the probability of retirement within the next 12 months following the attainment of indicated retirement age or service. The retirement rates were set based on the experience study conducted in July, 2021.

Annual rates of retirement by employee group for DB plan participants are as shown below:

Age	Age based			Service based		
	General	Police	Fire	Service	Police	Fire
				25	75%	40%
				26	25%	40%
				27	25%	40%
				28	25%	40%
45-50	50%		-	29	25%	40%
51	50%		-	30 & up	100%	100%
52	50%	10%	35%			
53	50%	10%	20%			
54	50%	10%	20%			
55	45%	10%	10%			
56	30%	10%	10%			
57	25%	10%	10%			
58	25%	10%	10%			
59	30%	10%	10%			
60	25%	100%	100%			
61	25%	100%	100%			
62	20%	100%	100%			
63	20%	100%	100%			
64	20%	100%	100%			
65	20%	100%	100%			
66	20%	100%	100%			
67	20%	100%	100%			
68	20%	100%	100%			
69 & up	100%	100%	100%			

Summary of Key Actuarial Assumptions

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Retirement Rate (continued)

Annual rates of retirement by employee group for DC plan participants are as shown below:

Age	General	Police and Fire
52	0%	15%
53	0%	5%
54	0%	5%
55	15%	15%
56-61	5%	5%
62	15%	15%
63	5%	5%
64-67	30%	30%
68-69	30%	100%
70+	100%	100%

Disability

Sample annual disability rates are as shown below:

Sample Ages	General	Police and Fire
20	0.010%	0.035%
25	0.020%	0.060%
30	0.035%	0.120%
35	0.055%	0.200%
40	0.080%	0.275%
45	0.100%	0.355%
50	0.125%	0.435%
55	0.150%	0.515%

The disability rates were set based on the experience study conducted in July, 2021.

Summary of Key Actuarial Assumption

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Health Care Trend Rates	FYE	Medical/Rx	Medical/Rx
		Pre-65	Pst-65
	2023	7.50%	6.50%
	2024	7.00%	6.25%
	2025	6.50%	6.00%
	2026	6.00%	5.75%
	2027	5.50%	5.50%
	2028	5.00%	5.25%
	2029	4.50%	5.00%
	2030	4.50%	4.75%
	2031+	4.50%	4.50%

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.

Summary of Key Actuarial Assumption

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Per Capita Costs

Annual per capita costs were calculated based on the City's monthly premium rates effective on March 1, 2022 actuarially increased using health index factors and current enrollment. The costs are assumed to increase with health care trend rates.

Annual per capita costs are as shown below:

Age	Per Capita Costs*
<55	\$ 9,200
55 - 59	\$ 11,400
60 - 64	\$ 14,400
65 - 69	\$ 7,000
70 - 74	\$ 8,800
75 +	\$ 10,000

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.

* Note that effective August 1, 2022, post-65 benefits were covered by fully-insured Medicare Advantage plans and Pre-65/Rx were self-insured. For purposes of developing per capita claims costs, premium rates were used. As more claims data becomes available, it will be considered in future for per capita claims costs' development.

Models

ProVal

Valuation software developed by Winklevoss Technologies, LLC. This software is widely used for the purpose of performing postretirement medical valuations. We coded the plan provisions, assumptions, methods, and participant data summarized in this report, and reviewed the liability and cost outputs for reasonableness. We are not aware of any weakness or limitations in the software and have determined it is appropriate for performing this valuation.

HealthMAPS Manual

Rating manual developed by WTW. Aging factors are used to develop per capita costs by age for plans with limited credible exposure to develop plan-specific factors. We are not aware of any weakness or limitations in the factors and have determined they are appropriate for performing this valuation.

APPENDIX

The background features a complex geometric design. It consists of several overlapping, semi-transparent shapes. A large, solid red shape is prominent in the lower right corner. To its left, there are various shades of gray and white shapes, some of which are semi-transparent, creating a layered effect. The overall composition is modern and minimalist.

Appendix

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Comparison of Participant Demographic Information

The active participants' number below may include active employees who currently have no health care coverage.

	As of November 30, 2021	As of November 30, 2022
Active Participants	583 ¹	478
Retired Participants	715	716
Averages for Active		
Age	45.0	47.9
Service	10.8	12.1
Averages for Inactive		
Age	Not available	69.9

¹ These counts are from the November 30, 2021 valuation report prepared by the prior actuarial firm.

Appendix

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Detailed Actuary's Notes

There have been no substantive plan provision changes since the last valuation, which was for the fiscal year ending November 30, 2021.

The following assumptions have been updated since the prior valuation:

1. Improvement scale for all mortality tables was updated from using Scale MP-2020 to MP-2021. The net impact of these changes was an increase in liabilities.
2. Health care trend rates for pre-65 ages have been reset to an initial rate of 7.5% decreasing by 0.5% annually down to an ultimate rate of 4.5%. Health care trend rates for post-65 ages have been reset to an initial rate of 6.5% decreasing by 0.25% annually down to an ultimate rate of 4.5%. This change caused an increase in liabilities.
3. Discount rate as of the Measurement Date was selected by the plan sponsor. The prior valuation used a discount rate of 7.20% as of December 1, 2021. The current valuation uses a discount rate of 7.10% as of November 30, 2022. This change caused an increase in liabilities. Please see the discussion of discount rates on page 17 for more details.

Additionally, premiums and per capita costs for 2023 were reflected, resulting in an increase in liabilities. The updated census data resulted in a decrease in liabilities.

Actuarially Determined Contribution

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

The Actuarially Determined Contributions calculated below are recommended target contributions and assume that the Plan Sponsor has the ability to contribute these amounts on an annual basis. The Plan Sponsor has the responsibility to decide how much it should contribute after considering its other needs and the OPEB participants' needs.

	FY 2022/23			
	General	Police	Fire	Total
Discount rate		7.10%		
Payroll growth factor used for amortization		3.00%		
Actuarial cost method	Entry Age Normal Level Dollar			
Amortization type	Level % of Pay			
Amortization period	25 years			
Actuarial accrued liability (AAL) – beginning of year	\$ 101,695,033	\$ 75,388,175	\$ 41,308,822	\$ 218,392,030
Actuarial value of assets – beginning of year	(63,804,985)	(40,429,900)	(26,956,368)	(131,191,254)
Unfunded AAL – beginning of year	\$ 37,890,048	\$ 34,958,275	\$ 14,352,454	\$ 87,200,776
Normal Cost ²	\$ 583,251	\$ 152,258	\$ 264,382	\$ 999,891
Amortization of UAAL	2,327,781	2,147,668	881,746	5,357,195
Total normal cost plus amortization	\$ 2,911,032	\$ 2,299,926	\$ 1,146,128	\$ 6,357,086
Interest to the end of year	206,683	163,295	81,375	451,353
Actuarially Determined Contribution	\$ 3,117,715	\$ 2,463,221	\$ 1,227,503	\$ 6,808,439
Covered Employee Payroll	\$ 21,726,345	\$ 5,402,106	\$ 4,780,305	\$ 31,908,756
ADC as % of Covered Payroll	14.3%	45.6%	25.7%	21.3%
Eligible for Retiree Health Employee Payroll	\$ 8,390,900	\$ 3,632,680	\$ 4,523,936	\$ 16,547,516
ADC as % of Eligible for Retiree Payroll	37.2%	67.8%	27.1%	41.1%

Actuarially Determined Contribution (ADC) is the target or recommended contribution to a defined benefit OPEB plan, which if paid on an ongoing basis, will provide sufficient resources to fund future costs for services to be earned and liabilities attributed to past services. This is typically higher than the pay-as-you-go cost because it includes recognition of employer costs expected to be paid in future accounting periods.

² Reduced for employee contributions during the year.

Comparative Schedules

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Unfunded Actuarial Accrued Liability (in \$000s)

Valuation Date November 30	Actuarial Value of Assets	Actuarial Accrued Liability	Percent Funded	Unfunded AAL	Annual Covered payroll	UAAL as a % of Covered Payroll
2003	30,475	104,386	29.2%	73,911	34,084	216.8%
2004	37,690	110,156	34.2%	72,466	33,355	217.3%
2005	41,987	122,019	34.4%	80,032	33,312	240.2%
2006	47,673	122,267	39.0%	74,594	34,373	217.0%
2007	52,802	115,685	45.6%	62,883	35,354	177.9%
2008	55,361	122,117	45.3%	66,756	37,403	178.5%
2009	57,845	137,822	42.0%	79,977	36,981	216.3%
2010	60,361	153,223	39.4%	92,862	34,062	272.6%
2011	62,491	156,260	40.0%	93,769	32,871	285.3%
2012	65,667	169,363	38.8%	103,696	30,964	334.9%
2013	74,550	160,552	46.4%	86,002	30,560	281.4%
2014	83,134	159,855	52.0%	76,721	31,408	244.3%
2015	91,646	162,780	56.3%	71,134	32,327	220.0%
2016	98,722	161,226	61.2%	62,504	33,384	187.2%
2017	107,284	184,466	58.2%	77,182	34,729	222.2%
2018	111,004	180,965	61.3%	69,961	36,890	189.6%
2019	115,512	211,269	54.7%	95,757	35,774	267.7%
2020	120,826	207,550	58.2%	86,724	36,744	236.0%
2021	129,933	204,404	63.6%	74,471	38,632	192.8%
2022	131,191	218,392	60.1%	87,201	31,909	273.3%

Comparative Schedules

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

City Contributions Expressed as a Percentage of Payroll

Valuation Date	General	Police	Fire
November 30			
2010	22.25%	21.99%	21.70%
2011	21.08%	21.02%	19.59%
2012	21.41%	26.06%	21.26%
2013	19.75%	21.69%	18.00%
2014	16.88%	20.79%	16.89%
2015	14.87%	20.28%	16.17%
2016	15.13%	19.28%	15.62%
2017	15.11%	22.78%	19.34%
2018	12.16%	20.17%	17.70%
2019	15.67%	26.33%	23.39%
2020	12.16%	23.05%	18.98%
2021	10.26%	24.59%	18.31%
2022	14.30%	45.60%	25.70%

GASB Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Actuarial Asset Valuation

Actuarial Value of Assets	FY 2021/22
Market value of assets as of end of year	\$ 121,774,444
(Gains)/Losses not yet recognized	\$ 9,416,810
Actuarial Value of Assets as of end of year	\$ 131,191,254

Investment Gain/Loss	FY 2021/22
Market value of assets as of beginning of year	\$ 138,324,771
Contributions Less Benefit Payments and Administrative expenses	\$ (5,546,984)
Expected Investment Earnings ³	\$ 9,759,692
Actual Net Investment Earnings	\$ (11,003,343)
2022 Actuarial Investment Gain/Loss	\$ (20,763,035)

Expected Investment Earnings = 7.20% x (138,324,771 + 0.5 x -5,546,984)

Plan Year Ending	Gain/(Loss)	Gain/(Losses) Not Yet Recognized			
		Amounts Not Yet Recognized by Valuation Year			
		2022	2023	2024	2025
November 30, 2019	\$ 4,144,524	\$ 828,905	\$ 0	\$ 0	\$ 0
November 30, 2020	\$ 2,213,684	\$ 885,474	\$ 442,737	\$ 0	\$ 0
November 30, 2021	\$ 9,132,065	\$ 5,479,239	\$ 3,652,826	\$ 1,826,413	\$ 0
November 30, 2022	\$ (20,763,035)	\$ (16,610,428)	\$ (12,457,821)	\$ (8,305,214)	\$ (4,152,6077)

³ Expected Investment Earnings = 7.2% * (138,324,771 + 0.5 * (-5,546,984))

GASB Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

Development of Asset Returns		FY 2021/22
(A)	Actuarial Assets as of beginning of year ⁴	\$ 129,932,688
(I)	Net Investment Income ⁵	\$ 6,805,550
1.	Actuarial Assets as of end of year	\$ 131,191,254
2.	Actuarial Asset Rate of Return ⁶	5.35%
3.	Market Value of Assets Rate of Return	-8.12%

⁴ As provided in the Actuarial Valuation Report as of November 30, 2021 produced by Foster & Foster

⁵ Net Investment Income = Interest and Dividends + Realized Gains/Losses + Change in Actuarial Value + Investment Expenses

⁶ Actuarial Asset Rate of Return = $(2 * I) / (A + B - 1)$

PA 202 Uniform Assumption Disclosures

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

The information presented below is for the purposes of filing Form No. 5572 under PA 202 uniform assumption requirements. Per regulation, Form No. 5572 must be filed no later than six months after the end of the fiscal year. Governmental fund revenues are not shown below and should be determined by the City. Refer to the Michigan Department of Treasury website for additional information.

Form 5572 Line	Description	City o Livonia
Line 28	Actuarial Value of Assets as of November 30, 2022	\$ 121,774,444
Line 29	Actuarial Accrued Liability as of November 30, 2022	\$ 216,620,437
Line 31	Actuarially Determined Contribution (ADC) for fiscal year ending November 30, 2022	\$ 5,802,669

Line 31 (Actuarially Determined Contribution) was calculated using level dollar amortization with a 6.50% discount rate. The amortization period is a closed, 25-year period.

Under PA 202 requirements, uniform assumption setting is mandated in reporting of liabilities, assets, and ADC. The following is a description of the PA 202 uniform assumption guidance and final assumption used for the City for purposes of calculating the figures above.

Assumption	Uniform Assumption Guidance	City Assumption
Investment Rate of Return	Maximum of 6.85%	6.85% (for funding/ADC purposes) – same as GASB 74/75 valuation
Discount Rate	Blended discount rate calculated per GASB 74/75: <ul style="list-style-type: none"> Maximum of 6.85% where plan assets are sufficient to make projected benefit payments 2.16% for periods where assets are insufficient to make projected benefit payments 	6.85% (for calculation of the OPEB liability)
Salary Increase	Minimum of 3.00% or based on actuarial experience study within the past 5 years	Same payroll growth as the GASB 75 valuation with 3.00% for ages below the minimum
Mortality Table	A version of PUB-2010 with Scale MP-2020 generational mortality improvement or based on actuarial experience study within the past 5 years	Same PUB-2010 mortality tables as GASB 75 valuation with Scale MP-2020 generational mortality improvement
Amortization Period	Maximum closed period of 27 years for Retiree Health Systems	25 years, closed
Asset Valuation	Market Value as reported on Financial Statements	Market value for PA 202 instead of smoothed value for funding recommendation
Healthcare Inflation	Non-Medicare: 7.25% decreasing 0.25% per year to a 4.50% long-term rate Medicare: 5.50% decreasing 0.25% per year to 4.50% long-term rate	Same as PA 202 uniform assumption

GLOSSARY

The background features a complex geometric design. It consists of several overlapping, semi-transparent shapes. A large, solid red shape is positioned in the bottom right corner, extending towards the center. To its left, there are various shades of gray and white shapes, some of which are semi-transparent, creating a layered effect. The overall composition is clean and modern, with sharp lines and a limited color palette.

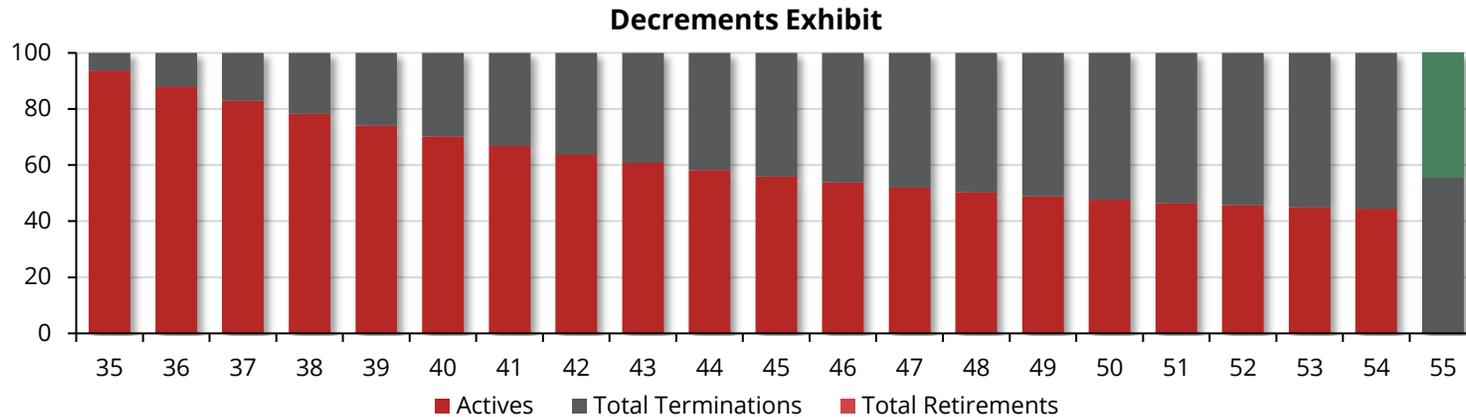
Glossary – Decrements Exhibit

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

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 ⁷	# 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



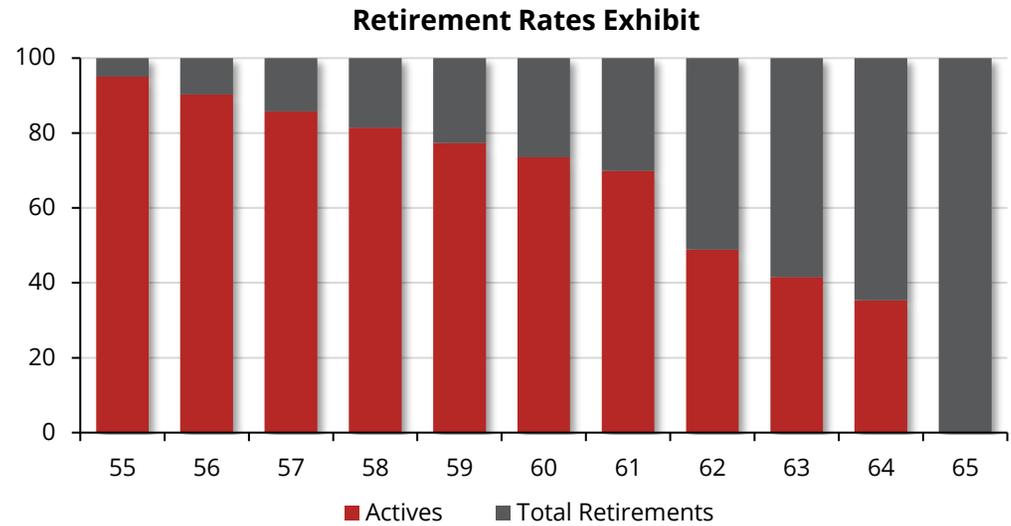
⁷ The above rates are illustrative rates and are not used in our GASB calculations.

Glossary – Retirement Rates Exhibit

City of Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

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 Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

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 Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

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 Livonia GASB 74/75 Valuation for Fiscal Year Ending November 30, 2022

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).