



**CITY OF SHREVEPORT
EMPLOYEES' RETIREMENT SYSTEM**

GASB 67 and 68 DISCLOSURE

Fiscal Year: January 1, 2019 to December 31, 2019

Prepared by

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Certification

Actuarial computations presented in this report under Statements No. 67 and 68 of the Governmental Accounting Standards Board are for purposes of assisting the City in fulfilling its financial accounting requirements. No attempt is being made to offer any accounting opinion or advice. This report is for fiscal year January 1, 2019 to December 31, 2019. The reporting date for determining plan assets and obligations is December 31, 2019. The calculations enclosed in this report have been made on a basis consistent with our understanding of the plan provisions. Determinations for purposes other than meeting financial reporting requirements may be significantly different than the results contained in this report. Accordingly, additional determinations may be needed for other purposes, such as judging benefit security or meeting employer

In preparing this report, we relied, without audit, on information as of January 1, 2020 and December 31, 2019 furnished by the City. This information includes, but is not limited to, statutory provisions, member census data, and financial information. The membership as of January 1, 2020 includes 1,244 active participants, 19 term vested participants and 1,122 retirees and beneficiaries.

We performed a limited review of the census and financial information used directly in our analysis and have found them to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

We hereby certify that, to the best of our knowledge, this report, including all costs and liabilities based on actuarial assumptions and methods, is complete and accurate and determined in conformance with generally recognized and accepted actuarial principles and practices, which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions and supporting Recommendations of the American Academy of Actuaries.

This valuation report is only an estimate of the Plan's financial condition as of a single date. It can neither predict the Plan's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of Plan benefits, only the timing of Plan contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, 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 or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuarial assignment, we did not perform an analysis of the potential range of such future measurements.

Certification


Milliman's work is prepared solely for the internal use and benefit of the City of Shreveport. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions: (a) the Plan Sponsor may provide a copy of Milliman's work, in its entirety, to the Plan Sponsor's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the Plan; and (b) the Plan Sponsor may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and has been prepared in accordance with generally recognized accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.



Christian Goodman, ASA
Consulting Actuary

Overview of GASB 67 and GASB 68

The Governmental Accounting Standards Board (GASB) released new accounting standards for public pension plans and participating employers in 2012. These standards, GASB Statements No. 67 and 68, have substantially revised the accounting requirements previously mandated under GASB Statements No. 25 and 27. The most notable change is the distinct separation of funding from financial reporting. The Annual Required Contribution (ARC) has been eliminated under GASB 67 and 68 and is no longer relevant for financial reporting purposes. As a result, plan sponsors have been encouraged to establish a formal funding policy that is separate from financial reporting calculations.

GASB 67 applies to financial reporting for public pension plans and is required to be implemented for plan fiscal years beginning after June 15, 2013. Note that a plan's fiscal year might not be the same as the employer's fiscal year. Even if the plan does not issue standalone financial statements, but rather is considered a pension trust fund of a government, it is subject to GASB 67. Under GASB 67, enhancements to the financial statement disclosures are required, along with certain required supplementary information.

GASB 68 governs the specifics of accounting for public pension plan obligations for participating employers and is required to be implemented for employer fiscal years beginning after June 15, 2014. GASB 68 requires a liability for pension obligations, known as the Net Pension Liability, to be recognized on the balance sheets of participating employers. Changes in the Net Pension Liability will be immediately recognized as Pension Expense on the income statement or reported as deferred inflows/outflows of resources depending on the nature of the change.

Executive Summary

Relationship Between Valuation Date, Measurement Date, and Reporting Date

The Valuation Date is January 1, 2020. This is the date as of which the actuarial valuation is performed. The Measurement Date is December 31, 2019. This is the date as of which the net pension liability is determined. The Reporting Date is December 31, 2019. This is the plan's and/or employer's fiscal year ending date.

Significant Changes

The mortality assumption was updated from RP-2000 "Employees" table projected to 2034 using Scale AA and RP-2000 "Healthy Annuitants" projected to 2026 using Scale AA to Pub-2010 (Public Retirement Plans Mortality Tables) General with MP-2019 Improvement converging to a long-term improvement rate of 0.5% in 2035.

The change in mortality assumption resulted in an increase in the pension liability of nearly 2%.

Schedule of Employer Contributions

Fiscal Year Ending December 31	Actuarially Determined Contribution	Actual Employer Contribution	Contribution Deficiency (Excess)	Covered Payroll	Contribution as a % of Covered Payroll
2010	\$11,238,882	\$6,261,604	\$4,977,278	\$45,226,000	13.85%
2011	12,202,624	6,003,545	6,199,079	45,538,000	13.18%
2012	16,380,807	5,970,988	10,409,819	45,247,171	13.20%
2013	16,764,758	5,951,946	10,812,812	44,749,039	13.30%
2014	16,351,357	5,944,981	10,406,376	45,120,412	13.18%
2015	18,083,506	7,364,386	10,719,120	43,859,241	16.79%
2016	19,842,219	9,006,403	10,835,816	43,752,144	20.59%
2017	19,267,744	9,449,966	9,817,778	45,107,805	20.95%
2018	20,537,815	10,510,340	10,027,475	43,829,652	23.98%
2019	20,085,651	11,604,690	8,480,961	42,569,567	27.26%

Actuarial Methods and Assumptions Used for Valuation

The following actuarial methods and assumptions were used in the January 1, 2020 valuation.

Valuation Timing	Actuarially determined contribution rates are calculated as of January 1, one year prior to the end of the fiscal year in which the contributions are reported.																								
Actuarial Cost Method	Entry Age Normal																								
Funding Policy (% of payroll)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Effective Date</th> <th style="text-align: center;">Employer</th> <th style="text-align: center;">Employee</th> </tr> </thead> <tbody> <tr> <td>January 1, 2015</td> <td style="text-align: center;">16.50%</td> <td style="text-align: center;">10.00%</td> </tr> <tr> <td>January 1, 2016</td> <td style="text-align: center;">20.00%</td> <td style="text-align: center;">11.00%</td> </tr> <tr> <td>January 1, 2017</td> <td style="text-align: center;">22.00%</td> <td style="text-align: center;">12.00%</td> </tr> <tr> <td>January 1, 2018</td> <td style="text-align: center;">24.00%</td> <td style="text-align: center;">12.00%</td> </tr> <tr> <td>January 1, 2019</td> <td style="text-align: center;">26.00%</td> <td style="text-align: center;">12.00%</td> </tr> <tr> <td>January 1, 2020</td> <td style="text-align: center;">28.00%</td> <td style="text-align: center;">12.00%</td> </tr> <tr> <td>January 1, 2021</td> <td style="text-align: center;">30.00%</td> <td style="text-align: center;">12.00%</td> </tr> </tbody> </table>	Effective Date	Employer	Employee	January 1, 2015	16.50%	10.00%	January 1, 2016	20.00%	11.00%	January 1, 2017	22.00%	12.00%	January 1, 2018	24.00%	12.00%	January 1, 2019	26.00%	12.00%	January 1, 2020	28.00%	12.00%	January 1, 2021	30.00%	12.00%
Effective Date	Employer	Employee																							
January 1, 2015	16.50%	10.00%																							
January 1, 2016	20.00%	11.00%																							
January 1, 2017	22.00%	12.00%																							
January 1, 2018	24.00%	12.00%																							
January 1, 2019	26.00%	12.00%																							
January 1, 2020	28.00%	12.00%																							
January 1, 2021	30.00%	12.00%																							
Asset Valuation Method																									
Smoothing period	Not applicable																								
Recognition method	Not applicable																								
Corridor	Not applicable																								
Inflation	2.50%																								
Salary Increases	See page 21																								
Investment Rate of Return	7.00%																								
Cost of Living Adjustments	None																								
Retirement Age	See page 21																								
Turnover	See page 21																								
Mortality	Pub-2010 General and MP-2019 Improvement converging to long-term rate of 0.5% in 2035																								
Disability	See page 21																								

Statement of Fiduciary Net Position

	<u>December 31, 2018</u>	<u>December 31, 2019</u>
Assets		
Cash and cash equivalents	\$0	\$0
Receivables and prepaid expenses:		
Receivable contributions	0	0
Receivable investment income	456,474	457,068
Receivables from brokers for unsettled trades	0	0
Prepaid expenses	0	0
Total receivables	456,474	457,068
Investments:		
US government securities	0	0
Investment pool	0	0
Mutual bond funds	0	0
Domestic equities	0	0
Mutual funds	183,401,176	193,635,193
Total investments	183,401,176	193,635,193
Invested securities lending cash collateral	0	0
Capital assets net of accumulated depreciation	0	0
Total assets	183,857,650	194,092,261
Liabilities		
Accrued expenses and benefits payable	9,782,532	4,682,730
Securities lending cash collateral	0	0
Payable to brokers for unsettled trades	0	0
Total liabilities	9,782,532	4,682,730
Net position restricted for pensions	\$174,075,118	\$189,409,531

Statement of Changes in Fiduciary Net Position

December 31, 2019

Additions

Member contributions	\$5,580,652
Employer contributions	11,604,690
Total contributions	17,185,342
Investment income (loss):	
Interest	3,782,098
Dividends	0
Equity fund income, net	0
Net increase in fair value of investments	27,305,132
Securities lending income	0
Less investment expenses:	
Direct investment expense	1,061,287
Securities lending management fees	0
Securities lending borrower rebates	0
Net investment income	30,025,943
Other income	3,493
Total additions	47,214,778

Deductions

Service benefits	30,087,804
Disability benefits	n/a
Death benefits	n/a
Refunds of member contributions	1,718,246
Administrative expenses	74,315
Total deductions	31,880,365
Net increase (decrease)	15,334,413

Net position restricted for pensions

Beginning of year (December 31, 2018)	174,075,118
End of year (December 31, 2019)	\$189,409,531

Money-Weighted Rate of Return

Fiscal Year Ending December 31	Net Money-Weighted Rate of Return
2010	n/a
2011	n/a
2012	n/a
2013	18.92%
2014	6.09%
2015	0.20%
2016	9.31%
2017	13.87%
2018	-3.76%
2019	18.06%

Calculation of Money-Weighted Rate of Return

The money-weighted rate of return considers the changing amounts actually invested during a period and weights the amount of pension plan investments by the proportion of time they are available to earn a return during that period. External cash flows are determined on a monthly basis and are assumed to occur at the beginning of each month. External cash inflows are netted with external cash outflows, resulting in a net external cash flow in each month. The money-weighted rate of return is calculated net of investment expenses.

	Net External Cash Flows	Periods Invested	Period Weight	Net External Cash Flows With Interest
Beginning Value - January 1, 2019	\$174,075,118	12.00	1.00	\$205,505,355
Monthly net external cash flows:				
January	(1,224,585)	12.00	1.00	(1,445,691)
February	(1,224,585)	11.00	0.92	(1,426,621)
March	(1,224,585)	10.00	0.83	(1,405,467)
April	(1,224,585)	9.00	0.75	(1,386,928)
May	(1,224,585)	8.00	0.67	(1,368,633)
June	(1,224,585)	7.00	0.58	(1,348,339)
July	(1,224,585)	6.00	0.50	(1,330,553)
August	(1,224,585)	5.00	0.42	(1,313,002)
September	(1,224,585)	4.00	0.33	(1,293,533)
October	(1,224,585)	3.00	0.25	(1,276,470)
November	(1,224,585)	2.00	0.17	(1,259,632)
December	(1,224,585)	1.00	0.08	(1,240,955)
Ending Value - December 31, 2019	189,409,531			189,409,531
Money-Weighted Rate of Return	18.06%			

Long-Term Expected Rate of Return

The best-estimate range for the long-term expected rate of return is determined by adding expected inflation to expected long-term real returns and reflecting expected volatility and correlation. The capital market assumptions are per Milliman's investment consulting practice as of December 31, 2019.

Asset Class	Index	Target Allocation	Long-Term Expected Arithmetic Real Rate of Return	Long-Term Expected Geometric Real Rate of Return
US Cash	BAML 3-Mon Tbill	0.00%	0.04%	0.05%
US Core Fixed Income	Bloomberg Barclays Aggregate	40.00%	1.32%	1.24%
US Core Bonds	Bloomberg Barclays Gvt/Credit	0.00%	1.24%	1.14%
US Short Bonds	Bloomberg Barclays 1-3 Yr Gvt/C	0.00%	0.67%	0.65%
US Interm Bonds	Bloomberg Barclays IT Gvt/Credit	0.00%	0.98%	0.92%
US Gvt Bonds	Bloomberg Barclays Gvt	0.00%	0.84%	0.73%
US Credit Bonds	Bloomberg Barclays Credit	0.00%	1.95%	1.81%
US Long Gvt Bonds	Bloomberg Barclays Long Gvt	0.00%	1.31%	0.79%
US Municipal Bonds	Bloomberg Barclays Muni	0.00%	0.86%	0.78%
US Large Caps	S&P 500	0.00%	4.32%	3.23%
US Equity Market	Russell 3000	60.00%	4.59%	3.42%
US Small Caps	Russell 2000	0.00%	5.62%	3.82%
US Small & Mid Caps	Russell 2500	0.00%	5.35%	3.72%
US Large Value	Russell 1000 Value	0.00%	4.34%	3.28%
US Small Value	Russell 2000 Value	0.00%	5.30%	3.72%
US Value	Russell 3000 Value	0.00%	4.45%	3.38%
US MidCap Value	Russell MidCap Value	0.00%	4.49%	3.23%
Global Equity	MSCI ACWI NR	0.00%	5.25%	4.01%
Non-US Equity	MSCI ACWI xUS NR	0.00%	6.11%	4.60%
Emerging Markets Equity	MSCI EM NR	0.00%	7.99%	5.28%
Non-US Small Cap	MSCI EAFE Small Cap NR	0.00%	6.50%	4.84%
US REITs	FTSE NAREIT Equity REIT	0.00%	4.92%	3.33%
Assumed Inflation - Mean			2.21%	2.21%
Assumed Inflation - Standard Deviation			1.65%	1.65%
Portfolio Real Mean Return			3.28%	2.81%
Portfolio Nominal Mean Return			5.50%	5.07%
Portfolio Standard Deviation				9.79%
Long-Term Expected Rate of Return (per City of Shreveport)				7.00%

Depletion Date Projection

In order to determine if the plan's fiduciary net position is projected to be sufficient to make projected benefit payments, we have prepared a depletion date projection using the following techniques and assumptions:

- Current active members contribute the required employee contribution amounts.
- The employer contributes the funding policy effective January 1, 2015.
- Benefit payments are projected based on the actuarial assumptions and the current plan provisions.
- Members are assumed to receive pay increases, terminate, retire, become disabled, die, and so forth according to the actuarial assumptions used for the January 1, 2020 valuation.
- Terminating and retiring members will be replaced with new employees.
- Current administrative expenses are assumed to increase by 2.50% per year.
- All cash flows are assumed to occur on average halfway through the year.
- The long-term expected rate of return on pension plan investments is 7.00%.
- The tax-exempt, high-quality general obligation municipal bond index rate is 2.74%.
- The funding policy used to determine actuarially determined contributions does not change. See the last page of this report for details.
- The actuarial assumptions do not change.
- The plan provisions do not change except if any material future changes have been agreed upon as of the measurement date.

Actual results at each point in time will yield different values, reflecting the actual experience of the plan membership and assets.

Projection of Contributions

Year	Projected Payroll Current Employees	Projected Payroll Future Employees	Total Employee Payroll	Contributions from Current Employees	Employer Contributions for Current Employees	Contributions Associated w/ Future Employees*	Total Contributions
1	\$42,041,172	\$2,683,479	\$44,724,651	\$5,044,941	\$11,771,528	\$858,713	\$17,675,182
2	40,506,669	5,336,098	45,842,768	4,860,800	12,152,001	1,814,273	18,827,075
3	39,028,176	7,960,661	46,988,837	4,683,381	11,708,453	2,706,625	19,098,459
4	37,603,648	10,559,910	48,163,558	4,512,438	11,281,094	3,590,369	19,383,901
5	36,231,114	13,136,532	49,367,647	4,347,734	10,869,334	4,466,421	19,683,489
6	34,908,679	15,693,159	50,601,838	4,189,041	10,472,604	5,335,674	19,997,319
7	33,634,512	18,232,372	51,866,884	4,036,141	10,090,354	6,199,006	20,325,501
8	32,406,852	20,756,704	53,163,556	3,888,822	9,722,056	7,057,279	20,668,157
9	31,224,002	23,268,643	54,492,645	3,746,880	9,367,201	7,911,338	21,025,419
10	30,084,326	25,770,635	55,854,961	3,610,119	9,025,298	8,762,016	21,397,433

Note: Years subsequent to year 10 have been omitted from this table.

* Contributions from future employees that are above service cost and, therefore, can be allocated to payment of benefits of current employees under GASB rules.

Projection of Fiduciary Net Position

Year	Projected Beginning Fiduciary Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Adminstrative Expenses	Projected Investment Earnings	Projected Ending Fiduciary Net Position
1	\$189,409,531	\$17,675,182	\$32,101,509	\$601,321	\$12,732,699	\$187,114,582
2	187,114,582	18,827,075	33,221,586	616,354	12,572,640	184,676,357
3	184,676,357	19,098,459	34,103,470	631,763	12,380,058	181,419,640
4	181,419,640	19,383,901	34,826,667	647,557	12,136,214	177,465,532
5	177,465,532	19,683,489	35,319,287	663,746	11,852,103	173,018,091
6	173,018,091	19,997,319	35,673,678	680,340	11,538,782	168,200,174
7	168,200,174	20,325,501	36,031,016	697,349	11,199,912	162,997,223
8	162,997,223	20,668,157	36,279,946	714,783	10,838,376	157,509,027
9	157,509,027	21,025,419	36,412,606	732,653	10,461,438	151,850,626
10	151,850,626	21,397,433	36,447,417	750,969	10,076,510	146,126,183

Note: Years subsequent to year 10 have been omitted from this table.

Actuarial Present Value of Projected Benefit Payments

Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	Present Value of "Funded" Benefit Payments*	Present Value of "Unfunded" Benefit Payments**	Present Value of Total Benefit Payments***		
1	\$189,409,531	\$32,101,509	\$32,101,509	\$0	\$30,001,410	\$0	\$30,001,410		
2	187,114,582	33,221,586	33,221,586	0	29,017,020	0	29,017,020		
3	184,676,357	34,103,470	34,103,470	0	27,838,590	0	27,838,590		
4	181,419,640	34,826,667	34,826,667	0	26,569,097	0	26,569,097		
5	177,465,532	35,319,287	35,319,287	0	25,182,163	0	25,182,163		
6	173,018,091	35,673,678	35,673,678	0	23,770,878	0	23,770,878		
7	168,200,174	36,031,016	36,031,016	0	22,438,306	0	22,438,306		
8	162,997,223	36,279,946	36,279,946	0	21,115,259	0	21,115,259		
9	157,509,027	36,412,606	36,412,606	0	19,806,045	0	19,806,045		
10	151,850,626	36,447,417	36,447,417	0	18,528,018	0	18,528,018		
11	146,126,183	36,464,877	36,464,877	0	17,324,201	0	17,324,201		
12	140,363,989	36,255,971	36,255,971	0	16,098,085	0	16,098,085		
13	134,810,810	35,978,310	35,978,310	0	14,929,719	0	14,929,719		
14	129,567,727	35,610,181	35,610,181	0	13,810,242	0	13,810,242		
15	124,765,560	35,148,284	35,148,284	0	12,739,356	0	12,739,356		
Total					440,283,735	+	0	=	440,283,735

Note: Years 16-99 have been omitted from this table.

* Discounted at the long-term expected rate of return, 7.00%

** Discounted at the municipal bond rate, 2.74%

*** Discounted at the single interest rate that produces a total actuarial present value equal to the sum of the actuarial present values of "funded" and "unfunded" benefit payments, 7.00%

Net Pension Liability

Net Pension Liability	December 31, 2018	December 31, 2019
Total pension liability	\$416,267,588	\$432,090,616
Fiduciary net position	174,075,118	189,409,531
Net pension liability	242,192,470	242,681,085
Fiduciary net position as a % of total pension liability	41.82%	43.84%
Covered payroll	43,829,652	42,569,567
Net pension liability as a % of covered payroll	552.58%	570.08%

The total pension liability was determined by an actuarial valuation as of the valuation date, calculated based on the discount rate and actuarial assumptions below, and was then projected forward to the measurement date. Any significant changes during this period have been reflected as prescribed by GASB 67 and 68.

Discount Rate

Discount rate	7.00%	7.00%
Long-term expected rate of return, net of investment expense	7.00%	7.00%
Bond Buyer General Obligation 20-Bond Municipal Bond Index	4.00%	2.74%

The plan's fiduciary net position was projected to be available to make all projected future benefit payments of current active and inactive employees. Therefore, the discount rate for calculating the total pension liability is equal to the long-term expected rate of return.

Other Key Actuarial Assumptions

The plan has not had a formal actuarial experience study performed.

Valuation date	January 1, 2019	January 1, 2020
Measurement date	December 31, 2018	December 31, 2019
Inflation	2.50%	2.50%
Salary increases including inflation	Plan specific	Plan specific
Mortality	Non-annuitants: RP-2000 "Employees" table projected to 2034 using Scale AA; Annuitants: RP-2000 "Healthy Annuitants" projected to 2026 using Scale AA	Pub-2010 General and MP-2019 Improvement converging to long-term rate of 0.5% in 2035
Actuarial cost method	Entry Age Normal	Entry Age Normal

Changes in Net Pension Liability

Changes in Net Pension Liability	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances as of December 31, 2018	\$416,267,588	\$174,075,118	\$242,192,470
Changes for the year:			
Service cost	4,427,614		4,427,614
Interest on total pension liability	28,354,280		28,354,280
Effect of plan changes	0		0
Effect of economic/demographic gains or losses	3,437,847		3,437,847
Effect of assumptions changes or inputs	11,409,337		11,409,337
Benefit payments	(31,806,050)	(31,806,050)	0
Employer contributions		11,604,690	(11,604,690)
Member contributions		5,580,652	(5,580,652)
Net investment income		30,029,436	(30,029,436)
Administrative expenses		(74,315)	74,315
Balances as of December 31, 2019	432,090,616	189,409,531	242,681,085

Sensitivity Analysis

The following presents the net pension liability of the City, calculated using the discount rate of 7.00%, as well as what the City's net pension liability would be if it were calculated using a discount rate that is 1 percentage point lower (6.00%) or 1 percentage point higher (8.00%) than the current rate.

	1% Decrease 6.00%	Current Discount Rate 7.00%	1% Increase 8.00%
Total pension liability	\$478,226,465	\$432,090,616	\$393,222,673
Fiduciary net position	189,409,531	189,409,531	189,409,531
Net pension liability	288,816,934	242,681,085	203,813,142

Schedule of Changes in Net Pension Liability and Related Ratios
(in 1,000s)

	Fiscal Year Ending December 31									
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Total Pension Liability										
Service cost	\$4,428	\$7,302	\$6,388	\$6,707	\$6,265	\$5,494	N/A	N/A	N/A	N/A
Interest on total pension liability	28,354	28,333	27,864	27,394	27,068	26,529	N/A	N/A	N/A	N/A
Effect of plan changes	0	0	0	0	0	(8,184)	N/A	N/A	N/A	N/A
Effect of economic/demographic gains or losses	3,438	(2,693)	1,889	(1,597)	(3,180)	(1,782)	N/A	N/A	N/A	N/A
Effect of assumption changes or inputs	11,409	0	0	0	3,439	28,311	N/A	N/A	N/A	N/A
Benefit payments	(31,806)	(30,199)	(28,176)	(27,333)	(26,288)	(24,723)	N/A	N/A	N/A	N/A
Net change in total pension liability	15,823	2,742	7,965	5,171	7,303	25,646	N/A	N/A	N/A	N/A
Total pension liability, beginning	416,268	413,525	405,560	400,389	393,086	367,440	N/A	N/A	N/A	N/A
Total pension liability, ending (a)	432,091	416,268	413,525	405,560	400,389	393,086	N/A	N/A	N/A	N/A
Fiduciary Net Position										
Employer contributions	\$11,605	\$10,510	\$9,450	\$9,006	\$7,364	\$5,945	N/A	N/A	N/A	N/A
Member contributions	5,581	6,027	4,987	4,951	5,305	5,156	N/A	N/A	N/A	N/A
Investment income net of investment expenses	30,029	(7,081)	24,770	16,414	372	11,665	N/A	N/A	N/A	N/A
Benefit payments	(31,806)	(30,199)	(28,176)	(27,333)	(26,288)	(24,723)	N/A	N/A	N/A	N/A
Administrative expenses	(74)	(1,569)	(1,154)	(62)	(74)	(81)	N/A	N/A	N/A	N/A
Net change in plan fiduciary net position	15,334	(22,312)	9,877	2,977	(13,321)	(2,037)	N/A	N/A	N/A	N/A
Fiduciary net position, beginning	174,075	196,387	186,510	183,533	196,854	198,891	N/A	N/A	N/A	N/A
Fiduciary net position, ending (b)	189,410	174,075	196,387	186,510	183,533	196,854	N/A	N/A	N/A	N/A
Net pension liability, ending = (a) - (b)	\$242,681	\$242,192	\$217,138	\$219,050	\$216,856	\$196,232	N/A	N/A	N/A	N/A
Fiduciary net position as a % of total pension liability	43.84%	41.82%	47.49%	45.99%	45.84%	50.08%	N/A	N/A	N/A	N/A
Covered payroll	\$42,570	\$43,830	\$45,108	\$43,752	\$43,859	\$45,120	N/A	N/A	N/A	N/A
Net pension liability as a % of covered payroll	570.08%	552.58%	481.38%	500.66%	494.44%	399.49%	N/A	N/A	N/A	N/A

This schedule is presented to illustrate the requirement to show information for 10 years. However, recalculations of prior years are not required, and if prior years are not reported in accordance with the current GASB standards, they should not be reported.

Pension Expense

Pension Expense	January 1, 2018 to December 31, 2018	January 1, 2019 to December 31, 2019
Service cost	\$7,301,607	\$4,427,614
Interest on total pension liability	28,333,337	28,354,280
Effect of plan changes	0	0
Administrative expenses	1,568,752	74,315
Member contributions	(6,027,012)	(5,580,652)
Expected investment return net of investment expenses	(13,223,016)	(11,679,631)
Recognition of Deferred Inflows/Outflows of Resources		
Recognition of economic/demographic gains or losses	(993,705)	712,816
Recognition of assumption changes or inputs	404,609	3,297,496
Recognition of investment gains or losses	3,396,995	(272,967)
Pension Expense	<u>20,761,567</u>	<u>19,333,271</u>

As of December 31, 2019, the deferred inflows and outflows of resources are as follows:

Deferred Inflows / Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources
Differences between expected and actual experience	(\$1,245,251)	\$2,567,810
Changes of assumptions	0	8,111,841
Net difference between projected and actual earnings	(20,376,282)	12,182,379
Contributions made subsequent to measurement date	<u>0</u>	<u>0</u>
Total	(21,621,533)	22,862,030

Amounts currently reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year ended December 31:	
2020	\$830,397
2021	1,715,324
2022	2,364,737
2023	(3,669,961)
2024	0
Thereafter*	0

* Note that additional future deferred inflows and outflows of resources may impact these numbers.

Schedule of Deferred Inflows and Outflows of Resources

	Original Amount	Date Established	Original Recognition Period*	Amount Recognized in Pension Expense through 12/31/2019	Balance of Deferred Inflows as of 12/31/2019	Balance of Deferred Outflows as of 12/31/2019
Investment (gains) or losses	(\$18,349,805)	12/31/2019	5.0	(3,669,961)	(14,679,844)	0
	20,303,965	12/31/2018	5.0	4,060,793	0	12,182,379
	(12,226,666)	12/31/2017	5.0	(2,445,333)	(4,890,667)	0
	(4,028,863)	12/31/2016	5.0	(805,773)	(805,771)	0
	12,936,539	12/31/2015	5.0	<u>2,587,307</u>	<u>0</u>	<u>0</u>
		Total		(272,967)	(20,376,282)	12,182,379
Economic/demographic (gains) or losses	3,437,847	12/31/2019	3.5	993,597	0	2,444,250
	(2,693,219)	12/31/2018	3.7	(723,984)	(1,245,251)	0
	1,888,718	12/31/2017	3.2	588,386	0	123,560
	(1,597,021)	12/31/2016	3.3	(145,183)	0	0
	(3,180,367)	12/31/2015	3.4	<u>0</u>	<u>0</u>	<u>0</u>
		Total		712,816	(1,245,251)	2,567,810
Assumption changes or inputs	11,409,337	12/31/2019	3.5	<u>3,297,496</u>	<u>0</u>	<u>8,111,841</u>
		Total		3,297,496	0	8,111,841

* Investment (gains)/losses are recognized in pension expense over a period of five years; economic/demographic (gains)/losses and assumption changes or inputs are recognized over the average remaining service life for all active and inactive members.

Glossary

Actuarially Determined Contribution	A target or recommended contribution to a defined benefit pension plan for the reporting period, determined based on the funding policy and most recent measurement available when the contribution for the reporting period was adopted.
Deferred Inflows/Outflows of Resources	Portion of changes in net pension liability that is not immediately recognized in Pension Expense. These changes include differences between expected and actual experience, changes in assumptions, and differences between expected and actual earnings on plan investments.
Discount Rate	Single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the sum of: <ol style="list-style-type: none">1) The actuarial present value of benefit payments projected to be made in future periods where the plan assets are projected to be sufficient to meet benefit payments, calculated using the Long-Term Expected Rate of Return.2) The actuarial present value of projected benefit payments not included in (1), calculated using the Municipal Bond Rate.
Fiduciary Net Position	Equal to market value of assets.
Long-Term Expected Rate of Return	Long-term expected rate of return on pension plan investments expected to be used to finance the payment of benefits, net of investment expenses.
Money-Weighted Rate of Return	The internal rate of return on pension plan investments, net of investment expenses.
Municipal Bond Rate	Yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher.
Net Pension Liability	Total Pension Liability minus the Plan's Fiduciary Net Position (unfunded accrued liability).
Projected Benefit Payments	All benefits estimated to be payable through the pension plan to current active and inactive employees as a result of their past service and expected future service.
Service Cost	The portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
Total Pension Liability	The portion of actuarial present value of projected benefit payments that is attributable to past periods of member service using the Entry Age Normal cost method based on the requirements of GASB 67 and 68.

Additional Assumptions

Salary Increases
(sample of annual rates)

Age	Rate
25	5.77%
30	4.17%
35	3.23%
40	2.83%
45	2.19%
50	1.62%
55	1.40%

Turnover
(sample of annual rates and multiplier during 1st 5 years)

Age	Rate
25	15.0%
30	12.0%
35	10.0%
40	8.0%
45	7.0%
50	6.0%
55	6.0%

Multiplier

Year of Service	Rate
1	3.50
2	2.50
3	2.00
4	1.75
5	1.25

Retirement
(sample of annual rates)

Age	Rate
45-49	7.5%
50-54	10.0%
55-56	15.0%
57	20.0%
58-64	25.0%
65-69	50.0%
70	100.0%

Disability
(sample of annual rates)

Age	Rate
25	0.01%
30	0.01%
35	0.02%
40	0.06%
45	0.13%
50	0.35%
55	1.01%
60	1.14%
65	0.32%