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, 2022
Applicable to Plan's Fiscal Year End December 31, 2022
Applicable to Employer's Fiscal Year End December 31, 2022

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The Retirement Board of the
Policemen's Annuity and Benefit Fund of Chicago
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, 2022 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, 2022 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

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

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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, 2022, and fairly presents the actuarial position of the Fund as of December 31, 2022, 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, 2022, 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, 2022. 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.

Alex Rivera and Lance Weiss 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

Lance J. Weiss

Alex Rivera

Lance J. Weiss, EA, MAAA, FCA	Alex Rivera, FSA, EA, 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, 2022

Actuarial Valuation Date	December 31, 2022
Measurement Date of the Net Pension Liability	December 31, 2022
Plan's Fiscal Year Ending Date	December 31, 2022
Employer's Fiscal Year Ending Date (Reporting Date)	December 31, 2022

Membership	
Number of	
- Retirees and Beneficiaries	14,639
- Inactive, Nonretired Members	1,151
- Active Members	11,868
- Total	27,658
Covered Payroll	$ 1,274,049,642
Net Pension Liability	
Total Pension Liability	$ 16,214,629,789
Plan Fiduciary Net Position	3,486,779,785
Net Pension Liability	$ 12,727,850,004
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	21.50%
Net Pension Liability as a Percentage of Covered Payroll	999.01%
Development of the Single Discount Rate	
Single Discount Rate Beginning of Year	6.26%
Single Discount Rate End of Year	6.64%
Long-Term Expected Rate of Investment Return	6.75%
Long-Term Municipal Bond Rate Beginning of Year*	1.84%
Long-Term Municipal Bond Rate End of Year*	4.05%
Last Year Trust Assets are Available to Pay Assets	2079
Total Pension Expense	$ 1,194,728,672

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	$ 490,742,574	$ (83,238,996)
Changes in Assumptions	626,637,015	(634,734,440)
Net Difference Between Projected and Actual Earnings on Pension Plan Investments	328,254,214	-
Total	$ 1,445,633,803	$ (717,973,436)

**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, 2021, and December 30, 2022, 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, 2022, and a measurement date of December 31, 2022.

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 4.05% (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 6.64%.

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 2022 by the 102nd General Assembly, included changes to the Fund Provisions.

P.A. 102-0806, Effective May 13, 2022

Offsets disability and death benefits paid by the pension fund by any compensation as temporary total disability, permanent total disability, a lump sum settlement award, or other payment under the Workers' Compensation Act or the Workers' Occupational Diseases Act as a result of the policeman's secondary employment for any injury resulting in disability.

Provides that the calculation of compensation received by the policeman or beneficiary shall not take into consideration any benefits received under the Line of Duty Compensation Act.

Discussion

P.A. 102-0884, Effective May 13, 2022

Beginning January 1, 2023, the minimum widow's annuity changed from 125% of the Federal Poverty Level to 150% of the Federal Poverty Level.

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.

Statement of Pension Expense under GASB Statement No. 68
Fiscal Year Ended December 31, 2022

A. Expense

1.	Service Cost Including Pension Plan Administrative Expense	$ 294,514,680
2.	Interest on the Total Pension Liability	1,011,976,363
3.	Current-Period Benefit Changes	40,209,941
4.	Employee Contributions (made negative for addition here)	(114,403,212)
5.	Projected Earnings on Plan Investments (made negative for addition here)	(258,463,025)
6.	Other Changes in Plan Fiduciary Net Position	(367,777)
7.	Recognition of Outflow/(Inflow) of Resources due to Liabilities	11,154,306
8.	Recognition of Outflow/(Inflow) of Resources due to Assumption Changes	92,882,745
9.	Recognition of Outflow/(Inflow) of Resources due to Assets	117,224,651
10.	**Total Pension Expense**	**$ 1,194,728,672**

B. Reconciliation of Net Pension Liability

1.	**Net Pension Liability Beginning of Year**	**$ 12,493,344,421**
1. a.	Adjustment as of January 1, 2022	119,171
2.	Pension Expense	1,194,728,672
3.	Employer Contributions (made negative for addition here)	(801,706,005)
4.	Change in Liability Experience Outflows/(Inflows) Recognized in Current Liabilities	168,814,223
5.	Change in Assumption Changes Experience Outflows/(Inflows) Recognized in Current Liabilities	(792,947,719)
6.	Change in Investment Experience Outflows/(Inflows) Recognized in Current Assets	465,497,241
7.	**Net Pension Liability End of Year**	**$ 12,727,850,004**

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 163,809.56 years. Additionally, the total plan membership (active employees and inactive employees) was 27,326. 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 5.9947 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, 2022

A. Outflows and (Inflows) of Resources Recognized in Current and Future Pension Expenses as of Plan Year End December 31, 2022

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 and Actual Non-Investment Experience	$ 179,968,529	December 31, 2022	5.9947	$ -	$ 30,021,274	$ -	$ 149,947,255
	450,528,053	December 31, 2021	6.2776	71,767,140	71,767,140	-	306,993,773
	61,913,883	December 31, 2020	6.6071	18,741,558	9,370,779	-	33,801,546
	(68,010,227)	December 31, 2019	6.6988	(30,457,854)	(10,152,618)	(27,399,755)	-
	(281,150,986)	December 31, 2018	6.2392	(180,249,396)	(45,062,349)	(55,839,241)	-
	(299,923,560)	December 31, 2017	5.8778	(255,133,640)	(44,789,920)	-	-
	$ 43,325,692			$ (375,332,192)	$ 11,154,306	$ (83,238,996)	$ 490,742,574
2. Assumption Changes	$ (700,064,974)	December 31, 2022	5.9947	$ -	$ (116,780,652)	$ (583,284,322)	$ -
	37,028,703	December 31, 2021	6.2776	5,898,510	5,898,510	-	25,231,683
	260,021,116	December 31, 2020	6.6071	78,709,336	39,354,668	-	141,957,112
	1,140,418,080	December 31, 2019	6.6988	510,727,395	170,242,465	-	459,448,220
	(259,051,713)	December 31, 2018	6.2392	(166,081,276)	(41,520,319)	(51,450,118)	-
	238,975,508	December 31, 2017	5.8778	203,287,435	35,688,073	-	-
	$ 717,326,720			$ 632,541,400	$ 92,882,745	$ (634,734,440)	$ 626,637,015
3. Difference Between Expected and Actual Investment Earnings	$ 582,721,892	December 31, 2022	5.0000	$ -	$ 116,544,378	$ -	$ 466,177,514
	(136,663,781)	December 31, 2021	5.0000	(27,332,756)	(27,332,756)	(81,998,269)	-
	(58,173,726)	December 31, 2020	5.0000	(23,269,490)	(11,634,745)	(23,269,491)	-
	(163,277,704)	December 31, 2019	5.0000	(97,966,623)	(32,655,541)	(32,655,540)	-
	361,516,575	December 31, 2018	5.0000	289,213,260	72,303,315	-	-
	(210,002,073)	December 31, 2017	5.0000	(210,002,073)	-	-	-
	$ 376,121,183			$ (69,357,682)	$ 117,224,651	$ (137,923,300)	$ 466,177,514
4. Total	**$ 1,136,773,595**			**$ 187,851,526**	**$ 221,261,702**	**$ (855,896,736)**	**$ 1,583,557,103**

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
2023	$ 55,944,226	$ 57,194,672	$ 44,921,337
2024	90,229,683	88,785,192	77,576,876
2025	104,064,674	47,435,816	89,211,621
2026	107,477,623	(86,989,034)	116,544,380
2027	49,787,372	(114,524,071)	-
2028	-	-	-
Thereafter	-	-	-
Total	**$ 407,503,578**	**$ (8,097,425)**	**$ 328,254,214**

Year Ending December 31	Deferred Outflows of Resources	Deferred (Inflows) of Resources	Net Deferred Outflows/ (Inflows) of Resources
2023	$ 443,199,214	$ (285,138,979)	$ 158,060,235
2024	443,199,214	(186,607,463)	256,591,751
2025	391,920,039	(151,207,928)	240,712,111
2026	253,813,621	(116,780,652)	137,032,969
2027	51,425,015	(116,161,714)	(64,736,699)
2028	-	-	-
Thereafter	-	-	-
Total	**$ 1,583,557,103**	**$ (855,896,736)**	**$ 727,660,367**

Numbers may not add due to rounding.

Statement of Fiduciary Net Position
Years Ended December 31, 2022, and 2021

	2022	2021
Assets		
Receivables		
Employer	$ 761,713,443	$ 811,248,459
Plan member	9,084,517	29,842,251
Due from Broker - net	71,628,149	89,873,228
Interest and dividends	6,150,377	4,541,782
Other receivables	-	-
Total receivables	848,576,486	935,505,720
Investments - at fair value		
Cash and short-term investements	199,025,012	66,045,120
Equities	1,274,363,855	1,690,150,832
Fixed income	538,706,199	601,953,421
Private equity	197,729,772	176,694,191
Real estate	202,518,066	179,780,088
Hedge funds	220,294,532	240,521,237
Infrastructure	104,594,453	77,237,291
Subtotal	2,737,231,889	3,032,382,180
Forward currency contracts	68,444	76,065
Securities lending cash collateral	117,469,784	76,691,671
Right-to-use lease asset	2,121,968	-
Total investments - fair value	2,856,892,085	3,109,149,916
Total assets	3,705,468,571	4,044,655,636
Deferred Outflow of Resources	326,481	376,339
Liabilities and net position		
Liabilities		
Due to brokers - net	91,960,396	113,730,872
Long-term lease	2,977,516	-
Refunds, professional fees payable and other liabilities	4,804,043	6,113,642
OPEB liability	1,216,942	1,476,386
Securities lending cash collateral	117,469,784	76,691,671
Total liabilities	218,428,681	198,012,571
Deferred Inflow of Resources	586,586	354,948
Net Position Restricted for Pension Benefits		
Beginning of year	3,846,664,456	3,441,946,255
Adjustment as of January 1	(119,171)	(48,376)
End of year	$ 3,486,779,785	$ 3,846,664,456

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 and December 31, 2021 were updated subsequent to the delivery date of each actuarial valuation report. The updates did not significantly impact the certified contribution rate determined in each actuarial valuation. The asset updates increased the administration expense from $4,310,938 to $4,359,314 as of December 31, 2020 and from $3,384,892 to $3,440,227 as of December 31, 2021. The preceding changes decreased the market value of assets from $3,441,946,255 to $3,441,897,879 at December 31, 2020 and from $3,846,664,456 to $3,846,545,285 at December 31, 2021.

Statement of Changes in Fiduciary Net Position
Years Ended December 31, 2022, and 2021

	2022	2021
Additions		
Contributions		
Employer	$ 801,706,005	$ 788,769,979
Plan Member	114,403,212	136,225,041
Other	367,777	91,594
Total Contributions	916,476,994	925,086,614
Investment Income		
Net appreciation in fair value of investments	(356,226,435)	343,315,879
Interest	9,561,529	11,252,867
Dividends	26,146,827	19,250,671
Real estate operating income - net	3,795,866	4,729,096
	(316,722,213)	378,548,513
Less investment expenses	(7,959,591)	(8,938,916)
Investment income - net	(324,681,804)	369,609,597
Securities lending		
Income	1,930,663	499,256
Lender (borrower) rebates	(1,442,931)	108,319
Management fees	(64,795)	(75,766)
Securities lending income - net	422,937	531,809
Total additions	592,218,127	1,295,228,020
Deductions		
Benefits	926,493,466	869,310,502
Refund Payments	21,096,110	17,766,049
Administrative and OPEB expenses	4,394,051	3,384,892
Total deductions	951,983,627	890,461,443
Net increase	(359,765,500)	404,766,577
Net Position Restricted for Pension Benefits		
Beginning of year	3,846,664,456	3,441,946,255
Adjustment as of January 1	(119,171)	(48,376)
End of year	$ 3,486,779,785	$ 3,846,664,456

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 and December 31, 2021 were updated subsequent to the delivery date of each actuarial valuation report. The updates did not significantly impact the certified contribution rate determined in each actuarial valuation. The asset updates increased the administration expense from $4,310,938 to $4,359,314 as of December 31, 2020 and from $3,384,892 to $3,440,227 as of December 31, 2021. The preceding changes decreased the market value of assets from $3,441,946,255 to $3,441,897,879 at December 31, 2020 and from $3,846,664,456 to $3,846,545,285 at December 31, 2021.

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, 2022

A. Total Pension Liability		
1. Service Cost Including Pension Plan Administrative Expense	$	294,514,680
2. Interest on the Total Pension Liability		1,011,976,363
3. Changes of benefit terms		40,209,941
4. Difference between expected and actual experience of the Total Pension Liability		179,968,529
5. Changes of assumptions		(700,064,974)
6. Benefit payments, including refunds of employee contributions		(947,589,576)
7. Pension Plan Administrative Expenses		(4,394,051)
8. Net change in total pension liability		(125,379,088)
9. Total pension liability – beginning		16,340,008,877
10. Total pension liability – ending	**$**	**16,214,629,789**
B. Plan Fiduciary Net Position		
1. Contributions – employer		801,706,005
2. Contributions – employee		114,403,212
3. Net investment income		(324,258,867)
4. Benefit payments, including refunds of employee contributions		(947,589,576)
5. Pension Plan Administrative Expense		(4,394,051)
6. Other		367,777
7. Net change in plan fiduciary net position		(359,765,500)
8. Plan fiduciary net position – beginning		3,846,664,456
8a. Adjustment as of January 1, 2021		(119,171)
9. Plan fiduciary net position – ending	**$**	**3,486,779,785**
C. Net Pension Liability	**$**	**12,727,850,004**
D. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability		**21.50%**
E. Covered-Employee Payroll	**$**	**1,274,049,642**
F. Net Pension Liability as a Percentage of Covered Employee Payroll		**999.01%**

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

Fiscal year ending December 31,	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total Pension Liability									
Service Cost Including Pension Plan Administrative Expense	$ 294,514,680	$ 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	1,011,976,363	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	40,209,941	-	-	24,216,420	-	-	606,249,791	-	-
Difference between Expected and Actual Experience	179,968,529	450,528,053	61,913,883	(68,010,227)	(281,150,986)	(299,923,560)	1,801,353	(105,968,891)	-
Assumption Changes	(700,064,974)	37,028,703	260,021,116	1,140,418,080	(259,051,713)	238,975,508	112,585,241	-	845,070,287
Benefit Payments	(926,493,466)	(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	(21,096,110)	(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	(4,394,051)	(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	(125,379,088)	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	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	10,596,153,366
Total Pension Liability - Ending (a)	$ 16,214,629,789	$ 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	$ 801,706,005	$ 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	114,403,212	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	(324,258,867)	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	(926,493,466)	(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	(21,096,110)	(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	(4,394,051)	(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	367,777	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	(359,765,500)	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	3,846,664,456	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	3,265,200,554
Adjustment as of January 1,	(119,171)	(48,376)	-	(91,256)	-	-	-	-	-
Plan Fiduciary Net Position - Ending (b)	$ 3,486,779,785	$ 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)	12,727,850,004	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	21.50%	23.54%	22.21%	21.38%	21.82%	23.20%	21.85%	25.42%	26.01%
Covered Employee Payroll	$ 1,274,049,642	$ 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	$ 1,074,333,318
Net Pension Liability as a Percentage of Covered Employee Payroll	999.01%	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 2022 used 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 end of year total pension liability for fiscal year 2022 uses a Single Discount Rate of 6.64% and the benefit provisions, actuarial assumptions, and funding policy in effect as of the December 31, 2022 funding actuarial valuation. The Single Discount Rate of 6.64% was based on a long-term expected rate of return on pension plan investments of 6.75% used in the December 31, 2022, funding actuarial valuation for the years 2022 through 2079 and a long-term municipal bond rate as of December 31, 2022, of 4.05% for subsequent years.

The decrease in the total pension liability for fiscal year 2022 due to assumption changes and methods includes the impact of the change in the municipal bond rate from December 31, 2021 to December 31, 2022. Changes in actuarial assumptions and methods led to the change in the Single Discount Rate from 6.26% to 6.64% (based on the long-term expected rate of return on pension plan investments of 6.75% used in the December 31, 2021 funding actuarial valuation and 6.75% used in the December 31, 2022 funding actuarial valuation and the long-term municipal bond rate of 1.84% as of December 31, 2021, and 4.05% as of December 31, 2022, respectively). This change was measured at the end of the year using the benefit provisions in effect as of December 31, 2022.

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%
2022	16,214,629,789	3,486,779,785	12,727,850,004	21.50%	1,274,049,642	999.01%

[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
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
2022	1,085,158,790	802,073,782	283,085,008	1,274,049,642	62.95%	799,446,710

[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, 2021
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 2022:

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 percent 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, 2022 was determined in the funding actuarial valuation as of December 31, 2021 and the statutory contribution (upon which the actual contribution was based) for fiscal year ending December 31, 2022 was determined in the funding actuarial valuation as of December 31, 2020, 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	6.26 percent as of the December 31, 2021, actuarial valuation. 6.64 percent as of the December 31, 2022, 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 Assumption

Single Discount Rate

A Single Discount Rate of 6.64% was used to measure the total pension liability as of December 31, 2022. 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 4.05%. 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 2079. As a result, the long-term expected rate of return on pension plan investments was applied to projected benefit payments through the year 2079, 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 6.64%, 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	Current Single Discount Rate Assumption	1% Increase
5.64%	6.64%	7.64%
$ 14,681,038,481	$ 12,727,850,004	$ 11,097,289,130

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	14,639
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	1,151
Active Plan Members	11,868
Total Plan Members	27,658

Additional information about the member data used is included in the December 31, 2022 funding actuarial valuation report.

SECTION E

SUMMARY OF BENEFITS

Summary of Benefits

Plan Descriptions (as of December 31, 2022)

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.

Minimum Annuity	The minimum widow's annuity shall be no less than 150% 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
2023	8.20%	4.10%	3.00%	$123,489.18

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.

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 2022		Future Life Expectancy (years) in 2035	
	Postretirement		Postretirement	
Age	**Male**	**Female**	**Male**	**Female**
35	48.86	53.59	50.11	54.80
40	43.58	48.26	44.82	49.46
45	38.38	42.96	39.59	44.15
50	33.25	37.72	34.43	38.90
55	28.24	32.60	29.39	33.76
60	23.44	27.69	24.54	28.80
65	18.97	23.02	19.98	24.07
70	14.87	18.61	15.77	19.57
75	11.18	14.53	11.96	15.40

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 $4,394,051 for plan year end December 31, 2022, 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, 2022 is 11,868.

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, 2022. These members were hired from January 1, 2018 through December 31, 2021.

Entry Age	Number
Under 20	0
20 to 25	645
25 to 30	663
30 to 35	354
35 to 40	178
40 to 55	2

Approximately 71% 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 $54,672 for the plan year ending December 31, 2022 and $56,040 for the plan year ending December 31, 2023. This amount does not include duty availability pay. The new entrant pay for members hired after 2022 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 $123,489.18 for plan year 2023, increasing by 1.125% per year after plan year 2023. 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.

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 5 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 2022, that had not been recalculated as of December 31, 2022 as indicated by PABF staff, 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%
2022	8.35%

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 4.05%; and the resulting Single Discount Rate is 6.64%.

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 2021. 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 2079.

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, 2022, 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)
2022	$16,020,814,848	$16,020,814,848	$ -	$3,486,779,786	$ -	$3,486,779,786	21.76%	0.00%
2023	16,356,604,427	16,356,604,427	-	3,655,402,392	-	3,655,402,392	22.35%	0.00%
2024	16,709,095,171	16,702,314,859	6,780,312	3,908,387,465	6,780,312	3,901,607,153	23.36%	100.00%
2025	17,055,166,645	17,033,437,313	21,729,332	4,169,842,387	21,729,332	4,148,113,055	24.35%	100.00%
2026	17,392,015,260	17,345,792,341	46,222,919	4,439,502,907	46,222,919	4,393,279,988	25.33%	100.00%
2027	17,718,368,535	17,636,746,214	81,622,321	4,719,545,818	81,622,321	4,637,923,497	26.30%	100.00%
2028	18,034,126,025	17,904,975,029	129,150,996	5,010,222,427	129,150,996	4,881,071,431	27.26%	100.00%
2029	18,337,583,055	18,147,742,954	189,840,101	5,306,688,640	189,840,101	5,116,848,539	28.20%	100.00%
2030	18,627,341,040	18,362,601,874	264,739,166	5,607,539,944	264,739,166	5,342,800,779	29.10%	100.00%
2031	18,902,943,916	18,547,757,295	355,186,621	5,913,899,668	355,186,621	5,558,713,047	29.97%	100.00%
2032	19,164,716,791	18,702,267,614	462,449,177	6,228,530,926	462,449,177	5,766,081,749	30.83%	100.00%
2033	19,412,550,060	18,823,874,866	588,675,195	6,554,614,977	588,675,195	5,965,939,783	31.69%	100.00%
2034	19,646,444,927	18,910,918,059	735,526,867	6,892,498,050	735,526,867	6,156,971,183	32.56%	100.00%
2035	19,868,032,772	18,963,871,827	904,160,945	7,245,695,971	904,160,945	6,341,535,026	33.44%	100.00%
2036	20,078,032,509	18,982,735,701	1,095,296,808	7,614,483,843	1,095,296,808	6,519,187,035	34.34%	100.00%
2037	20,277,565,617	18,968,288,601	1,309,277,016	7,998,237,574	1,309,277,016	6,688,960,558	35.26%	100.00%
2038	20,467,431,858	18,920,375,276	1,547,056,583	8,397,672,714	1,547,056,583	6,850,616,131	36.21%	100.00%
2039	20,649,183,468	18,839,330,565	1,809,852,903	8,815,748,245	1,809,852,903	7,005,895,343	37.19%	100.00%
2040	20,824,027,951	18,725,388,721	2,098,639,229	9,255,073,318	2,098,639,229	7,156,434,088	38.22%	100.00%
2041	20,993,584,330	18,579,095,220	2,414,489,110	9,719,238,691	2,414,489,110	7,304,749,581	39.32%	100.00%
2042	21,159,344,493	18,400,818,377	2,758,526,116	10,212,038,230	2,758,526,116	7,453,512,113	40.51%	100.00%
2043	21,322,879,675	18,190,990,976	3,131,888,700	10,738,001,846	3,131,888,700	7,606,113,146	41.81%	100.00%
2044	21,485,044,104	17,949,640,607	3,535,403,497	11,300,138,633	3,535,403,497	7,764,735,135	43.26%	100.00%
2045	21,646,501,647	17,676,516,617	3,969,985,030	11,901,809,987	3,969,985,030	7,931,824,957	44.87%	100.00%
2046	21,807,991,190	17,371,546,952	4,436,444,238	12,546,974,838	4,436,444,238	8,110,530,600	46.69%	100.00%
2047	21,971,062,928	17,035,619,309	4,935,443,619	13,240,693,371	4,935,443,619	8,305,249,752	48.75%	100.00%
2048	22,136,562,874	16,669,480,536	5,467,082,338	13,987,249,886	5,467,082,338	8,520,167,548	51.11%	100.00%
2049	22,304,638,360	16,273,295,087	6,031,343,273	14,790,303,254	6,031,343,273	8,758,959,981	53.82%	100.00%
2050	22,475,998,473	15,848,069,830	6,627,928,643	15,654,407,525	6,627,928,643	9,026,478,882	56.96%	100.00%
2051	22,651,220,201	15,395,491,743	7,255,728,457	16,584,080,193	7,255,728,457	9,328,351,736	60.59%	100.00%
2052	22,831,361,258	14,918,244,734	7,913,116,524	17,584,703,298	7,913,116,524	9,671,586,775	64.83%	100.00%
2053	23,017,659,783	14,419,966,035	8,597,693,748	18,662,122,625	8,597,693,748	10,064,428,877	69.80%	100.00%
2054	23,210,600,843	13,904,230,931	9,306,369,912	19,821,687,024	9,306,369,912	10,515,317,112	75.63%	100.00%
2055	23,411,037,215	13,375,298,517	10,035,738,698	21,069,478,547	10,035,738,698	11,033,739,849	82.49%	100.00%
2056	23,619,342,582	12,837,422,115	10,781,920,467	21,257,408,324	10,781,920,467	10,475,487,857	81.60%	100.00%
2057	23,835,792,553	12,294,626,363	11,541,166,190	21,452,213,298	11,541,166,190	9,911,047,108	80.61%	100.00%
2058	24,061,201,349	11,750,972,378	12,310,228,971	21,655,081,214	12,310,228,971	9,344,852,243	79.52%	100.00%
2059	24,295,916,247	11,209,532,217	13,086,384,030	21,866,324,622	13,086,384,030	8,779,940,592	78.33%	100.00%
2060	24,540,631,812	10,673,074,782	13,867,557,031	22,086,568,631	13,867,557,031	8,219,011,601	77.01%	100.00%
2061	24,795,899,659	10,143,929,822	14,651,969,837	22,316,309,693	14,651,969,837	7,664,339,856	75.56%	100.00%
2062	25,062,131,349	9,623,900,311	15,438,231,039	22,555,918,215	15,438,231,039	7,117,687,176	73.96%	100.00%
2063	25,339,760,342	9,114,524,701	16,225,235,641	22,805,784,308	16,225,235,641	6,580,548,667	72.20%	100.00%
2064	25,629,139,994	8,617,039,252	17,012,100,742	23,066,225,994	17,012,100,742	6,054,125,252	70.26%	100.00%
2065	25,930,493,330	8,132,272,758	17,798,220,572	23,337,443,997	17,798,220,572	5,539,223,425	68.11%	100.00%
2066	26,243,989,451	7,660,684,091	18,583,305,360	23,619,590,506	18,583,305,360	5,036,285,145	65.74%	100.00%
2067	26,569,761,936	7,202,608,475	19,367,153,460	23,912,785,743	19,367,153,460	4,545,632,282	63.11%	100.00%
2068	26,907,914,810	6,758,320,203	20,149,594,607	24,217,123,329	20,149,594,607	4,067,528,722	60.19%	100.00%
2069	27,258,435,586	6,328,043,165	20,930,392,421	24,532,592,027	20,930,392,421	3,602,199,606	56.92%	100.00%
2070	27,621,209,105	5,911,961,890	21,709,247,215	24,859,088,194	21,709,247,215	3,149,840,979	53.28%	100.00%
2071	27,995,995,894	5,510,225,140	22,485,770,754	25,196,396,305	22,485,770,754	2,710,625,551	49.19%	100.00%
2072	28,382,408,572	5,122,952,315	23,259,456,257	25,544,167,715	23,259,456,257	2,284,711,458	44.60%	100.00%
2073	28,779,950,968	4,750,234,512	24,029,716,455	25,901,955,870	24,029,716,455	1,872,239,415	39.41%	100.00%
2074	29,188,007,017	4,392,146,005	24,795,861,012	26,269,206,315	24,795,861,012	1,473,345,303	33.54%	100.00%
2075	29,605,814,121	4,048,743,235	25,557,070,886	26,645,232,710	25,557,070,886	1,088,161,823	26.88%	100.00%
2076	30,032,561,527	3,720,088,707	26,312,472,820	27,029,305,374	26,312,472,820	716,832,554	19.27%	100.00%
2077	30,467,342,463	3,406,241,236	27,061,101,227	27,420,608,217	27,061,101,227	359,506,990	10.55%	100.00%
2078	30,909,221,277	3,107,254,914	27,801,966,363	27,818,299,150	27,801,966,363	16,332,787	0.53%	100.00%
2079	31,357,266,280	2,823,220,621	28,534,045,659	28,221,539,653	28,221,539,653	-	0.00%	98.90%
2080	31,810,558,032	2,554,221,008	29,256,337,024	28,629,502,228	28,629,502,228	-	0.00%	97.86%
2081	32,268,251,742	2,300,320,697	29,967,931,045	29,041,426,567	29,041,426,567	-	0.00%	96.91%
2082	32,729,554,925	2,061,566,619	30,667,988,306	29,456,599,433	29,456,599,433	-	0.00%	96.05%
2083	33,193,769,445	1,837,975,118	31,355,794,328	29,874,392,501	29,874,392,501	-	0.00%	95.28%

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)
2023	$ 3,486,779,785	$ 115,012,340	$ 4,492,916	$ 986,115,314	$ 851,100,157	$ 193,118,340	$ 3,655,402,392
2024	3,655,402,392	119,178,887	4,491,503	996,944,462	925,728,164	202,733,674	3,901,607,153
2025	3,901,607,153	117,907,580	4,449,951	1,028,696,567	944,777,668	216,967,173	4,148,113,055
2026	4,148,113,055	116,109,138	4,385,401	1,062,260,978	963,599,096	232,105,079	4,393,279,988
2027	4,393,279,988	114,108,324	4,305,729	1,096,631,720	984,349,071	247,123,563	4,637,923,497
2028	4,637,923,497	111,592,126	4,216,091	1,129,924,693	1,003,604,221	262,092,371	4,881,071,431
2029	4,881,071,431	108,124,465	4,114,381	1,162,647,419	1,017,440,623	276,973,819	5,116,848,539
2030	5,116,848,539	104,290,929	4,001,289	1,195,483,880	1,029,710,594	291,435,885	5,342,800,779
2031	5,342,800,779	100,218,577	3,876,912	1,227,767,271	1,042,065,210	305,272,664	5,558,713,047
2032	5,558,713,047	96,076,974	3,743,857	1,258,887,538	1,055,456,238	318,466,885	5,766,081,749
2033	5,766,081,749	91,741,771	3,602,990	1,289,825,408	1,070,478,278	331,066,383	5,965,939,783
2034	5,965,939,783	86,882,882	3,448,126	1,319,234,449	1,083,666,550	343,164,543	6,156,971,183
2035	6,156,971,183	82,121,199	3,280,077	1,346,286,155	1,097,228,337	354,780,539	6,341,535,026
2036	6,341,535,026	77,372,015	3,114,914	1,371,264,302	1,108,636,534	366,022,676	6,519,187,035
2037	6,519,187,035	72,642,541	2,953,251	1,393,428,489	1,116,583,263	376,929,459	6,688,960,558
2038	6,688,960,558	67,906,311	2,802,817	1,413,681,274	1,122,806,198	387,427,154	6,850,616,131
2039	6,850,616,131	63,191,137	2,648,477	1,431,642,814	1,128,895,775	397,483,589	7,005,895,343
2040	7,005,895,343	58,629,889	2,496,276	1,447,761,800	1,134,988,798	407,178,135	7,156,434,088
2041	7,156,434,088	54,198,801	2,343,659	1,461,717,199	1,141,548,746	416,628,804	7,304,749,581
2042	7,304,749,581	49,910,656	2,193,942	1,473,764,263	1,148,820,748	425,989,333	7,453,512,113
2043	7,453,512,113	45,761,664	2,042,226	1,483,863,311	1,157,307,822	435,437,084	7,606,113,146
2044	7,606,113,146	41,738,845	1,892,315	1,492,400,644	1,165,997,202	445,178,901	7,764,735,135
2045	7,764,735,135	37,792,165	1,741,184	1,499,516,956	1,175,182,418	455,373,379	7,931,824,957
2046	7,931,824,957	33,907,895	1,589,427	1,505,005,092	1,185,205,259	466,187,009	8,110,530,600
2047	8,110,530,600	30,140,401	1,434,533	1,508,049,767	1,196,207,726	477,855,325	8,305,249,752
2048	8,305,249,752	26,508,708	1,283,963	1,508,860,656	1,207,887,568	490,666,139	8,520,167,548
2049	8,520,167,548	22,918,783	1,132,691	1,507,859,063	1,219,975,173	504,890,231	8,758,959,981
2050	8,758,959,981	19,415,059	978,389	1,504,264,396	1,232,538,768	520,807,860	9,026,478,882
2051	9,026,478,882	16,083,993	828,221	1,497,578,611	1,245,431,179	538,764,513	9,328,351,736
2052	9,328,351,736	12,993,121	683,425	1,487,011,803	1,258,766,132	559,171,013	9,671,586,775
2053	9,671,586,775	10,237,684	549,913	1,471,918,142	1,272,549,616	582,522,858	10,064,428,877
2054	10,064,428,877	7,827,000	431,500	1,452,581,290	1,286,706,789	609,367,237	10,515,317,112
2055	10,515,317,112	5,789,835	326,108	1,428,613,127	1,301,283,146	640,288,991	11,033,739,849
2056	11,033,739,849	4,147,391	239,835	1,400,299,936	162,221,590	675,918,797	10,475,487,857
2057	10,475,487,857	2,852,131	169,468	1,368,042,007	141,956,519	658,962,076	9,911,047,108
2058	9,911,047,108	1,892,447	114,702	1,332,037,304	141,686,700	622,377,995	9,344,852,243
2059	9,344,852,243	1,201,088	75,771	1,293,401,483	141,938,999	585,425,515	8,779,940,592
2060	8,779,940,592	713,133	46,332	1,252,522,679	142,295,361	548,631,525	8,219,011,601
2061	8,219,011,601	395,430	26,923	1,209,957,955	142,751,847	512,165,856	7,664,339,856
2062	7,664,339,856	189,513	14,092	1,166,283,926	143,294,685	476,161,141	7,117,687,176
2063	7,117,687,176	67,290	5,721	1,121,834,530	143,909,859	440,724,591	6,580,548,667
2064	6,580,548,667	12,867	1,353	1,076,978,035	144,598,476	405,944,630	6,054,125,252
2065	6,054,125,252	-	-	1,032,150,370	145,361,552	371,886,991	5,539,223,425
2066	5,539,223,425	-	-	987,725,658	146,194,602	338,592,776	5,036,285,145
2067	5,036,285,145	-	-	943,837,413	147,097,470	306,087,080	4,545,632,282
2068	4,545,632,282	-	-	900,566,513	148,074,004	274,388,948	4,067,528,722
2069	4,067,528,722	-	-	857,979,658	149,136,631	243,513,910	3,602,199,606
2070	3,602,199,606	-	-	816,129,571	150,295,746	213,475,199	3,149,840,979
2071	3,149,840,979	-	-	775,062,930	151,563,183	184,284,318	2,710,625,551
2072	2,710,625,551	-	-	734,817,865	145,501,221	158,572,068	2,284,711,458
2073	2,284,711,458	-	-	695,429,577	146,948,488	131,130,515	1,872,239,415
2074	1,872,239,415	-	-	656,920,295	148,528,093	104,567,119	1,473,345,303
2075	1,473,345,303	-	-	619,312,133	150,250,194	78,890,316	1,088,161,823
2076	1,088,161,823	-	-	582,602,911	152,114,468	54,109,138	716,832,554
2077	716,832,554	-	-	546,800,282	154,124,917	30,233,021	359,506,990
2078	359,506,990	-	-	511,912,659	156,278,407	7,271,776	16,332,787
2079	16,332,787	-	-	477,907,973	461,032,955	(14,763,564)	-
2080	-	-	-	444,800,123	444,800,123	(14,766,882)	-
2081	-	-	-	412,611,959	412,611,959	(13,698,270)	-
2082	-	-	-	381,364,827	381,364,827	(12,660,899)	-
2083	-	-	-	351,091,394	351,091,394	(11,655,854)	-

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
2023	$ 986,115,314	6.75%	$ 954,429,296	6.64%	$ 954,902,691
2024	996,944,462	6.75%	903,897,405	6.64%	905,243,066
2025	1,028,696,567	6.75%	873,710,553	6.64%	875,879,497
2026	1,062,260,978	6.75%	845,169,148	6.64%	848,107,933
2027	1,096,631,720	6.75%	817,344,844	6.64%	821,000,703
2028	1,129,924,693	6.75%	788,907,599	6.64%	793,222,552
2029	1,162,647,419	6.75%	760,425,702	6.64%	765,343,525
2030	1,195,483,880	6.75%	732,461,153	6.64%	737,929,603
2031	1,227,767,271	6.75%	704,675,286	6.64%	710,640,719
2032	1,258,887,538	6.75%	676,849,386	6.64%	683,256,542
2033	1,289,825,408	6.75%	649,633,106	6.64%	656,433,324
2034	1,319,234,449	6.75%	622,431,152	6.64%	629,570,693
2035	1,346,286,155	6.75%	595,029,960	6.64%	602,452,384
2036	1,371,264,302	6.75%	567,746,859	6.64%	575,399,322
2037	1,393,428,489	6.75%	540,443,592	6.64%	548,271,522
2038	1,413,681,274	6.75%	513,628,730	6.64%	521,585,292
2039	1,431,642,814	6.75%	487,264,304	6.64%	495,303,432
2040	1,447,761,800	6.75%	461,592,930	6.64%	469,674,088
2041	1,461,717,199	6.75%	436,573,639	6.64%	444,657,551
2042	1,473,764,263	6.75%	412,338,882	6.64%	420,390,762
2043	1,483,863,311	6.75%	388,912,840	6.64%	396,900,702
2044	1,492,400,644	6.75%	366,417,265	6.64%	374,314,134
2045	1,499,516,956	6.75%	344,884,755	6.64%	352,667,149
2046	1,505,005,092	6.75%	324,259,495	6.64%	331,905,480
2047	1,508,049,767	6.75%	304,370,476	6.64%	311,856,611
2048	1,508,860,656	6.75%	285,277,881	6.64%	292,584,452
2049	1,507,859,063	6.75%	267,061,837	6.64%	274,173,634
2050	1,504,264,396	6.75%	249,578,618	6.64%	256,479,077
2051	1,497,578,611	6.75%	232,758,175	6.64%	239,430,913
2052	1,487,011,803	6.75%	216,501,967	6.64%	222,929,651
2053	1,471,918,142	6.75%	200,753,537	6.64%	206,918,779
2054	1,452,581,290	6.75%	185,588,948	6.64%	191,478,282
2055	1,428,613,127	6.75%	170,985,159	6.64%	176,586,110
2056	1,400,299,936	6.75%	156,999,029	6.64%	162,302,721
2057	1,368,042,007	6.75%	143,683,681	6.64%	148,684,944
2058	1,332,037,304	6.75%	131,055,882	6.64%	135,752,168
2059	1,293,401,483	6.75%	119,208,054	6.64%	123,602,305
2060	1,252,522,679	6.75%	108,140,895	6.64%	112,238,445
2061	1,209,957,955	6.75%	97,860,348	6.64%	101,669,140
2062	1,166,283,926	6.75%	88,363,495	6.64%	91,893,753
2063	1,121,834,530	6.75%	79,621,346	6.64%	82,884,502
2064	1,076,978,035	6.75%	71,604,394	6.64%	74,612,948
2065	1,032,150,370	6.75%	64,284,744	6.64%	67,052,219
2066	987,725,658	6.75%	57,627,980	6.64%	60,168,522
2067	943,837,413	6.75%	51,585,348	6.64%	53,912,941
2068	900,566,513	6.75%	46,108,085	6.64%	48,236,352
2069	857,979,658	6.75%	41,150,053	6.64%	43,092,182
2070	816,129,571	6.75%	36,667,782	6.64%	38,436,465
2071	775,062,930	6.75%	32,620,800	6.64%	34,228,204
2072	734,817,865	6.75%	28,971,399	6.64%	30,429,140
2073	695,429,577	6.75%	25,684,732	6.64%	27,003,867
2074	656,920,295	6.75%	22,728,285	6.64%	23,919,292
2075	619,312,133	6.75%	20,072,233	6.64%	21,145,018
2076	582,602,911	6.75%	17,688,495	6.64%	18,652,366
2077	546,800,282	6.75%	15,551,743	6.64%	16,415,452
2078	511,912,659	6.75%	13,638,868	6.64%	14,410,625
2079	477,907,973	6.75%	11,927,759	6.64%	12,615,197
2080	444,800,123	4.05%	45,367,520	6.64%	11,009,751
2081	412,611,959	4.05%	40,446,399	6.64%	9,576,730
2082	381,364,827	4.05%	35,928,295	6.64%	8,300,015
2083	351,091,394	4.05%	31,788,795	6.64%	7,165,084
2084	321,835,077	4.05%	28,005,619	6.64%	6,158,817
2085	293,678,560	4.05%	24,560,769	6.64%	5,269,859
2086	266,611,448	4.05%	21,429,223	6.64%	4,486,094
2094	96,781,495	4.05%	5,662,175	6.64%	973,385
2104	10,008,658	4.05%	393,682	6.64%	52,905
2114	180,176	4.05%	4,765	6.64%	501
2121	19,275	4.05%	386	6.64%	34
Total Present Value			**$ 18,703,392,988**		**$ 18,703,392,988**

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.