Policemen's Annuity and Benefit Fund of Chicago

GASB Statement Nos. 67 and 68 Accounting and Financial Reporting for Pensions

Measured as of December 31, 2021

Applicable to Plan's Fiscal Year End December 31, 2021

Applicable to Employer's Fiscal Year End December 31, 2021

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May 23, 2022

The Retirement Board of the
Policemen's Annuity and Benefit Fund
221 North LaSalle Street, Suite 1626
Chicago, Illinois 60601-1404

Members of the Board:

This report provides accounting and financial reporting information as of December 31, 2021 that is intended to comply with the Governmental Accounting Standards Board ("GASB") Statement Nos. 67 and 68 for the Policemen's Annuity and Benefit Fund of Chicago ("PABF" or "Fund"). These calculations have been made on a basis that is consistent with our understanding of these Statements.

GASB Statement No. 67 is the accounting standard that applies to the stand-alone financial reports issued by retirement systems. GASB Statement No. 68 establishes accounting and financial reporting for state and local government employers who provide their employees (including former employees) pension benefits through a trust.

Our calculation of the liability associated with the PABF benefits (described in Section E) was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB Statement Nos. 67 and 68. The Net Pension Liability is not an appropriate measure for measuring the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligation. The Net Pension Liability is not an appropriate measure for assessing the need for or amount of future employer contributions. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement Nos. 67 and 68 may produce significantly different results. This report may be provided to parties other than PABF only in its entirety and only with the permission of PABF.

This report is based upon information, furnished to us by PABF, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. If the understanding of this information is different, please let us know. This information was checked for internal consistency, but it was not audited.

This report complements the funding actuarial valuation report that was provided to PABF and should be considered in conjunction with that report. Please see the funding actuarial valuation report as of December 31, 2021 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

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This actuarial valuation assumes that the City will be able to make future contributions on a timely basis. We did not perform an analysis of the ability of the City to make future contributions. Such an analysis is not within the scope of our assignment. Failure to receive City contributions on a timely basis could jeopardize the sustainability of the Fund.

The actuarial valuation results set forth in this report are based on the data and actuarial techniques described above, and upon the provisions of the Fund as of the actuarial valuation date. To the best of our knowledge, the information contained in this report is complete and accurate based on the statutes in effect as of December 31, 2021, and fairly presents the actuarial position of the Fund as of December 31, 2021, for purposes of complying with the financial reporting requirements under GASB Statement Nos. 67 and 68.

All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

The actuarial assumptions used in this actuarial valuation are reasonable and appropriate for purposes of measuring the GASB Statement Nos. 67 and 68 pension liability as of December 31, 2021, under the current provisions.

This report was prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled. We are relying on the GRS actuaries and Internal Software, Training, and Processes Team who developed and maintain the model.

This report reflects the impact of COVID-19 through December 31, 2021. However, this report does not reflect the longer term and still developing future impact of COVID-19, which is likely to further influence demographic experience and economic expectations. We will continue to monitor these developments and their impact on the Fund and the actuarial assumptions. Actual experience will be reflected in each subsequent annual valuation, as experience emerges.

This report should not be relied on for any purpose other than the purpose stated.

The signing actuaries are independent of the PABF and the plan sponsor.

Lance Weiss and Amy Williams are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

By ______________________	By ______________________
Lance J. Weiss, EA, MAAA, FCA	Amy Williams, ASA, MAAA, FCA
Senior Consultant and Team Leader	Senior Consultant

Auditor's Note – This information is intended to assist in preparation of the financial statements of the Policemen's Annuity and Benefit Fund of Chicago. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

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Section A

Executive Summary

Executive Summary as of December 31, 2021

Actuarial Valuation Date	December 31, 2021
Measurement Date of the Net Pension Liability	December 31, 2021
Plan's Fiscal Year Ending Date	December 31, 2021
Employer's Fiscal Year Ending Date (Reporting Date)	December 31, 2021

Membership

Number of	
- Retirees and Beneficiaries	14,260
- Inactive, Nonretired Members	940
- Active Members	12,126
- Total	27,326
Covered Payroll	$ 1,258,338,033

Net Pension Liability

Total Pension Liability	$ 16,340,008,877
Plan Fiduciary Net Position	3,846,664,456
Net Pension Liability	$ 12,493,344,421
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	23.54%
Net Pension Liability as a Percentage of Covered Payroll	992.84%

Development of the Single Discount Rate

Single Discount Rate Beginning of Year	6.28%
Single Discount Rate End of Year	6.26%
Long-Term Expected Rate of Investment Return	6.75%
Long-Term Municipal Bond Rate Beginning of Year*	2.00%
Long-Term Municipal Bond Rate End of Year*	1.84%
Last Year Trust Assets are Available to Pay Assets	2077

Total Pension Expense $ 1,042,297,173

Deferred Outflows and Deferred Inflows of Resources by Source to be recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred (Inflows) of Resources
Difference Between Expected and Actual Non-Investment Experience	$ 421,933,238	$ (183,243,883)
Changes in Assumptions	877,820,731	(92,970,437)
Net Difference Between Projected and Actual Earnings on Pension Plan Investments	-	(137,243,027)
Total	$ 1,299,753,969	$ (413,457,347)

*Source: *The rates at the beginning and end of the year are the rates for fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of December 31, 2020, and December 31, 2021, respectively. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax exempt securities.*

Discussion

Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board ("GASB") Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain non-actuarial information, such as notes regarding accounting policies and investments, is not included in this report and the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

Financial Statements

GASB Statement No. 68 requires state or local governments to recognize the net pension liability and the pension expense on their financial statements. The net pension liability is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions."

The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the liability and investment experience.

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position in accordance with GASB Statement No. 67. The *statement of fiduciary net position* presents the assets and liabilities of the pension plan at the end of the pension plan's reporting period. The *statement of changes in fiduciary net position* presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expenses, and net increase or decrease in the fiduciary net position.

Discussion

Notes to Financial Statements

GASB Statement No. 68 requires the notes of the employer's financial statements to disclose the total pension expense, the pension plan's liabilities and assets, and deferred outflows and inflows of resources related to pensions.

GASB Statement Nos. 67 and 68 require the notes of the financial statements for the employers and pension plans to include certain additional information. The list of disclosure items should include:

- A description of benefits provided by the plan;
- The type of employees and number of members covered by the pension plan;
- A description of the plan's funding policy, which includes member and employer contribution requirements;
- The pension plan's investment policies;
- The pension plan's fiduciary net position, net pension liability, and the pension plan's fiduciary net position as a percentage of the total pension liability;
- The net pension liability using a discount rate that is 1% higher and 1% lower than used to calculate the total pension liability and net pension liability for financial reporting purposes;
- Significant assumptions and methods used to calculate the total pension liability;
- Inputs to the discount rates; and
- Certain information about mortality assumptions and the dates of experience studies.

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- The composition of the pension plan's board and the authority under which benefit terms may be amended;
- A description of how fair value is determined;
- Information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables and insurance contracts excluded from plan assets; and
- Annual money-weighted rate of return.

Required Supplementary Information

GASB Statement No. 67 requires a 10-year fiscal history of:

- Sources of changes in the net pension liability;
- Information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability and the net pension liability as a percent of covered-employee payroll; and
- A comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

The tables may be built prospectively as the information becomes available.

Discussion

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. For employer reporting, the net pension liability and pension expense should be measured as of a date (measurement date) no earlier than the end of the employer's prior fiscal year, consistently applied from period to period. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total pension liability shown in this report is based on an actuarial valuation performed as of December 31, 2021, and a measurement date of December 31, 2021.

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) a tax-exempt municipal bond rate based on an index of 20-year mixed maturity general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this actuarial valuation, the expected rate of return on pension plan investments is 6.75%; the municipal bond rate is 1.84% (based on the most recent date available on or before the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting Single Discount Rate is 6.26%.

Effective Date and Transition

GASB Statement Nos. 67 and 68 are effective for fiscal years beginning after June 15, 2013, and June 15, 2014, respectively; earlier application is encouraged by the GASB.

Recent Legislation

The following Public Acts passed in 2021 by the 101st General Assembly and 102nd General Assembly included changes to the Fund Provisions but did not impact the results of the actuarial valuation.

P.A. 101-0653, Effective February 26, 2021

Extended the dates for which COVID-19 is included as a cause of eligibility for certain annuities related to death in the line of duty.

P.A. 102-0125, Effective July 23, 2021

Made changes to provisions concerning credit for service while on a leave of absence from the police department and assigned or detailed to perform safety or investigative work.

Discussion

Assumption Changes

Actuarial assumptions remained unchanged (with the exception of the single discount rate) from the prior actuarial valuation and reflect the results of the experience study performed for the period of January 1, 2014 through December 31, 2018, approved by the Board on August 29, 2019, first effective for the December 31, 2019, actuarial valuation.

SECTION B

FINANCIAL STATEMENTS

Auditor's Note: This information is intended to assist in preparation of the financial statements of the Policemen's Annuity and Benefit Fund of Chicago. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Pension Expense under GASB Statement No. 68
Fiscal Year Ended December 31, 2021

A. Expense

1.	Service Cost Including Pension Plan Administrative Expense	$	284,707,281
2.	Interest on the Total Pension Liability		963,417,573
3.	Current-Period Benefit Changes		-
4.	Employee Contributions (made negative for addition here)		(136,225,041)
5.	Projected Earnings on Plan Investments (made negative for addition here)		(233,477,625)
6.	Other Changes in Plan Fiduciary Net Position		(91,594)
7.	Recognition of Outflow/(Inflow) of Resources due to Liabilities		(24,855,623)
8.	Recognition of Outflow/(Inflow) of Resources due to Assumption Changes		230,142,342
9.	Recognition of Outflow/(Inflow) of Resources due to Assets		(41,320,140)
10.	**Total Pension Expense**	**$**	**1,042,297,173**

B. Reconciliation of Net Pension Liability

1.	**Net Pension Liability Beginning of Year**	**$**	**12,052,842,455**
1. a.	Adjustment as of January 1, 2021		48,376
2.	Pension Expense		1,042,297,173
3.	Employer Contributions (made negative for addition here)		(788,769,979)
4.	Change in Liability Experience Outflows/(Inflows) Recognized in Current Liabilities		475,383,676
5.	Change in Assumption Changes Experience Outflows/(Inflows) Recognized in Current Liabilities		(193,113,639)
6.	Change in Investment Experience Outflows/(Inflows) Recognized in Current Assets		(95,343,641)
7.	**Net Pension Liability End of Year**	**$**	**12,493,344,421**

Recognition of Deferred Outflows and Inflows of Resources

Differences between expected and actual experience and changes in assumptions are recognized in pension expense using a systematic and rational method over a closed period equal to the average of the expected remaining service lives of all employees that are provided with pensions through the pension plan (active employees and inactive employees) determined as of the beginning of the measurement period.

At the beginning of the current measurement period, the expected remaining service lives of all active employees in the plan was approximately 172,107.19 years. Additionally, the total plan membership (active employees and inactive employees) was 27,416. As a result, the average of the expected remaining service lives for purposes of recognizing the applicable deferred outflows and inflows of resources established in the current measurement period is 6.2776 years.

Additionally, differences between projected and actual earnings on pension plan investments should be recognized in pension expense using a systematic and rational method over a closed five-year period. For this purpose, the deferred outflows and inflows of resources are recognized in the pension expense as a level dollar amount over the closed period identified above.

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods
Fiscal Year Ended December 31, 2021

A. Outflows and (Inflows) of Resources Recognized in Current and Future Pension Expenses as of Plan Year End December 31, 2021

Experience (Gain)/Loss	Original Balance	Date Established	Original Recognition Period/ Amortization Factor	Amount Recognized in Past Pension Expenses	Amount Recognized in Current Pension Expense	Deferred (Inflows) to be Recognized in Future Pension Expenses	Deferred Outflows to be Recognized in Future Pension Expenses
1. Differences Between Expected	$ 450,528,053	December 31, 2021	6.2776	$ -	$ 71,767,140	$ -	$ 378,760,913
and Actual Non-Investment Experience	61,913,883	December 31, 2020	6.6071	9,370,779	9,370,779	-	43,172,325
	(68,010,227)	December 31, 2019	6.6988	(20,305,236)	(10,152,618)	(37,552,373)	-
	(281,150,986)	December 31, 2018	6.2392	(135,187,047)	(45,062,349)	(100,901,590)	-
	(299,923,560)	December 31, 2017	5.8778	(204,106,912)	(51,026,728)	(44,789,920)	-
	1,801,353	December 31, 2016	5.7988	1,553,200	248,153	-	-
	$ (134,841,484)			$ (348,675,216)	$ (24,855,623)	$ (183,243,883)	$ 421,933,238
2. Assumption Changes	$ 37,028,703	December 31, 2021	6.2776	$ -	$ 5,898,510	$ -	$ 31,130,193
	260,021,116	December 31, 2020	6.6071	39,354,668	39,354,668	-	181,311,780
	1,140,418,080	December 31, 2019	6.6988	340,484,930	170,242,465	-	629,690,685
	(259,051,713)	December 31, 2018	6.2392	(124,560,957)	(41,520,319)	(92,970,437)	-
	238,975,508	December 31, 2017	5.8778	162,629,948	40,657,487	-	35,688,073
	112,585,241	December 31, 2016	5.7988	97,075,710	15,509,531	-	-
	$ 1,529,976,935			$ 514,984,299	$ 230,142,342	$ (92,970,437)	$ 877,820,731
3. Difference Between Expected	$ (136,663,781)	December 31, 2021	5.0000	$ -	$ (27,332,756)	$ (109,331,025)	$ -
and Actual Investment Earnings	(58,173,726)	December 31, 2020	5.0000	(11,634,745)	(11,634,745)	(34,904,236)	-
	(163,277,704)	December 31, 2019	5.0000	(65,311,082)	(32,655,541)	(65,311,081)	-
	361,516,575	December 31, 2018	5.0000	216,909,945	72,303,315	-	72,303,315
	(210,002,073)	December 31, 2017	5.0000	(168,001,660)	(42,000,413)	-	-
	74,326,665	December 31, 2016	5.0000	74,326,665	-	-	-
	$ (132,274,044)			$ 46,289,123	$ (41,320,140)	$ (209,546,342)	$ 72,303,315
4. Total	**$ 1,262,861,407**			**$ 212,598,206**	**$ 163,966,579**	**$ (485,760,662)**	**$ 1,372,057,284**

B. Deferred Outflows and Deferred (Inflows) of Resources by Year to be Recognized in Future Pension Expenses

Year Ending December 31	Differences Between Expected and Actual Non-Investment Experience	Assumption Changes	Differences Between Expected and Actual Investment Experience
2022	$ (18,866,968)	$ 209,663,397	$ 680,273
2023	25,922,952	173,975,324	(71,623,041)
2024	60,208,409	205,565,844	(38,967,502)
2025	74,043,400	164,216,468	(27,332,757)
2026	77,456,349	29,791,618	-
2027	19,925,213	1,637,643	-
Thereafter	-	-	-
Total	**$ 238,689,355**	**$ 784,850,294**	**$ (137,243,027)**

Year Ending December 31	Deferred Outflows of Resources	Deferred (Inflows) of Resources	Net Deferred Outflows/ (Inflows) of Resources
2022	$ 404,624,950	$ (213,148,248)	$ 191,476,702
2023	296,633,562	(168,358,327)	128,275,235
2024	296,633,562	(69,826,811)	226,806,751
2025	245,354,387	(34,427,276)	210,927,111
2026	107,247,967	-	107,247,967
2027	21,562,856	-	21,562,856
Thereafter	-	-	-
Total	**$ 1,372,057,284**	**$ (485,760,662)**	**$ 886,296,622**

Numbers may not add due to rounding.

Statement of Changes in Fiduciary Net Position
Years Ended December 31, 2021, and 2020

	2021	2020
Assets		
Receivables		
Employer	$ 811,248,459	$ 755,544,781
Plan member	29,842,251	5,200,155
Due from Broker - net	89,873,228	75,964,597
Interest and dividends	4,541,782	4,453,353
Other receivables	-	-
Total receivables	935,505,720	841,162,886
Investments - at fair value		
Cash and short-term investements	66,045,120	107,381,276
Equities	1,690,150,832	1,453,684,866
Fixed income	601,953,421	598,549,944
Private equity	176,694,191	112,601,991
Real estate	179,780,088	143,394,621
Hedge funds	240,521,237	223,802,930
Infrastructure	77,237,291	67,867,536
Subtotal	3,032,382,180	2,707,283,164
Forward currency contracts	76,065	218,487
Securities lending cash collateral	76,691,671	109,234,378
Total investments - fair value	3,109,149,916	2,816,736,029
Total assets	4,044,655,636	3,657,898,915
Deferred Outflow of Resources	376,339	
Liabilities and net position		
Liabilities		
Due to brokers - net	113,730,872	97,765,151
Refunds, professional fees payable and other liabilities	6,113,642	6,616,796
OPEB liability	1,476,386	2,265,881
Securities lending cash collateral	76,691,671	109,234,378
Total liabilities	198,012,571	215,882,206
Deferred Inflow of Resources	354,948	70,454
Net Position Restricted for Pension Benefits		
Beginning of year	3,441,946,255	3,441,946,255
Adjustment as of January 1, 2021	(48,376)	-
End of year	$ 3,846,664,456	$ 3,441,946,255

Adjustment for the difference between the end of year market value of assets from the prior year actuarial valuation and the final end of year market value of assets from the prior year. Assets as of December 31, 2020 were updated subsequent to the delivery date of the actuarial valuation report which was presented to the Board on May 27, 2021. The updates did not significantly impact the certified contribution rate which was approved by the Board on May 27, 2021. The asset updates increased the administration expense from $4,310,938 to $4,359,314. The preceding changes decreased the market value of assets at December 31, 2020 from $3,441,946,255 to $3,441,897,879.

Statement of Changes in Fiduciary Net Position
Years Ended December 31, 2021, and 2020

	2021	2020
Additions		
Contributions		
Employer	$ 788,769,979	$ 739,440,979
Plan Member	136,225,041	113,621,747
Other	91,594	472,449
Total Contributions	925,086,614	853,535,175
Investment Income		
Net appreciation in fair value of investments	343,315,879	244,374,580
Interest	11,252,867	10,440,563
Dividends	19,250,671	20,398,839
Real estate operating income - net	4,729,096	4,440,060
	378,548,513	279,654,042
Less investment expenses	(8,938,916)	(8,148,775)
Investment income - net	369,609,597	271,505,267
Securities lending		
Income	499,256	725,738
Lender (borrower) rebates	108,319	(287,556)
Management fees	(75,766)	(52,582)
Securities lending income - net	531,809	385,600
Total additions	1,295,228,020	1,125,426,042
Deductions		
Benefits	869,310,502	828,901,654
Refund Payments	17,766,049	12,696,058
Administrative and OPEB expenses	3,384,892	4,310,938
Total deductions	890,461,443	845,908,650
Net increase	404,766,577	279,517,392
Net Position Restricted for Pension Benefits		
Beginning of year	3,441,946,255	3,162,428,863
Adjustment as of January 1, 2021	(48,376)	-
End of year	$ 3,846,664,456	$ 3,441,946,255

Adjustment for the difference between the end of year market value of assets from the prior year actuarial valuation and the final end of year market value of assets from the prior year. Assets as of December 31, 2020 were updated subsequent to the delivery date of the actuarial valuation report which was presented to the Board on May 27, 2021. The updates did not significantly impact the certified contribution rate which was approved by the Board on May 27, 2021. The asset updates increased the administration expense from $4,310,938 to $4,359,314. The preceding changes decreased the market value of assets at December 31, 2020 from $3,441,946,255 to $3,441,897,879.

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Auditor's Note: This information is intended to assist in preparation of the financial statements of the Policemen's Annuity and Benefit Fund of Chicago. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Schedule of Changes in Net Pension Liability and Related Ratios Current Period
Fiscal Year Ended December 31, 2021

A. Total Pension Liability		
1. Service Cost Including Pension Plan Administrative Expense	$	284,707,281
2. Interest on the Total Pension Liability		963,417,573
3. Changes of benefit terms		-
4. Difference between expected and actual experience of the Total Pension Liability		450,528,053
5. Changes of assumptions		37,028,703
6. Benefit payments, including refunds of employee contributions		(887,076,551)
7. Pension Plan Administrative Expenses		(3,384,892)
8. Net change in total pension liability		845,220,167
9. Total pension liability – beginning		15,494,788,710
10. Total pension liability – ending	**$**	**16,340,008,877**
B. Plan Fiduciary Net Position		
1. Contributions – employer		788,769,979
2. Contributions – employee		136,225,041
3. Net investment income		370,141,406
4. Benefit payments, including refunds of employee contributions		(887,076,551)
5. Pension Plan Administrative Expense		(3,384,892)
6. Other		91,594
7. Net change in plan fiduciary net position		404,766,577
8. Plan fiduciary net position – beginning		3,441,946,255
8a. Adjustment as of January 1, 2021		(48,376)
9. Plan fiduciary net position – ending	**$**	**3,846,664,456**
C. Net Pension Liability	**$**	**12,493,344,421**
D. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability		**23.54%**
E. Covered-Employee Payroll	**$**	**1,258,338,033**
F. Net Pension Liability as a Percentage of Covered Employee Payroll		**992.84%**

Schedules of Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios Multiyear

Fiscal year ending December 31,	2021	2020	2019	2018	2017	2016	2015	2014
Total Pension Liability								
Service Cost Including Pension Plan Administrative Expense	$ 284,707,281	$ 286,536,580	$ 240,383,419	$ 242,998,341	$ 237,333,255	$ 220,569,553	$ 213,584,647	$ 199,435,084
Interest on the Total Pension Liability	963,417,573	942,623,431	944,738,703	931,731,201	917,720,267	851,098,457	832,972,131	791,693,017
Benefit Changes	-	-	24,216,420	-	-	606,249,791	-	-
Difference between Expected and Actual Experience	450,528,053	61,913,883	(68,010,227)	(281,150,986)	(299,923,560)	1,801,353	(105,968,891)	-
Assumption Changes	37,028,703	260,021,116	1,140,418,080	(259,051,713)	238,975,508	112,585,241	-	845,070,287
Benefit Payments	(869,310,502)	(828,901,654)	(791,839,040)	(764,367,368)	(737,873,928)	(696,491,103)	(668,950,080)	(645,688,934)
Refunds	(17,766,049)	(12,696,058)	(8,828,904)	(6,737,073)	(10,017,655)	(10,704,842)	(7,826,847)	(8,991,636)
Pension Plan Administrative Expense	(3,384,892)	(4,310,938)	(4,734,467)	(4,626,599)	(4,843,012)	(4,749,762)	(4,508,519)	(4,240,625)
Net Change in Total Pension Liability	845,220,167	705,186,360	1,476,343,984	(141,204,197)	341,370,875	1,080,358,688	259,302,441	1,177,277,193
Total Pension Liability - Beginning	15,494,788,710	14,789,602,350	13,313,258,366	13,454,462,563	13,113,091,688	12,032,733,000	11,773,430,559	10,596,153,366
Total Pension Liability - Ending (a)	$ 16,340,008,877	$ 15,494,788,710	$ 14,789,602,350	$ 13,313,258,366	$ 13,454,462,563	$ 13,113,091,688	$ 12,032,733,000	$ 11,773,430,559
Plan Fiduciary Net Position								
Employer Contributions	$ 788,769,979	$ 739,440,979	$ 581,936,012	$ 588,034,930	$ 494,483,191	$ 272,427,716	$ 572,836,100	$ 177,417,827
Employee Contributions	136,225,041	113,621,747	110,791,663	107,186,492	103,011,250	101,475,864	107,626,311	95,675,538
Pension Plan Net Investment Income	370,141,406	271,890,867	369,982,655	(137,977,182)	412,190,404	142,699,124	(5,333,795)	181,901,293
Benefit Payments	(869,310,502)	(828,901,654)	(791,839,040)	(764,367,368)	(737,873,928)	(696,491,103)	(668,950,080)	(645,688,934)
Refunds	(17,766,049)	(12,696,058)	(8,828,904)	(6,737,073)	(10,017,655)	(10,704,842)	(7,826,847)	(8,991,636)
Pension Plan Administrative Expense	(3,384,892)	(4,310,938)	(4,734,467)	(4,626,599)	(4,843,012)	(4,749,762)	(4,508,519)	(4,240,625)
Other	91,594	472,449	32,359	1,600,348	97,239	1,412,770	3,091,545	740,305
Net Change in Plan Fiduciary Net Position	404,766,577	279,517,392	257,340,278	(216,886,452)	257,047,489	(193,930,233)	(3,065,285)	(203,186,232)
Plan Fiduciary Net Position - Beginning	3,441,946,255	3,162,428,863	2,905,179,841	3,122,066,293	2,865,018,804	3,058,949,037	3,062,014,322	3,265,200,554
Adjustment as of January 1,	(48,376)	-	(91,256)	-	-	-	-	-
Plan Fiduciary Net Position - Ending (b)	$ 3,846,664,456	$ 3,441,946,255	$ 3,162,428,863	$ 2,905,179,841	$ 3,122,066,293	$ 2,865,018,804	$ 3,058,949,037	$ 3,062,014,322
Net Pension Liability - Ending (a) - (b)	12,493,344,421	12,052,842,455	11,627,173,487	10,408,078,525	10,332,396,270	10,248,072,884	8,973,783,963	8,711,416,237
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	23.54%	22.21%	21.38%	21.82%	23.20%	21.85%	25.42%	26.01%
Covered Employee Payroll	$ 1,258,338,033	$ 1,195,980,486	$ 1,228,986,864	$ 1,205,324,445	$ 1,150,406,094	$ 1,119,526,987	$ 1,086,607,979	$ 1,074,333,319
Net Pension Liability as a Percentage of Covered Employee Payroll	992.84%	1007.78%	946.08%	863.51%	898.15%	915.39%	825.85%	810.87%

Ten fiscal years will be built prospectively.

Please see the following page for additional notes relating to the Schedule of Changes in Net Pension Liability and Related Ratios.

Schedules of Required Supplementary Information
Additional Notes to the Schedule of Changes in Net Pension Liability and Related Ratios Multiyear

The beginning of year total pension liability for fiscal year 2021 used a Single Discount Rate of 6.28% and the benefit provisions, actuarial assumptions, and funding policy in effect as of the December 31, 2020 funding actuarial valuation. The Single Discount Rate of 6.28% was based on a long-term expected rate of return on pension plan investments of 6.75% used in the December 31, 2020, funding actuarial valuation for the years 2020 through 2076 and a long-term municipal bond rate as of December 31, 2020, of 2.00% for subsequent years.

The end of year total pension liability for fiscal year 2021 uses a Single Discount Rate of 6.26% and the benefit provisions, actuarial assumptions, and funding policy in effect as of the December 31, 2021 funding actuarial valuation. The Single Discount Rate of 6.26% was based on a long-term expected rate of return on pension plan investments of 6.75% used in the December 31, 2021, funding actuarial valuation for the years 2021 through 2077 and a long-term municipal bond rate as of December 31, 2021, of 1.84% for subsequent years.

The increase in the total pension liability for fiscal year 2021 due to assumption changes and methods includes the impact of the change in the municipal bond rate from December 31, 2020 to December 31, 2021. Changes in actuarial assumptions and methods led to the change in the Single Discount Rate from 6.28% to 6.26% (based on the long-term expected rate of return on pension plan investments of 6.75% used in the December 31, 2020 funding actuarial valuation and 6.75% used in the December 31, 2021 funding actuarial valuation and the long-term municipal bond rate of 2.00% as of December 31, 2020, and 1.84% as of December 31, 2021, respectively). This change was measured at the end of the year using the benefit provisions in effect as of December 31, 2021.

Schedules of Required Supplementary Information
Schedule of the Net Pension Liability Multiyear

FY Ending December 31,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll [1]	Net Pension Liability as a % of Covered Payroll
2014	$ 11,773,430,559	$ 3,062,014,322	$ 8,711,416,237	26.01%	$ 1,074,333,318	810.87%
2015	12,032,733,000	3,058,949,037	8,973,783,963	25.42%	1,086,607,979	825.85%
2016	13,113,091,688	2,865,018,804	10,248,072,884	21.85%	1,119,526,987	915.39%
2017	13,454,462,563	3,122,066,293	10,332,396,270	23.20%	1,150,406,094	898.15%
2018	13,313,258,366	2,905,179,841	10,408,078,525	21.82%	1,205,324,445	863.51%
2019	14,789,602,350	3,162,428,863	11,627,173,487	21.38%	1,228,986,864	946.08%
2020	15,494,788,710	3,441,946,255	12,052,842,455	22.21%	1,195,980,486	1007.78%
2021	16,340,008,877	3,846,664,456	12,493,344,421	23.54%	1,258,338,033	992.84%

[1] *Covered payroll is the amount in force as of the actuarial valuation date and likely differs from actual payroll paid during the fiscal year.*

Ten fiscal years will be built prospectively.

Schedule of Contributions Multiyear
Last 10 Fiscal Years

FY Ending December 31,	Actuarial Determined Contribution [1]	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll [2]	Actual Contribution as a % of Covered Payroll	Statutory Contribution
2012	$ 431,010,173	$ 197,885,552	$ 233,124,621	$ 1,015,170,686	19.49%	$204,329,314
2013	474,177,604	179,521,259	294,656,345	1,015,426,128	17.68%	182,716,690
2014	491,651,208	178,158,132	313,493,076	1,074,333,318	16.58%	178,773,877
2015	785,500,836	575,927,645	209,573,191	1,086,607,979	53.00%	410,558,466
2016	785,695,084	273,840,486	511,854,598	1,119,526,987	24.46%	454,844,486
2017	910,938,497	494,580,430	416,358,067	1,150,406,094	42.99%	500,000,000
2018	924,653,899	589,635,278	335,018,621	1,205,324,445	48.92%	557,000,000
2019	933,769,914	581,968,371	351,801,543	1,228,986,864	47.35%	579,000,000
2020	1,037,582,236	739,913,428	297,668,808	1,195,980,486	61.87%	737,527,285
2021	1,047,839,052	788,861,573	258,977,479	1,258,338,033	62.69%	786,792,834

[1] *The PABF Statutory Funding Policy does not conform to Actuarial Standards of Practice; therefore, for fiscal years 2015 and after, the actuarially determined contribution is equal to the normal cost plus a 30-year level dollar amortization of the unfunded actuarial liability. Prior to 2015 the actuarially determined contribution was equal to the "ARC" which was equal to the normal cost plus a 30-year open level percent amortization of the unfunded actuarial liability.*

[2] *Covered payroll shown is the amount in force as of the actuarial valuation date and likely differs from actual payroll paid during the fiscal year.*

Notes to Schedule of Contributions

Valuation Date:	December 31, 2020
Notes	Actuarially determined contributions are calculated as of December 31, which is at the beginning of the fiscal year to which they apply.

Methods and Assumptions Used for Actuarially Determined Contribution for Fiscal Year 2021:

Actuarial Cost Method	Entry-Age Normal
Amortization Method	Level dollar amount
Amortization Period	30-year open period
Asset Valuation Method	5-year smoothed market
Inflation	2.25 percent
Salary Increases	Salary increase rates based on wage inflation rate of 3.50% plus service based increases consistent with bargaining contracts.
Postretirement Benefit Increases	A retiree born before January 1, 1966, with at least 20 years of service or receiving a mandatory retirement minimum annuity, receives an increase of 3 percent of the original annuity, starting on the first of the month following the first anniversary of his retirement or the first of the month following attainment of age 55, whichever is later, and shall not be subject to a 30 percent maximum increase. For retirees born on and after January 1, 1966, automatic increases are 1.5 percent of the original annuity, commencing at age 60, or the first anniversary of retirement, if later, to a maximum of 30 percent. For participants who first became members on or after January 1, 2011, increases are equal to the lesser of 3.00 percent and 50 percent of CPI-U of the original benefit, commencing at age 60.
Investment Rate of Return	6.75 percent
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the December 31, 2019, actuarial valuation pursuant to an experience study of the period January 1, 2014 through December 31, 2018.
Mortality	Post-Retirement Healthy mortality rates: Sex distinct Pub-2010 Amount-weighted Safety Healthy Retiree Mortality Tables weighted 119% for males and 102% for females, set forward one year for males. Pre-Retirement mortality rates: Sex distinct Pub-2010 Amount-weighted Safety Employee Mortality Tables weighted 100% for males and 100% for females. Disabled Mortality: Sex distinct Pub-2010 Amount-weighted Safety Healthy Retiree Mortality Tables weighted 129% for males and 112% for females, set forward one year for males. Future mortality improvements are reflected by projecting the base mortality tables forward using the MP-2018 projection scale.

Other Information:

Notes	The actuarially determined contribution for fiscal year ending December 31, 2021 was determined in the funding actuarial valuation as of December 31, 2020 and the statutory contribution (upon which the actual contribution was based) for fiscal year ending December 31, 2021 was determined in the funding actuarial valuation as of December 31, 2019, which were both based on the assumptions summarized above.

Methods and Assumptions Used for Accounting Purposes as of the Valuation Date:

Actuarial Cost Method	Entry-Age Normal
Asset Valuation Method	Market value
Discount Rate	6.28 percent as of the December 31, 2020, actuarial valuation.
	6.26 percent as of the December 31, 2021, actuarial valuation.

SECTION D

NOTES TO FINANCIAL STATEMENTS

Auditor's Note: This information is intended to assist in preparation of the financial statements of the Policemen's Annuity and Benefit Fund of Chicago. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Sensitivity of Net Pension Liability to the Single Discount Rate Assumptions

Single Discount Rate

A Single Discount Rate of 6.26% was used to measure the total pension liability as of December 31, 2021. This Single Discount Rate was based on an expected rate of return on pension plan investments of 6.75% and a municipal bond rate of 1.84%. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made under the statutory funding policy. Based on these assumptions, the pension plan's fiduciary net position and future contributions were sufficient to finance the benefit payments only through the year 2077. As a result, the long-term expected rate of return on pension plan investments was applied to projected benefit payments through the year 2077, and the municipal bond rate was applied to all benefit payments after that date.

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 6.26%, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

1% Decrease 5.26%	Current Single Discount Rate Assumption 6.26%	1% Increase 7.26%
$ 14,532,722,298	$ 12,493,344,421	$ 10,796,707,547

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	14,260
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	940
Active Plan Members	12,126
Total Plan Members	27,326

Additional information about the member data used is included in the December 31, 2021, funding actuarial valuation report.

SECTION E

SUMMARY OF BENEFITS

Summary of Benefits

Plan Descriptions (as of December 31, 2021)

PARTICIPANTS	An employee in the police department of the City of Chicago appointed and sworn or designated by law as a peace officer with the title of policeman, policewoman, chief surgeon, police surgeon, police dog catcher, police kennelman, police matron, and members of the police force of the police department.
SERVICE	In computing service rendered by a police officer, the following periods shall be counted, in addition to all periods during which he performed the duties of his position, as periods of service for annuity purposes only: All periods of (a) vacation; (b) leave of absence with pay; (c) military service; (d) disability for which the police officer receives disability benefit. The calculation of service is based on a day-to-day basis for most purposes. For the purpose of calculating benefits under the Dominant Formula, one year of Service is credited for a year in any portion of which a police officer is compensated.

RETIREMENT

Eligibility	Attainment of age 50 with at least 10 years of service. *For participants who first became members on or after January 1, 2011, attainment of age 55 with at least 10 years of service. Participants may retire at attainment of age 50 with 10 years of service with a reduced benefit.*
Mandatory	Effective in plan year 2003, retirement is mandatory for a participant who has attained age 63.
Accumulation Annuity	At age 50 or more, with 10 or more years of service, the employee is entitled to an annuity based on the sums accumulated for age and service annuity plus 1/10 of the sum accumulated from the contributions by the City for the age and service annuity for each completed year of service after the first 10 years. At age 50 or more with 20 or more years, the employee is entitled to an annuity based on all sums accumulated.

Formula Minimum Annuity

While there are several alternative formulas available with 20 or more years of service, the Dominant Formula is 50% of highest average salary (including duty availability pay) in 48 consecutive months within the last 10 years of service plus 2.5% for each year or fraction of service over 20 years, limited to 75% of average salary.

Mandatory Retirement Minimum Annuity

A police officer who is required to withdraw from service due to attainment of mandatory retirement age who has less than 20 years of service credit may elect to receive an annuity equal to 30% of average salary for the first 10 years of service, plus 2% of average salary for each completed year of service in excess of 10, to a maximum of 48% of average salary. This benefit qualifies for post retirement increases.

Post-Retirement Increase

A retiree born before January 1, 1966, with at least 20 years of service or receiving a mandatory retirement minimum annuity, receives an increase of 3% of the original annuity, starting on the first of the month following the first anniversary of his retirement or the first of the month following attainment of age 55, whichever is later, and shall not be subject to a 30% maximum increase. For retirees born on and after January 1, 1966, automatic increases are 1.5% of the original annuity, commencing at age 60, or the first anniversary of retirement, if later, to a maximum of 30%.

For participants who first became members on or after January 1, 2011, increases are equal to the lesser of 3.00% and 50% of CPI-U of the original benefit, commencing at age 60.

Minimum Annuity

Beginning with the monthly annuity payment due on January 1, 2016, the fixed and granted monthly annuity payment for any policeman who retired from the service before January 1, 2016, at age 50 or over with 20 or more years of service, and for any policeman who retired from service due to termination of disability and who is entitled to an annuity on January 1, 2016, shall be no less than 125% of the Federal Poverty Level.

For participants who first became members on or after January 1, 2011, the member is entitled to an annuity based on an accrual rate of 2.5% of the final average salary for each fraction of service. Maximum is 75% of the final average salary. Final average salary is calculated using salary from the eight highest consecutive years within the last 10 years of service prior to retirement. Pensionable salary is limited to $106,800 in 2011, increased by the lesser of 3% and one-half of the annual unadjusted percentage increase in the Consumer Price Index-U (but not less than zero) as measured in the preceding 12- month period ending with the September preceding the November 1, which is the date that the new amount will be calculated and made available to the pension funds.

For participants who first became members on or after January 1, 2011, who retire after age 50 but before age 55 is attained, the member is entitled to an annuity based on an accrual rate of 2.5% of the final average salary for each fraction of service, reduced by one half of one percent per month for retirement prior to age 55, subject to a maximum benefit of 75%.

Reversionary Annuity

A member, prior to retirement, may elect to reduce his own annuity, and provide a reversionary annuity, to begin upon the officer's death, for the officer's spouse.

SURVIVOR INCOME BENEFITS PAYABLE ON DEATH

Death in Service (Non-Duty): Generally, a money-purchase benefit is provided, based on total salary deductions and City contributions. However, if a policeman dies in service after December 31, 1985, with at least 1.5 years of service, the widow's annuity is the greater of (a) 30% of the annual maximum salary attached to the classified civil service position of a first class patrolman at the time of his death (without dollar limit) or (b) 50% of the benefit accrued by the policeman at date of death.

The lifetime benefit is payable until death.

Death in Service (Duty Related)

Compensation Annuity 75% of the member's salary attached to the civil service position that would ordinarily have been paid to such member as though in active discharge of his duties at the time of death payable until the date the policeman would have attained age 63.

Supplemental Annuity Payable for life and is equal to the difference between the money purchase annuity for the spouse and an amount equal to 75% of the annual salary (including all salary increases and longevity raises) the police officer would have been receiving when he attained age 63 if the police officer had continued in service at the same rank last held in the department.

Death after Retirement If a police officer retires on or after January 1, 1986, and subsequently dies, the widow's annuity is 40% before 1988 and 50% on and after January 1, 1988, of the retired policeman's annuity at the time of death (without dollar limit).

Maximum Annuity $500 a month (after discount for age difference) under both the accumulation method and the old formula method. There is no dollar limit on the 30%, 40%, or 50% benefit.

Summary of Benefits

Minimum Annuity	The minimum widow's annuity shall be no less than 125% of the Federal Poverty Level. *For participants who first became members on or after January 1, 2011, widow benefits are equal to 66-2/3% of the officer's earned annuity at the date of death. Automatic increases to the annuity are equal to the lesser of 3.00% and 50% of CPI-U, commencing when the survivor reaches age 60, and applied to the original granted retirement annuity.*

CHILDREN'S ANNUITIES

Eligibility	Payable at death of the policeman to all unmarried children less than 18 years of age.
Benefit	10% of the annual maximum salary of a first class patrolman during widow (widower) life, 15% otherwise.
Payable Until	Age 18. If the child is disabled, benefit is payable for life or as long as such disablement exists.
Family Maximum	60% (non-duty death) or 100% (duty death) of the salary that would ordinarily been paid to the policeman, if he had been in the active discharge of his duties.
Parent's Annuities Eligibility	Payable to a dependent parent at the death of a policeman who is in either active service, or receiving a disability benefit, or on leave of absence, or in receipt of an annuity granted after 20 years of service, or waiting to start receiving an annuity granted for 20 years of service. The benefit is only payable if there are no surviving spouses or children eligible for benefits.
Benefit	18% of the current salary attached to the rank at separation from service.
Payable until	Death of the dependent parent.

DUTY DISABILITY BENEFIT

Eligibility	Disabling condition incurred in the performance of duty.

Benefit	75% of salary at the time the disability is allowed plus $100.00 per month for each unmarried child less than age 18, (total amount of child's benefits shall not exceed 25% of salary). Beginning January 1, 2000, after seven years of payment, the benefit shall not be less than 60% of the current salary attached to the rank held by the policemen at the time of disability. Payable to employee's age 63 or by operation of law, whichever is later. Salary deductions are contributed by the City.

OCCUPATIONAL DISEASE DISABILITY BENEFIT

Eligibility	Heart attack or any disability heart disease after 10 years of service.
Benefit	65% of salary attached to the rank held by the police officer at the time of his or her removal from the police department payroll with a minimum after 10 years of 50% of the current salary attached to the rank. Each natural or legally adopted unmarried child of the officer under the age of 18 is entitled to a benefit of $100 per month. This benefit is not terminated at age 18 if the child is then dependent by reason of physical or mental disability. Salary deductions are contributed by the City.

ORDINARY DISABILITY BENEFIT

Eligibility	Disabling condition other than duty or occupational related.
Benefit	50% of salary at the time of injury, payable for a period not more than 25% of service (excluding any previous disability time) rendered prior to injury, nor more than five years. Disability shall cease at age 63. Salary deductions are contributed by the City.

DEATH BENEFIT

Eligibility	Payable upon the death of a police officer whose death occurs while in active service; on authorized leave of absence; within 60 days of receipt of salary; while receiving duty or ordinary disability benefit; occurring within 60 days of termination of such benefit; or occurring on retirement while in receipt of annuity and separation was effective after 20 years of service. This benefit is payable to beneficiaries or, if none, to estate.

Summary of Benefits

Benefit

Death in Service:	**Age at Death**	**Benefit**
	49 and under	$12,000
	50-62	$12,000 less $400 for each year by which age at death exceeds 49

Death after Retirement:	**Age at Death**	**Benefit**
	50 and over	$6,000

If death results from injury incurred in performance of duty before retirement on annuity, the benefit payable is $12,000 regardless of the attained age.

REFUNDS

Policemen

Without regard to service and under age 50, or with less than 10 years of service and under age 57 at withdrawal: a refund of all salary deductions together with 1.5% simple interest until the date of withdrawal.

For Spouse's Annuity

Upon retirement an unmarried policeman will receive a refund of contributions for spouse's annuity, accumulated at 3% compounded annually.

Of Remaining Amounts

If at death of a retired policeman the total member contributions paid while active exceed the total retirement benefits paid to date of death, the difference is payable.

CONTRIBUTIONS

Salary Deductions	Employee	7 %	
	Spouse	1½%	
	Annuity Increase	½%	
		9 %	
City Contributions [1]	Employee	9-5/7%	
	Spouse	2%	
	Annuity Increase	½%	Unallocated
		12-3/14%	

[1] *Credited to Participant's Accumulation Annuity and Widow's Annuity Account*

In addition to the above contributions, a contribution is made to support the Death Benefit. Policemen contribute $2.50 per month. City contributes a total of $224,000 for all policemen.

Prior to 2015, the total City contribution is generated by a tax equal to double the contributions by the policemen to the Fund two years prior to the year of the tax levy.

Under P.A. 99-0506, City contributions are equal to $420 million in payment year 2016, $464 million in payment year 2017, $500 million in payment year 2018, $557 million in payment year 2019, and $579 million in payment year 2020. For payment years after 2020, the City is required to make level percent of pay contributions for plan years 2020 through 2055 that along with member contributions and investment earnings are expected to generate a projected funded ratio of 90% by plan year end 2055.

"PICK UP" OF EMPLOYEE SALARY DEDUCTIONS

Beginning January 1, 1982, the employee contributions were "picked up" by the employer. The W-2 salary is therefore reduced by the amount of contribution. For pension purposes the salary remains unchanged. Income tax will be paid when a refund or annuity is received. For the purpose of benefits, refunds or contributions, these contributions will be treated as employee contributions.

SALARY CAP AND COLA DEVELOPMENT FOR MEMBERS HIRED ON OR AFTER JANUARY 1, 2011

Year Ending	CPI-U	½ CPI-U	COLA	Maximum Annual Pensionable Earnings
2011			3.00%	$106,800.00
2012	3.90%	1.95%	1.95%	$108,882.60
2013	2.00%	1.00%	1.00%	$109,971.43
2014	1.20%	0.60%	0.60%	$110,631.26
2015	1.70%	0.85%	0.85%	$111,571.63
2016	0.00%	0.00%	0.00%	$111,571.63
2017	1.50%	0.75%	0.75%	$112,408.42
2018	2.20%	1.10%	1.10%	$113,644.91
2019	2.30%	1.15%	1.15%	$114,951.83
2020	1.70%	0.85%	0.85%	$115,928.92
2021	1.40%	0.70%	0.70%	$116,740.42
2022	5.40%	2.70%	2.70%	$119,892.41

Health Insurance Premium Subsidies

Pursuant to the court order Underwood, et. al., v. City of Chicago, et. al., PABF provides retiree health insurance premium subsidies to certain eligible annuitants.

To be eligible for the PABF paid subsidy, the annuitant must meet the following eligibility requirements to receive partial reimbursement for healthcare costs:

1) Annuitant must have retired on or after August 23, 1989;
2) Annuitant must have been hired prior to April 4, 2003; and
3) Annuitant must have either:
    a) Participated in a group healthcare plan for which the Fund offers to deduct health insurance premiums from monthly annuities in accordance with the 1983 and 1985 amendments to the Illinois Pension Code Statutes (currently either the Blue Cross/Blue Shield plans sponsored by the City of Chicago; the Aetna plans sponsored by the Labor Benefits Association; or the United American Insurance Co. plans sponsored by the Chicago Police Sergeants' Association);
    OR
    b) For the period between January 1, 2017, and December 31, 2019, participated in any health insurance plan and paid their healthcare insurance premiums themselves, either through an account on which the annuitant is named or an account established for the benefit of the annuitant.

Eligible annuitants are entitled to receive a health insurance premium subsidy payable from PABF for the lifetime of the employee annuitant in the amount of $55 per month if the annuitant is not receiving Medicare benefits or $21 per month if the annuitant is receiving Medicare benefits.

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Actuarial Cost Method and Actuarial Assumptions

I. ACTUARIAL COST METHOD

An Actuarial Cost Method is a set of techniques used by the actuary to develop contribution levels under a retirement plan. The Actuarial Cost Method used in this valuation for statutory funding and State reporting purposes and GASB accounting purposes is the Entry Age Normal cost method.

Under the Entry Age Normal Cost Method, each participant's projected benefit is allocated on a level percent of pay basis from entry age to assumed exit age. The Actuarial Accrued Liability is the portion of the present value associated with pay prior to the valuation date. The Normal Cost is the portion of the present value associated with pay during the current plan year.

To the extent that current assets and future Normal Costs do not support participants' expected future benefits, an Unfunded Actuarial Accrued Liability ("UAAL") develops. The UAAL is generally amortized over a fixed period of time (e.g., 30 years) from the date incurred. The total contribution developed under this method is the sum of the Normal Cost and the payment toward the UAAL.

II. CURRENT ACTUARIAL ASSUMPTIONS

The current actuarial assumptions were adopted and became effective December 31, 2019, and were based on an experience study for the period January 1, 2014 to December 31, 2018.

Demographic Assumptions

Post-Retirement Mortality

Scaling factors of 119% for males, and 102% for females of the Pub-2010 Amount-weighted Safety Healthy Retiree Mortality Tables, sex distinct, set forward one-year for males, with generational mortality improvement using MP-2018 2-dimensional mortality improvement scales recently released by the SOA. This assumption provides a margin for mortality improvements.

Disabled Mortality

Scaling factors of 129% for males, and 112% for females of the Pub-2010 Amount-weighted Safety Healthy Retiree Mortality Tables, sex distinct, set forward one-year for males, with generational mortality improvement using MP-2018 2-dimensional mortality improvement scales recently released by the SOA. This assumption provides a margin for mortality improvements.

Pre-Retirement Mortality

Scaling factors of 100% for males, and 100% for females of the Pub-2010 Amount-weighted Safety Employee Mortality Tables, sex distinct, with generational mortality improvement using MP-2018 2-dimensional mortality improvement scales recently released by the SOA. This assumption provides a margin for mortality improvements.

Actuarial Cost Method and Actuarial Assumptions

We use what is termed “the limited fluctuation credibility procedure” to determine the appropriate scaling factor of the base mortality tables for each gender and each member classification. We used a liability weighted basis. In each case, the partial credibility factor (or “Z-factor”) is computed based on the experience of the specific group being studied. This Z-factor is a measure of the credibility of the pertinent group.

The Best Fit is the ratio of actual to expected deaths using the base table. The final scale is then determined as the weighted average of the Best Fit and 100% based on the Z-factor. For example, the Z-factor for male retirees is 97%, suggesting that the data for this group is 97% credible (there were not enough deaths among active members to be completely credible). The Best Fit for this group would be to scale the base tables by 119%. The final scale of 119% is the credibility-weighted average (119% = 97% x 119% + 3% x 100%). Factors for females are determined similarly.

	Future Life Expectancy (years) in 2021		Future Life Expectancy (years) in 2035	
	Postretirement		Postretirement	
Age	**Male**	**Female**	**Male**	**Female**
35	48.76	53.49	50.11	54.80
40	43.49	48.16	44.82	49.46
45	38.29	42.87	39.59	44.15
50	33.17	37.63	34.43	38.90
55	28.16	32.51	29.39	33.76
60	23.36	27.61	24.54	28.80
65	18.90	22.95	19.98	24.07
70	14.81	18.54	15.77	19.57
75	11.13	14.47	11.96	15.40

Actuarial Cost Method and Actuarial Assumptions

Rate of Retirement: The table below shows the assumed rates of retirement.

Attained Age	Tier 1	Tier 2
50	0.05	0.02
51	0.05	0.02
52	0.05	0.02
53	0.05	0.02
54	0.05	0.03
55	0.22	0.24
56	0.22	0.24
57	0.22	0.24
58	0.22	0.24
59	0.22	0.24
60	0.22	0.22
61	0.27	0.27
62	0.27	0.27
63	1.00	1.00
64	1.00	1.00
65	1.00	1.00

Rate of Termination: The table below shows the assumed rates of termination.

Years of Service	Rate
0	0.030
1	0.025
2	0.017
3	0.015
4	0.014
5	0.014
6	0.013
7	0.010
8	0.009
9	0.009
10	0.009
11	0.008
12	0.007
13	0.006
14 +	0.006

Rate of Disability: The rate at which members are assumed to become disabled under the provisions of the Fund. The rates assumed are as follows:

Attained Age	Rates
20-24	0.0002
25-29	0.0004
30-34	0.0007
35-39	0.0015
40-44	0.0026
45-49	0.0032
50-54	0.0042
55-59	0.0042
60-64	0.0043

Of the participants who become disabled in the future, the following distribution of disability types is assumed:

Duty Disability:	40%
Occupational Disease Disability:	10%
Ordinary Disability:	50%

Economic Assumptions

Investment Return: 6.75% per year, compounded annually, net of investment expenses. The 6.75% assumption is composed of a 2.25% inflation assumption and a 4.50% real rate of return assumption.

General Inflation: 2.25% per year, compounded annually.

This assumption serves as the basis for the determination of annual increases in pension and the pensionable salary cap for Tier Two members.

Wage Inflation and Payroll Growth: 3.50% per year, compounded annually.

Future Salary Increases: The assumed base rate of individual salary increase is 3.50% per year (underlying wage inflation assumption), plus an additional percentage based on the following service scale:

Years of Service*	Base Rates	Wage Inflation	Total Rates
0	0.00%	3.50%	3.50%
1	38.50%	3.50%	42.00%
2	4.00%	3.50%	7.50%
3	3.50%	3.50%	7.00%
4	3.50%	3.50%	7.00%
5	3.50%	3.50%	7.00%
6-9	0.00%	3.50%	3.50%
10	4.00%	3.50%	7.50%
11-14	0.00%	3.50%	3.50%
15	4.00%	3.50%	7.50%
16-19	0.00%	3.50%	3.50%
20	4.00%	3.50%	7.50%
21-24	0.00%	3.50%	3.50%
25	4.00%	3.50%	7.50%
26-29	0.00%	3.50%	3.50%
30	4.00%	3.50%	7.50%

** Includes increases at 12 and 18 months of service.*

Asset Value: The Actuarial Value of Assets is smoothed by using a five-year phase-in of each year’s unexpected investment gains and losses.

Expenses: Statutory funding projections include an explicit administrative expense assumption of $3,385,000 for plan year end December 31, 2021, increased by 2.25% per year.

Projection Assumptions

Active Population: Active members who terminate, retire, become disabled, or die during the year are replaced by new entrants such that the number of active members remains level during the projection period based on the most recent actuarial valuation. The number of active members as of the valuation at December 31, 2021 is 12,126.

New Entrant Profile: The entry age of future new entrants, which is summarized below, is based on the profile of current active members hired over the last five years with one or more years of service as of December 31, 2021. These members were hired from January 1, 2017, through December 31, 2020.

Entry Age	Number
Under 20	0
20 to 25	907
25 to 30	985
30 to 35	527
35 to 40	253
40 to 55	6

Approximately 72% of the new entrants are assumed to be male.

New Entrant Pay: Based on the most recent employment contract, new entrants were assumed to earn $53,038 for the plan year ending December 31, 2021 and $54,672 for the plan year ending December 31, 2022. This amount does not include duty availability pay. The new entrant pay for members hired after 2021 is assumed to increase by the wage inflation assumption of 3.50% plus duty availability pay after three years, increased by CPI compounded.

New Entrant Pay Increases: Pay for a specific new entrant is assumed to increase in the future by the wage inflation and the service based increases disclosed in this actuarial valuation.

The projections assume a pay cap of $119,892.41 for plan year 2022, increasing by 1.125% per year after plan year 2022. The annual increase of 1.125% per year is based on 50% of the CPI-U increase which is assumed to be 2.25% per year.

Other Assumptions

Marital Status: It is assumed that 75% of active members have an eligible spouse. The male spouse is assumed to be three years older than the female spouse. No assumption is made about other dependents.

Reciprocal Service: No assumption for reciprocal service.

Benefit Service: Exact fractional years of service are used to determine the amount of benefit payable.

Decrement Timing: All decrements are assumed to occur mid-year.

Decrement Relativity: Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

Actuarial Cost Method and Actuarial Assumptions

Decrement Operation: Turnover decrements do not operate after member reaches retirement eligibility for a minimum annuity formula benefit.

Eligibility Testing: Eligibility for benefits is determined based upon the age nearest birthday and service on the date the decrement is assumed to occur.

Pay Increase Timing: Beginning of the (fiscal) year.

Tax Levy Loss: No tax levy loss is assumed.

Health Insurance Premium Subsidies: Current recipients of the $55 per month for non-Medicare and $21 per month for Medicare health insurance premium subsidy were identified in the data provided by PABF staff. The subsidies for current recipients are assumed to continue during the recipient's lifetime. The valuation assumes 65 percent of future retirees (i.e., current actives) eligible for the subsidy will receive it in the future and 20 percent of eligible current retirees not currently receiving the subsidy will receive it in the future.

Benefit Adjustments: To calculate retiree liabilities, benefits for retirees who retired from 2018 through 2021 were increased by the following amounts to estimate increased benefits due to expected recalculation of benefits due to the new FOP contract with retroactive salary increases from July 1, 2017 to date of retirement.

Year of Retirement	Benefit Adjustment
2018	0.55%
2019	1.67%
2020	3.41%
2021	5.74%

Section G

Calculation of the Single Discount Rate

Calculation of the Single Discount Rate

GASB Statement Nos. 67 and 68 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses, and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The Single Discount Rate (“SDR”) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) a tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.75%; the municipal bond rate is 1.84%; and the resulting Single Discount Rate is 6.26%.

The sponsor finances benefits using a funding policy defined in state statutes. Sponsor contributions are equal to a fixed payment schedule for payment years 2016 through 2020 and a level percentage of pay contribution determined so that the Fund attains a 90% funded ratio by the end of 2055 on an open group basis for payment years on and after 2022. The statutory contribution does not explicitly separate projected employer contributions between current plan members and future plan members.

For purposes of developing the Single Discount Rate, we have projected actuarial liabilities on an Entry Age Normal basis, and compared against projected market value of assets. We have assumed the actuarial liability for future members will be fully financed, to the extent that assets are available, and any remaining asset will be assigned to current plan members. Based on this assignment of assets and employer contributions, plan assets assigned to current members are projected to be depleted by 2077.

The tables in this section provide background for the development of the Single Discount Rate.

The following tables show the assignment of assets and employer contributions and the projection of assets for current members as of the actuarial valuation date. Our projections assume the sponsor will make the required statutory contributions. The projections are based on the statutory funding projections performed during the December 31, 2021, actuarial valuation.

Total administrative expenses are assumed to increase at the assumed rate of inflation, or 2.25%. Total administrative expenses are allocated between current and future hires by total payroll.

Projection of Funded Status and Assignment of Assets

PYE 12/31	Open Group Actuarial Liability	Closed Group Actuarial Liability	Future Member Actuarial Liability	Open Group Assets	Future Member Assigned Assets	Closed Group Assigned Assets	Funded Ratio Current Members	Funded Ratio Future Members
	(a)	(b)	(c)=(a)-(b)	(d)	(e)=min[(c),(d)]	(f)=(d)-(e)	(g)=(f)/(b)	(h)=(e)/(c)
2021	$15,470,642,614	$15,470,642,614	$ -	$3,846,664,456	$ -	$3,846,664,456	24.86%	0.00%
2022	15,830,048,620	15,830,048,620	-	4,047,435,358	-	4,047,435,358	25.57%	0.00%
2023	16,199,164,487	16,192,258,382	6,906,106	4,301,959,151	6,906,106	4,295,053,045	26.53%	100.00%
2024	16,562,982,157	16,540,809,020	22,173,136	4,564,683,919	22,173,136	4,542,510,783	27.46%	100.00%
2025	16,917,872,128	16,870,812,636	47,059,492	4,833,302,074	47,059,492	4,786,242,582	28.37%	100.00%
2026	17,261,959,144	17,178,858,443	83,100,702	5,108,029,484	83,100,702	5,024,928,783	29.25%	100.00%
2027	17,594,814,064	17,463,087,304	131,726,760	5,391,648,740	131,726,760	5,259,921,980	30.12%	100.00%
2028	17,916,301,076	17,722,290,457	194,010,619	5,684,333,472	194,010,619	5,490,322,853	30.98%	100.00%
2029	18,224,460,572	17,953,396,351	271,064,221	5,981,760,089	271,064,221	5,710,695,868	31.81%	100.00%
2030	18,518,190,040	18,154,008,297	364,181,743	6,283,121,425	364,181,743	5,918,939,682	32.60%	100.00%
2031	18,797,994,096	18,323,240,355	474,753,741	6,590,965,211	474,753,741	6,116,211,470	33.38%	100.00%
2032	19,064,226,723	18,459,458,349	604,768,374	6,908,317,872	604,768,374	6,303,549,499	34.15%	100.00%
2033	19,316,485,092	18,560,533,560	755,951,533	7,236,333,539	755,951,533	6,480,382,007	34.91%	100.00%
2034	19,554,739,492	18,625,377,515	929,361,977	7,574,910,002	929,361,977	6,645,548,025	35.68%	100.00%
2035	19,780,225,551	18,654,608,611	1,125,616,941	7,924,841,718	1,125,616,941	6,799,224,778	36.45%	100.00%
2036	19,993,687,422	18,648,518,758	1,345,168,665	8,285,273,569	1,345,168,665	6,940,104,904	37.22%	100.00%
2037	20,196,938,209	18,607,823,322	1,589,114,887	8,658,772,350	1,589,114,887	7,069,657,463	37.99%	100.00%
2038	20,390,733,735	18,532,334,084	1,858,399,651	9,045,994,722	1,858,399,651	7,187,595,071	38.78%	100.00%
2039	20,576,500,209	18,422,283,399	2,154,216,810	9,449,642,289	2,154,216,810	7,295,425,479	39.60%	100.00%
2040	20,755,469,590	18,277,906,517	2,477,563,073	9,872,348,616	2,477,563,073	7,394,785,543	40.46%	100.00%
2041	20,929,509,271	18,099,857,848	2,829,651,423	10,318,447,258	2,829,651,423	7,488,795,835	41.37%	100.00%
2042	21,099,980,975	17,888,517,462	3,211,463,514	10,791,322,005	3,211,463,514	7,579,858,492	42.37%	100.00%
2043	21,268,190,548	17,644,307,767	3,623,882,780	11,294,318,673	3,623,882,780	7,670,435,892	43.47%	100.00%
2044	21,435,105,439	17,367,433,679	4,067,671,759	11,830,680,241	4,067,671,759	7,763,008,482	44.70%	100.00%
2045	21,601,595,599	17,057,995,946	4,543,599,653	12,404,049,706	4,543,599,653	7,860,450,053	46.08%	100.00%
2046	21,768,616,111	16,716,518,512	5,052,097,599	13,018,381,939	5,052,097,599	7,966,284,340	47.66%	100.00%
2047	21,937,473,232	16,344,091,242	5,593,381,989	13,678,097,076	5,593,381,989	8,084,715,086	49.47%	100.00%
2048	22,109,157,518	15,942,017,272	6,167,140,246	14,387,438,229	6,167,140,246	8,220,297,983	51.56%	100.00%
2049	22,283,667,850	15,510,939,390	6,772,728,460	15,149,620,950	6,772,728,460	8,376,892,489	54.01%	100.00%
2050	22,461,247,300	15,052,164,803	7,409,082,498	15,968,385,664	7,409,082,498	8,559,303,166	56.86%	100.00%
2051	22,642,635,183	14,568,229,530	8,074,405,653	16,848,208,631	8,074,405,653	8,773,802,978	60.23%	100.00%
2052	22,829,040,711	14,062,804,731	8,766,235,980	17,794,306,468	8,766,235,980	9,028,070,487	64.20%	100.00%
2053	23,022,145,718	13,540,809,444	9,481,336,274	18,812,628,537	9,481,336,274	9,331,292,263	68.91%	100.00%
2054	23,222,956,719	13,007,016,300	10,215,940,419	19,908,718,461	10,215,940,419	9,692,778,042	74.52%	100.00%
2055	23,431,907,184	12,465,850,013	10,966,057,170	21,087,877,184	10,966,057,170	10,121,820,014	81.20%	100.00%
2056	23,648,819,776	11,921,005,832	11,727,813,944	21,283,937,798	11,727,813,944	9,556,123,854	80.16%	100.00%
2057	23,873,501,155	11,375,566,330	12,497,934,826	21,486,151,040	12,497,934,826	8,988,216,214	79.01%	100.00%
2058	24,106,442,946	10,832,642,567	13,273,800,379	21,695,798,651	13,273,800,379	8,421,998,272	77.75%	100.00%
2059	24,348,229,567	10,294,988,867	14,053,240,700	21,913,406,611	14,053,240,700	7,860,165,911	76.35%	100.00%
2060	24,599,690,017	9,765,164,499	14,834,525,518	22,139,721,016	14,834,525,518	7,305,195,498	74.81%	100.00%
2061	24,861,413,098	9,245,236,772	15,616,176,326	22,375,271,788	15,616,176,326	6,759,095,462	73.11%	100.00%
2062	25,133,883,692	8,736,809,836	16,397,073,856	22,620,495,322	16,397,073,856	6,223,421,467	71.23%	100.00%
2063	25,417,379,543	8,240,972,193	17,176,407,350	22,875,641,589	17,176,407,350	5,699,234,239	69.16%	100.00%
2064	25,712,221,712	7,758,535,251	17,953,686,462	23,140,999,541	17,953,686,462	5,187,313,079	66.86%	100.00%
2065	26,018,731,822	7,290,072,902	18,728,658,920	23,416,858,640	18,728,658,920	4,688,199,720	64.31%	100.00%
2066	26,337,200,214	6,835,995,741	19,501,204,473	23,703,480,192	19,501,204,473	4,202,275,719	61.47%	100.00%
2067	26,667,784,106	6,396,608,001	20,271,176,104	24,001,005,695	20,271,176,104	3,729,829,591	58.31%	100.00%
2068	27,010,629,060	5,972,190,751	21,038,438,310	24,309,566,154	21,038,438,310	3,271,127,845	54.77%	100.00%
2069	27,365,705,205	5,562,928,498	21,802,776,707	24,629,134,685	21,802,776,707	2,826,357,978	50.81%	100.00%
2070	27,732,884,329	5,168,998,141	22,563,886,188	24,959,595,896	22,563,886,188	2,395,709,708	46.35%	100.00%
2071	28,111,897,482	4,790,489,727	23,321,407,755	25,300,707,733	23,321,407,755	1,979,299,978	41.32%	100.00%
2072	28,502,344,492	4,427,478,250	24,074,866,242	25,652,110,044	24,074,866,242	1,577,243,801	35.62%	100.00%
2073	28,903,681,363	4,079,993,880	24,823,687,483	26,013,313,227	24,823,687,483	1,189,625,744	29.16%	100.00%
2074	29,315,286,696	3,748,071,399	25,567,215,297	26,383,758,026	25,567,215,297	816,542,729	21.79%	100.00%
2075	29,736,344,906	3,431,677,908	26,304,666,998	26,762,710,415	26,304,666,998	458,043,417	13.35%	100.00%
2076	30,166,065,867	3,130,820,800	27,035,245,067	27,149,459,280	27,035,245,067	114,214,213	3.65%	100.00%
2077	30,603,503,101	2,845,471,162	27,758,031,939	27,543,152,792	27,543,152,792	-	0.00%	99.23%
2078	31,047,702,535	2,575,589,062	28,472,113,473	27,942,932,282	27,942,932,282	-	0.00%	98.14%
2079	31,497,708,843	2,321,151,020	29,176,557,823	28,347,937,958	28,347,937,958	-	0.00%	97.16%
2080	31,952,591,600	2,082,105,638	29,870,485,961	28,757,332,439	28,757,332,439	-	0.00%	96.27%
2081	32,411,455,607	1,858,379,724	30,553,075,883	29,170,310,046	29,170,310,046	-	0.00%	95.47%
2082	32,873,482,466	1,649,870,673	31,223,611,793	29,586,134,220	29,586,134,220	-	0.00%	94.76%

The projections in this report are strictly for the purpose of determining the GASB Single Discount Rate and are different from a funding projection for the ongoing plan.

Current Member Projection of Assets and Assignment of Employer Contributions

PYE 12/31	Assets (boy)	Member Contributions	Administrative Expenses	Benefit Payments	Assigned Sponsor Contribution	Income on Assets and Cash Flow	Assets (eoy)
2022	$ 3,846,664,456	$ 113,601,473	$ 3,461,052	$ 927,309,986	$ 799,446,710	$ 218,493,757	$ 4,047,435,358
2023	4,047,435,358	116,350,461	3,457,121	944,980,268	847,950,004	231,754,612	4,295,053,045
2024	4,295,053,045	115,017,115	3,419,808	976,622,149	865,945,926	246,536,653	4,542,510,783
2025	4,542,510,783	113,206,821	3,366,234	1,011,132,417	883,298,763	261,724,866	4,786,242,582
2026	4,786,242,582	110,897,756	3,299,110	1,046,577,661	901,039,668	276,625,548	5,024,928,783
2027	5,024,928,783	108,417,625	3,220,599	1,081,980,374	920,601,492	291,175,053	5,259,921,980
2028	5,259,921,980	105,520,309	3,134,040	1,116,217,039	938,762,718	305,468,925	5,490,322,853
2029	5,490,322,853	101,789,404	3,042,426	1,150,293,182	952,464,365	319,454,854	5,710,695,868
2030	5,710,695,868	97,686,934	2,940,964	1,184,284,571	964,950,598	332,831,817	5,918,939,682
2031	5,918,939,682	93,442,492	2,831,044	1,216,931,140	978,140,192	345,451,288	6,116,211,470
2032	6,116,211,470	89,086,679	2,717,438	1,248,931,634	992,564,562	357,335,860	6,303,549,499
2033	6,303,549,499	84,389,110	2,593,122	1,280,153,471	1,006,646,579	368,543,413	6,480,382,007
2034	6,480,382,007	79,503,501	2,460,384	1,309,802,527	1,018,831,414	379,094,014	6,645,548,025
2035	6,645,548,025	74,727,279	2,327,703	1,336,863,219	1,029,160,904	388,979,492	6,799,224,778
2036	6,799,224,778	69,983,114	2,203,161	1,361,526,424	1,036,424,686	398,201,911	6,940,104,904
2037	6,940,104,904	65,270,587	2,082,613	1,383,386,139	1,043,043,166	406,707,558	7,069,657,463
2038	7,069,657,463	60,557,819	1,964,139	1,403,306,511	1,048,126,381	414,524,058	7,187,595,071
2039	7,187,595,071	55,879,808	1,842,344	1,420,983,999	1,053,118,122	421,658,820	7,295,425,479
2040	7,295,425,479	51,366,592	1,722,121	1,436,750,202	1,058,283,997	428,181,799	7,394,785,543
2041	7,394,785,543	47,011,283	1,601,767	1,450,225,112	1,064,614,554	434,211,334	7,488,795,835
2042	7,488,795,835	42,821,428	1,483,892	1,461,746,024	1,071,541,243	439,929,902	7,579,858,492
2043	7,579,858,492	38,781,679	1,364,985	1,471,265,521	1,078,915,566	445,510,661	7,670,435,892
2044	7,670,435,892	34,891,454	1,249,198	1,479,015,614	1,086,831,420	451,114,527	7,763,008,482
2045	7,763,008,482	31,119,521	1,133,055	1,485,024,017	1,095,573,655	456,905,466	7,860,450,053
2046	7,860,450,053	27,480,595	1,018,114	1,488,919,573	1,105,206,088	463,085,293	7,966,284,340
2047	7,966,284,340	23,993,626	903,996	1,490,222,914	1,115,656,717	469,907,313	8,084,715,086
2048	8,084,715,086	20,665,637	793,102	1,488,783,707	1,126,832,402	477,661,667	8,220,297,983
2049	8,220,297,983	17,423,096	684,268	1,485,166,792	1,138,386,148	486,636,321	8,376,892,489
2050	8,376,892,489	14,277,037	574,058	1,478,732,601	1,150,320,800	497,119,500	8,559,303,166
2051	8,559,303,166	11,339,006	467,441	1,468,502,824	1,162,659,590	509,471,481	8,773,802,978
2052	8,773,802,978	8,714,239	367,912	1,453,663,335	1,175,438,823	524,145,694	9,028,070,487
2053	9,028,070,487	6,503,952	280,383	1,433,354,778	1,188,661,445	541,691,539	9,331,292,263
2054	9,331,292,263	4,723,770	208,251	1,408,023,419	1,202,279,028	562,714,651	9,692,778,042
2055	9,692,778,042	3,334,999	150,114	1,378,244,990	1,216,278,157	587,823,921	10,121,820,014
2056	10,121,820,014	2,276,232	105,381	1,344,915,731	159,433,690	617,615,031	9,556,123,854
2057	9,556,123,854	1,458,377	70,677	1,308,728,435	140,553,730	598,879,365	8,988,216,214
2058	8,988,216,214	856,813	43,177	1,269,815,441	140,639,006	562,144,856	8,421,998,272
2059	8,421,998,272	451,055	24,388	1,228,688,218	141,152,987	525,276,202	7,860,165,911
2060	7,860,165,911	199,737	11,492	1,185,646,741	141,723,438	488,764,646	7,305,195,498
2061	7,305,195,498	72,724	4,539	1,141,285,798	142,354,548	452,763,029	6,759,095,462
2062	6,759,095,462	20,745	1,345	1,096,118,598	143,036,955	417,388,247	6,223,421,467
2063	6,223,421,467	4,290	350	1,050,696,035	143,778,947	382,725,920	5,699,234,239
2064	5,699,234,239	-	-	1,005,326,805	144,569,115	348,836,531	5,187,313,079
2065	5,187,313,079	-	-	960,283,120	145,406,168	315,763,592	4,688,199,720
2066	4,688,199,720	-	-	915,755,009	146,293,756	283,537,252	4,202,275,719
2067	4,202,275,719	-	-	871,872,239	147,247,215	252,178,895	3,729,829,591
2068	3,729,829,591	-	-	828,677,109	148,269,035	221,706,327	3,271,127,845
2069	3,271,127,845	-	-	786,281,437	149,377,788	192,133,782	2,826,357,978
2070	2,826,357,978	-	-	744,704,645	150,583,426	163,472,949	2,395,709,708
2071	2,395,709,708	-	-	704,042,345	144,498,460	138,336,963	1,979,299,978
2072	1,979,299,978	-	-	664,314,996	145,867,951	111,548,211	1,577,243,801
2073	1,577,243,801	-	-	625,570,877	147,364,787	85,695,682	1,189,625,745
2074	1,189,625,745	-	-	587,807,497	148,992,912	60,785,166	816,542,729
2075	816,542,729	-	-	551,092,632	150,767,061	36,820,956	458,043,417
2076	458,043,417	-	-	515,385,139	152,679,441	13,807,703	114,214,213
2077	114,214,213	-	-	480,720,638	362,714,636	(8,249,945)	-
2078	-	-	-	447,107,906	447,107,906	(14,843,498)	-
2079	-	-	-	414,528,411	414,528,411	(13,761,894)	-
2080	-	-	-	383,007,638	383,007,638	(12,715,438)	-
2081	-	-	-	352,563,325	352,563,325	(11,704,720)	-
2082	-	-	-	323,219,157	323,219,157	(10,730,526)	-

The projections in this report are strictly for the purpose of determining the GASB Single Discount Rate and are different from a funding projection for the ongoing plan.

Development of Single Discount Rate

PYE 12/31	Benefit Payments	Discount Rate	Discounted Benefit Payment	Single Discount Rate	Discounted Benefit Payment
2022	$ 927,309,986	6.75%	$ 897,513,511	6.26%	$ 899,575,510
2023	944,980,268	6.75%	856,783,146	6.26%	862,701,992
2024	976,622,149	6.75%	829,481,797	6.26%	839,054,177
2025	1,011,132,417	6.75%	804,489,613	6.26%	817,517,094
2026	1,046,577,661	6.75%	780,038,402	6.26%	796,316,368
2027	1,081,980,374	6.75%	755,433,123	6.26%	774,745,279
2028	1,116,217,039	6.75%	730,058,066	6.26%	752,165,790
2029	1,150,293,182	6.75%	704,773,260	6.26%	729,455,576
2030	1,184,284,571	6.75%	679,718,452	6.26%	706,759,651
2031	1,216,931,140	6.75%	654,291,245	6.26%	683,450,483
2032	1,248,931,634	6.75%	629,036,559	6.26%	660,092,943
2033	1,280,153,471	6.75%	603,992,263	6.26%	636,727,835
2034	1,309,802,527	6.75%	578,904,969	6.26%	613,088,253
2035	1,336,863,219	6.75%	553,503,721	6.26%	588,883,682
2036	1,361,526,424	6.75%	528,070,322	6.26%	564,409,082
2037	1,383,386,139	6.75%	502,621,686	6.26%	539,680,483
2038	1,403,306,511	6.75%	477,619,950	6.26%	515,194,486
2039	1,420,983,999	6.75%	453,055,308	6.26%	490,945,437
2040	1,436,750,202	6.75%	429,116,702	6.26%	467,143,898
2041	1,450,225,112	6.75%	405,752,953	6.26%	443,741,665
2042	1,461,746,024	6.75%	383,116,014	6.26%	420,912,751
2043	1,471,265,521	6.75%	361,228,126	6.26%	398,691,147
2044	1,479,015,614	6.75%	340,169,503	6.26%	377,175,667
2045	1,485,024,017	6.75%	319,954,491	6.26%	356,393,488
2046	1,488,919,573	6.75%	300,509,419	6.26%	336,273,694
2047	1,490,222,914	6.75%	281,754,073	6.26%	316,736,612
2048	1,488,783,707	6.75%	263,683,339	6.26%	297,785,818
2049	1,485,166,792	6.75%	246,410,056	6.26%	279,558,697
2050	1,478,732,601	6.75%	229,829,071	6.26%	261,946,620
2051	1,468,502,824	6.75%	213,807,146	6.26%	244,806,706
2052	1,453,663,335	6.75%	198,263,781	6.26%	228,054,021
2053	1,433,354,778	6.75%	183,132,474	6.26%	211,618,178
2054	1,408,023,419	6.75%	168,520,857	6.26%	195,629,581
2055	1,378,244,990	6.75%	154,526,269	6.26%	180,208,986
2056	1,344,915,731	6.75%	141,254,758	6.26%	165,489,509
2057	1,308,728,435	6.75%	128,762,579	6.26%	151,548,033
2058	1,269,815,441	6.75%	117,034,216	6.26%	138,377,903
2059	1,228,688,218	6.75%	106,083,064	6.26%	126,006,575
2060	1,185,646,741	6.75%	95,894,078	6.26%	114,427,972
2061	1,141,285,798	6.75%	86,469,512	6.26%	103,656,532
2062	1,096,118,598	6.75%	77,796,177	6.26%	93,688,262
2063	1,050,696,035	6.75%	69,856,998	6.26%	84,514,281
2064	1,005,326,805	6.75%	62,614,109	6.26%	76,100,173
2065	960,283,120	6.75%	56,026,869	6.26%	68,407,395
2066	915,755,009	6.75%	50,050,507	6.26%	61,391,527
2067	871,872,239	6.75%	44,638,968	6.26%	55,005,657
2068	828,677,109	6.75%	39,744,657	6.26%	49,200,013
2069	786,281,437	6.75%	35,326,739	6.26%	43,932,233
2070	744,704,645	6.75%	31,343,082	6.26%	39,157,476
2071	704,042,345	6.75%	27,758,023	6.26%	34,838,126
2072	664,314,996	6.75%	24,535,557	6.26%	30,935,378
2073	625,570,877	6.75%	21,643,650	6.26%	27,414,686
2074	587,807,497	6.75%	19,051,151	6.26%	24,241,933
2075	551,092,632	6.75%	16,731,806	6.26%	21,388,587
2076	515,385,139	6.75%	14,658,254	6.26%	18,824,123
2077	480,720,638	6.75%	12,807,820	6.26%	16,523,461
2078	447,107,906	1.84%	159,596,469	6.26%	14,462,586
2079	414,528,411	1.84%	145,293,719	6.26%	12,618,661
2080	383,007,638	1.84%	131,820,083	6.26%	10,972,152
2081	352,563,325	1.84%	119,149,682	6.26%	9,504,885
2082	323,219,157	1.84%	107,259,177	6.26%	8,200,346
2083	295,009,707	1.84%	96,129,190	6.26%	7,043,634
2084	267,975,101	1.84%	85,742,280	6.26%	6,021,162
2085	242,166,172	1.84%	76,084,409	6.26%	5,120,645
2093	84,388,391	1.84%	22,914,890	6.26%	1,097,734
2103	7,933,803	1.84%	1,795,282	6.26%	56,228
2113	131,180	1.84%	24,736	6.26%	507
2120	20,535	1.84%	3,408	6.26%	52
Total Present Value			**$ 19,129,753,050**		**$ 19,129,753,050**

The projections in this report are strictly for the purpose of determining the GASB Single Discount Rate and are different from a funding projection for the ongoing plan.

SECTION H

GLOSSARY OF TERMS

Glossary of Terms

Accrued Service	Service credited under the system which was rendered before the date of the actuarial valuation.
Actuarial Accrued Liability (“AAL”)	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."
Actuarial Assumptions	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income, and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation, and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
Actuarial Equivalent	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
Actuarial Gain (Loss)	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
Actuarial Present Value (“APV”)	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.
Actuarial Valuation	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions.
Actuarial Valuation Date	The date as of which an actuarial valuation is performed.
Actuarially Determined Contribution (“ADC”) or Annual Required Contribution (“ARC”)	A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.

Glossary of Terms

Amortization Method — The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be "open" (meaning, reset each year) or "closed" (the number of years remaining will decline each year.

Amortization Payment — The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.

Cost-of-Living Adjustments — Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.

Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan) — A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.

Covered-Employee Payroll — The payroll of employees that are provided with pensions through the pension plan.

Deferred Inflows and Outflows — The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.

Deferred Retirement Option Program ("DROP") — A program that permits a plan member to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The plan member continues to provide service to the employer and is paid for the service by the employer after the DROP entry date; however, the pensions that would have been paid to the plan member are credited to an individual member account within the defined benefit pension plan until the end of the DROP period. Other variations for DROP exist and will be more fully detailed in the plan provision section of the valuation report.

Discount Rate — For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically:

1. The benefit payments to be made while the pension plans' fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and
2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

Glossary of Terms

Entry Age Actuarial Cost Method ("EAN")	The EAN is a cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit age(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.
Fiduciary Net Position	The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.
GASB	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
Long-Term Expected Rate of Return	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.
Money-Weighted Rate of Return	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.
Multiple-Employer Defined Benefit Pension Plan	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Municipal Bond Rate	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
Net Pension Liability ("NPL")	The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.
Non-Employer Contributing Entities	Non-employer contributing entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contributing entities.
Normal Cost	The portion of the actuarial present value allocated to a valuation year is called the normal cost. For purposes of application to the requirements of this Statement, the term normal cost is the equivalent of service cost.

Glossary of Terms

Other Postemployment Benefits ("OPEB")	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other postemployment benefits do not include termination benefits.
Real Rate of Return	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
Service Cost	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
Total Pension Expense	The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year: 1. Service Cost 2. Interest on the Total Pension Liability 3. Current-Period Benefit Changes 4. Employee Contributions (made negative for addition here) 5. Projected Earnings on Plan Investments (made negative for addition here) 6. Pension Plan Administrative Expense 7. Other Changes in Plan Fiduciary Net Position 8. Recognition of Outflow (Inflow) of Resources due to Liabilities 9. Recognition of Outflow (Inflow) of Resources due to Assets
Total Pension Liability ("TPL")	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
Unfunded Actuarial Accrued Liability ("UAAL")	The UAAL is the difference between actuarial accrued liability and valuation assets.
Valuation Assets	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.