Policemen's Annuity and Benefit Fund of Chicago

Actuarial Valuation Report for the Year Ending December 31, 2022

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May 8, 2023

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

Subject: Actuarial Valuation Report for the Year Ending December 31, 2022

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Policemen's Annuity and Benefit Fund of Chicago ("the PABF" or "the Fund") as of December 31, 2022. The primary purposes of this actuarial valuation are to determine the statutory contribution for tax levy year 2024 (i.e., payment year 2025) and to measure the funded status of the Fund as of December 31, 2022, based on the statutes in effect as of December 31, 2022. This report also provides the development of the plan year end 2023 Actuarially Determined Contribution ("ADC") as required by GASB Statement Nos. 67 and 68. Other information required under GASB Statement Nos. 67 and 68 is provided in a separate report. The actuarial assumptions and methods used were recommended by the actuary and approved by the Board.

We have prepared the supporting schedules for the actuarial section of the comprehensive annual financial report, including:

- Summary of Actuarial Valuation Methods and Assumptions;
- Schedule of Active Member Data;
- Retirements and Beneficiaries Added to and Removed from Rolls;
- Prioritized Solvency (Termination) Test;
- Development of Actuarially Determined Contributions under GASB Statement Nos. 67 and 68;
- Development of Actuarial Gains and Losses; and
- Summary of Basic Actuarial Values.

This actuarial valuation is based upon:

Data Relative to the Members of the Fund – Data for active members and persons receiving benefits from the Fund was provided by the Fund's staff. We have tested this data for reasonableness.

Asset Values – The actuarial value of assets is used in the development of the statutory contribution requirements. In each future fiscal year, investment gains and losses will be phased in over a five-year period.

Actuarial Method – The actuarial method utilized by the Fund, as required by statute, is the Entry-Age Normal cost method. The objective of this method is to recognize the costs of Fund benefits over the entire career of each member as a level percentage of compensation. Any Unfunded Actuarial Accrued Liability (UAAL) under this method is separately financed. All actuarial gains and losses under this method are reflected in the UAAL.

Actuarial Assumptions – All actuarial assumptions remain unchanged 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 27, 2019, first effective with the December 31, 2019, actuarial valuation. The assumptions used are set forth in Appendix 4: Actuarial Methods and Assumptions.

Plan Provisions – The actuarial valuation is based on plan provisions and statutes in effect as of December 31, 2022.

The funding objective of the Fund is to provide employer and employee contributions sufficient to provide the benefits of the Fund when due. Pursuant to Public Act ("P.A.") 99-0506, effective May 30, 2016, the funding policy was amended and requires City contributions to be 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. The projections are based on an open group, level percent of pay financing and the Entry-Age Normal cost method. This actuarial valuation determines the statutory contribution of **$928.8** million (68.4% of projected pay) for tax levy year 2024 (i.e., payment year 2025).

This is a severely underfunded plan. The funded ratio is only **23.8%** (using actuarial value of assets) and the unfunded liability is approximately $12 billion as of December 31, 2022. The funded ratio is not projected to even reach 50% funded for another 21 years until 2043.

The funding policy defined in P.A. 99-0506 significantly defers contributions when compared to the provisions of the prior funding policy defined in P.A. 96-1495. The amount of annual contributions defined under P.A. 99-0506 does not even cover normal cost plus interest on the unfunded liability for the next seven years. This means the unfunded liability is actually projected to increase to a high of $13.0 billion in 2029, when contributions are finally sufficient to start reducing the unfunded liability.

We understand that P.A. 99-0506 defines the amount of City Contributions to the PABF. Nevertheless, we continue to recommend that the plan sponsor seriously consider making additional contributions (in excess of the statutory requirement) to ensure that there are sufficient assets available in the fund in all years to pay the promised benefits.

We also recommend that the Board perform projections which include pessimistic scenarios such as investment return lower than assumed, lower contributions received than expected, higher benefit payments than expected, etc. to more fully understand the impact of less than optimal future

expectations.

The contribution rate in this report is determined using the actuarial assumptions and methods disclosed in Appendix 4 of this report. This report includes risk metrics starting on page 13 but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this report.

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

The funding actuarial valuation results contained in this report were prepared based on the statutes in effect as of December 31, 2022. The projected contributions contained in this report will be used to develop the blended discount rate under GASB Statement Nos. 67 and 68.

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, this actuarial statement 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. Based on these items, we certify these results to be true and correct.

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.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

Actuarial valuations do not affect the ultimate cost of the Plan, only the timing of contributions into the Plan. Plan funding occurs over time. Contribution shortfalls (the difference between the actual contributions and the annual required contributions) remain the responsibility of the Plan sponsor. If the contribution levels over a period of years are lower or higher than necessary, it is normal and expected practice for adjustments to be made to future contribution levels to take account of this variance, with a view to funding the plan over time.

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

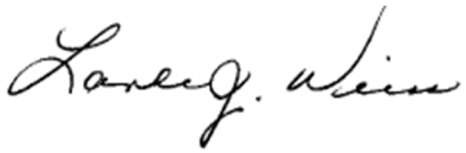
This report reflects the impact of COVID-19 through December 31, 2022. However, this report does not reflect the longer term and still developing future impact of COVID-19, which is likely to further influence demographic experience and economic expectations. We will continue to monitor these developments 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 was prepared at the request of the Board and is intended for use by the Fund and those designated or approved by the Board. This report may be provided to parties other than the Fund only in its entirety and only with the permission of the Fund. GRS is not responsible for unauthorized use of this report.

Lance J. Weiss and Alex Rivera are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

The signing actuaries are independent of the plan sponsor.

Respectfully yours,
Gabriel, Roeder, Smith & Company



Lance J. Weiss, EA, MAAA, FCA
Senior Consultant and Team Leader

Alex Rivera, FSA, EA, MAAA, FCA
Senior Consultant

Table of Contents

Summary of Actuarial Valuation Results		1-15
Appendix 1	**Results of Actuarial Valuation**	
Tables 1A and 1B	Summary	16-17
Table 1C	Active Accrued Liability and Normal Cost Tier	18
Table 2	Summary of Basic Actuarial Values	19
Table 3A	Actuarial Valuation Projection Results	20
Table 3B	Development of Statutory Contribution for 2024 (State Basis)	21
Table 3C	Projected Retiree Health Insurance Premium Subsidy	22
Table 4	Development of Actuarially Determined Contribution under GASB 67/68 for 2023	23
Table 5	Development of Actuarial Gains and Losses for 2022	24
Table 6	History of Recommended Employer Multiples	25
Table 7	Ordinary Death Benefit Reserve	26
Table 8	Actuarial Accrued Liability Prioritized Solvency Test	27
Appendix 2	**Assets of the Plan**	
Table 9	Reconciliation of Assets as of December 31, 2022	28
Table 10	Development of Actuarial (Market-Related) Value of Assets as of December 31, 2022	29
Appendix 3	**Data Reflecting Plan Members**	
Exhibit A	Summary of Changes in Active Participants for Fiscal Year Ending December 31, 2022	30
Exhibit B	Summary of Changes in Annuitants and Beneficiaries for Fiscal Year Ending December 31, 2022	31

Table of Contents

Appendix 3 (Cont'd)

Exhibit C	Total Lives and Annual Salaries Classified by Age and Years of Service as of December 31, 2022		
	Part I	Active Male Participants	32
	Part II	Active Female Participants	33
	Part III	All Active Participants	34
Exhibit D	Showing Number of Refund Payments Made during Fiscal Year Ending December 31, 2022		
	Part I	Male Employees	35
	Part II	Female Employees	36
Exhibit E	Showing Statistics on Service Retirement Annuities Classified by Age as of December 31, 2022		37
Exhibit F	Showing Statistics on Widow's Annuities Classified by Age as of December 31, 2022		38
Exhibit G	Showing Statistics on Miscellaneous Annuities for Fiscal Year Ending December 31, 2022		39
Exhibit H	Showing Participants Receiving Duty Disability Classified by Age and Length of Service as of December 31, 2022		
	Part I	Male	40
	Part II	Female	41
Exhibit I	Showing Participants Receiving Ordinary Disability Classified by Age and Length of Service as of December 31, 2022		
	Part I	Male	42
	Part II	Female	43
Exhibit J	Showing Participants Receiving Occupational Disease Disability Classified by Age and Length of Service as of December 31, 2022		
	Part I	Male	44

Table of Contents

Appendix 3 (Cont'd)

		Part II Female	45
Exhibit K	History of Average Annual Salaries		46
Exhibit L	New Annuities Granted during 2022		47
Exhibit M	Retirees and Beneficiaries by Type of Benefit		48
Exhibit N	Average Employee Retirement Benefits Payable		49
Exhibit O	History of Annuities		
	Part I	Employee Annuitants (Male and Female)	50
	Part II	Spouse Annuitants (Not Including Compensation Widows)	51
Exhibit P	Counts of Retirees and Beneficiaries with Healthcare Coverage Subsidies		52
Exhibit Q	Schedule of Retired Members by Types of Benefit and Monthly Benefit Levels		53
Exhibit R	Schedule of Average Benefit Payments for New Annuities Granted during Year		54
Exhibit S	History of Retirees and Beneficiaries Added to and Removed from Benefit Payroll		55
Exhibit T	History of Retirees and Beneficiaries Total Retiree and Beneficiaries		56
Appendix 4	**Actuarial Methods and Assumptions as of December 31, 2022**		57-63
Appendix 5	**Summary of Provisions of the Fund as of December 31, 2022**		
	Summary of Principal Eligibility and Benefit Provisions as of December 31, 2022		64-72
Appendix 6	**Legislative Changes 2013 through 2022**		73-75
Appendix 7	**Glossary of Terms**		76-78

Summary of Actuarial Valuation Results

This report sets forth the results of the actuarial valuation of the Policemen's Annuity and Benefit Fund of the City of Chicago ("the PABF" or "the Fund") as of December 31, 2022. This actuarial valuation is based on the funding provisions in effect as of December 31, 2022. The purposes of this actuarial valuation are:

1. To provide the statutory contribution for tax levy year 2024 (i.e., payment year 2025) based on the provisions of Public Act 99-0506.
2. To estimate the projected statutory contributions for tax levy years after 2024 based on the provisions of Public Act 99-0506, for purposes of developing the blended discount rate under GASB Statement Nos. 67 and 68.
3. To develop the actuarially determined contributions (ADC) under GASB Statement Nos. 67 and 68 for plan year 2023.
4. To review the funded status of the Fund as of December 31, 2022, based on the statutes in effect as of the actuarial valuation date.

The funded status, in basic terms, is a comparison of Fund liabilities to Fund assets expressed as either unfunded liability or as a ratio of assets to liabilities. This comparison can be measured in various ways. Fund liabilities are dependent on the actuarial assumptions and actuarial cost method. Fund assets can be measured at market value, book value or some variation to smooth the fluctuations that invariably occur from year to year.

Funded status is measured differently for statutory funding and for Fund and City financial reports. The following chart shows how funded status is determined for each purpose.

PURPOSE	ACTUARIAL COST METHOD	ASSET VALUE
Statutory Funding	Entry-Age Normal	Actuarial (Market-Related) Value of Assets
Fund reporting after 2014 (GASB Statement No. 67 for pension benefits)	Entry-Age Normal	Market Value of Assets
City reporting after 2015 (GASB Statement No. 68 for pension benefits)	Entry-Age Normal	Market Value of Assets

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 actuarial valuation date. The Normal Cost is the portion of the present value associated with pay during the current plan year.

The actuarial (market-related) value of assets is determined from market value with investment gains and losses smoothed over a five-year period. The actuarial assumptions used to determine the liabilities are the same in all three measures, with the exception of the investment return assumption.

Summary of Actuarial Valuation Results

Comments on Results

P.A. 99-0506, effective as of May 30, 2016, changed the City's contribution policy to a fixed dollar contribution of $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 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.

This actuarial valuation determines the statutory contribution of **$928.8** million (68.4% of projected pay) for tax levy year 2024 (i.e., payment year 2025).

Under the current statutory funding policy the funded ratio is projected to increase slowly over the next 10 years from **23.8%** in 2022 to 32.5% in 2032. The funded ratio is projected to increase to 44.4% in 2040, 69.7% in 2050, and 90.0% in 2055. The statutory funding policy generates "back-loaded" City contributions with slow growth in the funded ratio. Underfunding the Fund creates the risk that the long-term investment return cannot be supported, minimal investment income is available to pay benefits, or worse, that benefit obligations cannot be met from the trust.

The calculations in this report were prepared based on the funding policy methods required by Public Act 99-0506. In light of the current funded status of this Retirement Fund, we do not endorse this funding policy because the Statutory funding policy defers funding for benefits into the future and places a higher burden on future generations of taxpayers.

We recommend a funding policy that contributes the net normal cost plus amortization of the unfunded actuarial liability over a reasonable period. For example, contributing the net normal cost plus amortization of the unfunded actuarial liability on a level dollar basis over a 30-year period in our opinion would produce a reasonable growth pattern in the funded ratio. Using this basis, the City's Actuarially Determined Contribution ("ADC") for plan year end 2023, net of member contributions, is approximately $1,118.7 million or 85.3% of payroll which compares to the current statutory contribution of $851.1 million or 64.9% of payroll. The ADC is a required disclosure item under GASB Statement Nos. 67 and 68. We recognize that the State Statute governs the funding policy of the Fund. The purpose of these recommendations is to highlight the difference between the Statutory appropriation methodology and an actuarially sound funding policy and to highlight the risks and additional costs of continuing to underfund the Fund.

Effective with Fiscal Year ending December 31, 2014, GASB Statement No. 67 is used for pension plan financial reporting requirements. GASB Statement No. 68 is used for employer financial reporting effective with fiscal year ending December 31, 2015. The discount rate used for GASB Statement Nos. 67 and 68 reporting purposes will be based on a single equivalent discount rate using a combination of 6.75% for the projected benefits for all current members that can be paid from current assets and projected investment return, future employee contributions from current members, and future employer contributions attributable to current members, and a municipal bond rate for the portion of the projected benefits after assets are depleted.

Summary of Actuarial Valuation Results

The municipal bond rate is based on a yield or index rate for 20-year, tax exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another rating scale).

Due to the single equivalent discount rate and shorter amortization periods required under GASB Statement Nos. 67 and 68, the unfunded liabilities and pension expense will be much higher and more volatile than under the prior GASB standards. The measurements required under GASB Statement Nos. 67 and 68 are provided in a separate report.

Based on Fund experience during the year, the total unfunded actuarial accrued liability (based on the actuarial value of assets) was approximately $286 million more than expected. The unfunded liability as of December 31, 2022 was $12.21 billion compared to an expected value of $11.88 billion.

Using the actuarial value of assets produced an unfunded liability of $12.21 billion and a funded ratio of 23.8%. Using the market value of assets produced an unfunded liability of $12.53 billion and a funded ratio 21.8%. Using the book value of assets produced an unfunded liability of $12.69 billion and a funded ratio of 20.8%.

Please note the highlighted area on page 34 showing the age/service distribution for active members. A large portion of the population is at or nearing retirement. In addition, the number of active members has decreased over the past four years. We should continue to monitor this as the ratio of actives to retirees has been steadily declining, which can ultimately have a large impact on contribution requirements. A more thorough examination of these and other factors can be found in the 2022 Gain/Loss Analysis explanation on pages 11 and 12 and the gain/loss information in Table 5.

A summary of the primary results of this actuarial valuation is shown in the following table.

Summary of Actuarial Valuation Results

Actuarial Valuation at:	12/31/2021		12/31/2022	
	$ in Millions	% of Proj Pay [1]	$ in Millions	% of Proj Pay [1]
Contribution Levels				
Statutory Contribution [2]	$ 851.10	64.10%	$ 928.84	68.40%
Tax Levy Year/Payment Year	2023 / 2024		2024 / 2025	
Actuarially Determined Contribution [3]	1,085.16	84.21	1,118.72	85.29
Plan Year	2022		2023	
Funded Status - Actuarial Value [4]				
Actuarial Value of Assets	$ 3,709.38		$ 3,815.01	
Actuarial Liability	15,470.64		16,020.81	
Funded Ratio	23.98%		23.81%	
Funded Status - Market Value				
Market Value of Assets	$ 3,846.66		$ 3,486.78	
Actuarial Liability	15,470.64		16,020.81	
Funded Ratios	24.86%		21.76%	

[1]For the actuarial valuation as of December 31, 2021, payroll as of the valuation date was $1,258 million and projected payroll was estimated to be $1,289 million in 2022. For the actuarial valuation as of December 31, 2022, payroll as of the valuation date was $1,274 million and projected payroll is estimated to be $1,312 million in 2023.

[2]Pursuant to P.A. 99-0506, the fiscal year 2023 tax levy, payable in fiscal year 2024, is equal to $851,100,156 and the fiscal year 2024 tax levy, payable in fiscal year 2025, is equal to $928,841,536. The statutory contribution expressed as a percentage of pay is based on projected payroll for the respective tax levy year.

[3]The ADC for fiscal year December 31, 2023 was based on a 30-year level dollar amortization policy.

[4]Also used to determine the Actuarially Determined Contribution under GASB Statement Nos. 67 and 68.

Five-Year Projection of Statutory Contributions

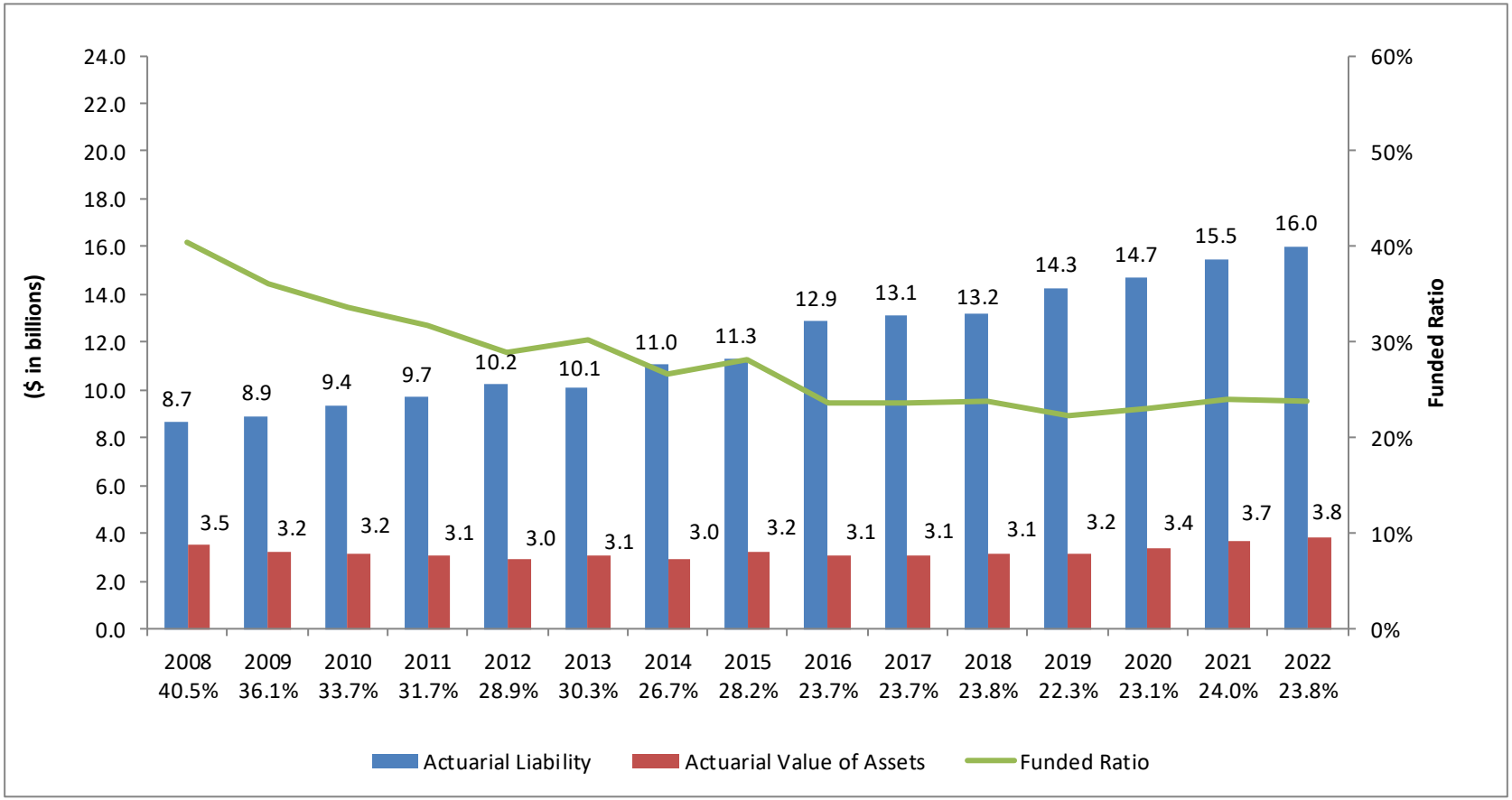
Following is a five-year projection of the statutory contributions based on statutory actuarial calculations.

City Contributions $ in Thousands		
Tax Levy Year	Payment Year	Statutory Contribution
2022	2023	$ 799,447
2023	2024	851,100
2024	2025	928,842
2025	2026	951,520
2026	2027	974,347

Statutory Contributions for payment years 2025 and 2026 are estimated amounts and will be updated in subsequent actuarial valuations.

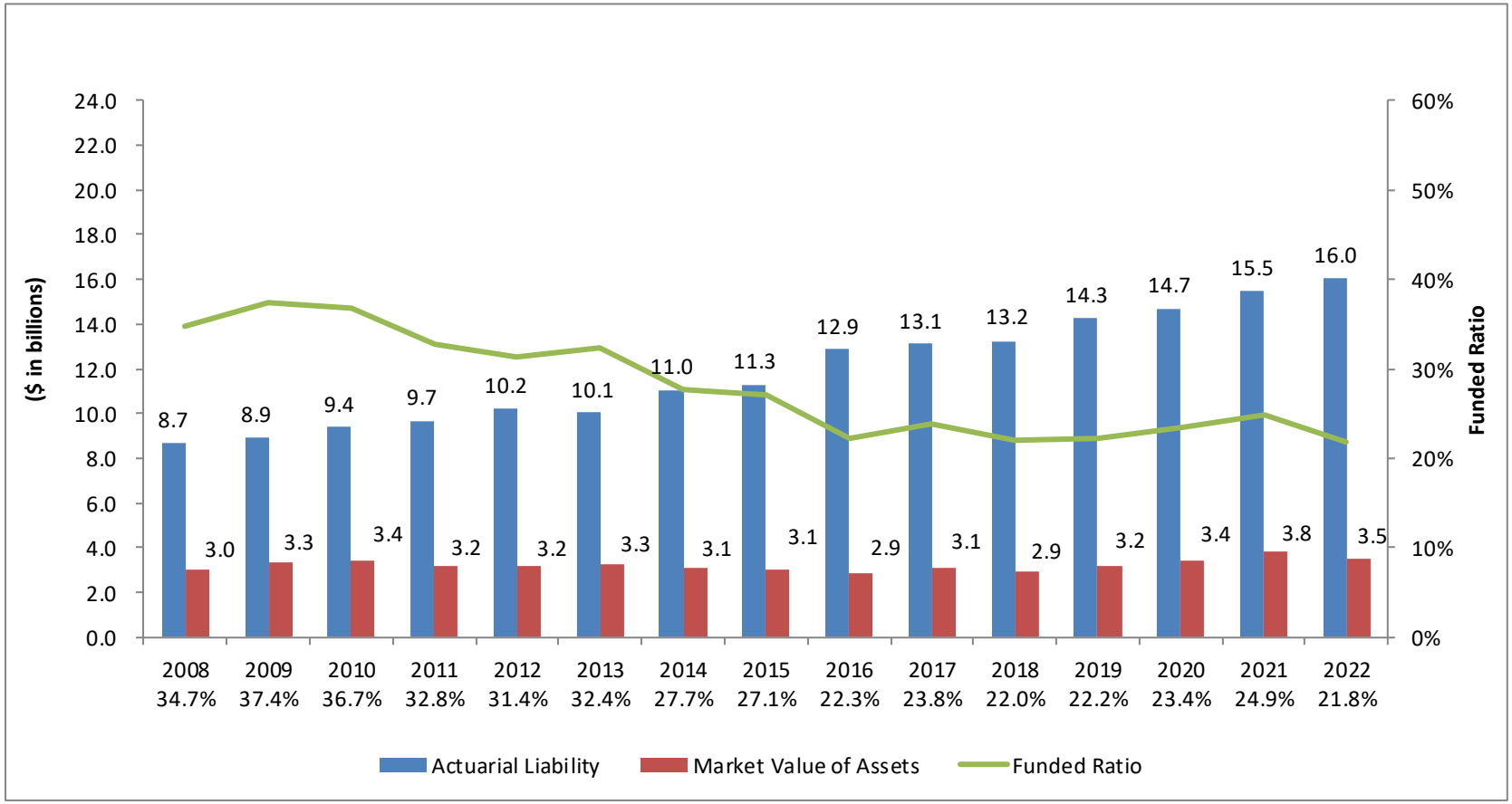
The projected statutory contributions for payment years 2023 and 2024 were determined in the actuarial valuations as of December 31, 2020, and December 31, 2021, respectively. The statutory contribution for payment year 2025 is $928.8 million, which is approximately 68.4% of projected payroll in 2025. After 2025, the projected city contribution is 68.4% of projected payroll but will increase as a dollar amount as payroll increases. Full projection results through 2055 are shown in Table 3a. The Statutory contributions set forth in this report represent the contribution amount determined consistent with the State Statute.

Components of Funded Ratio
State Reporting



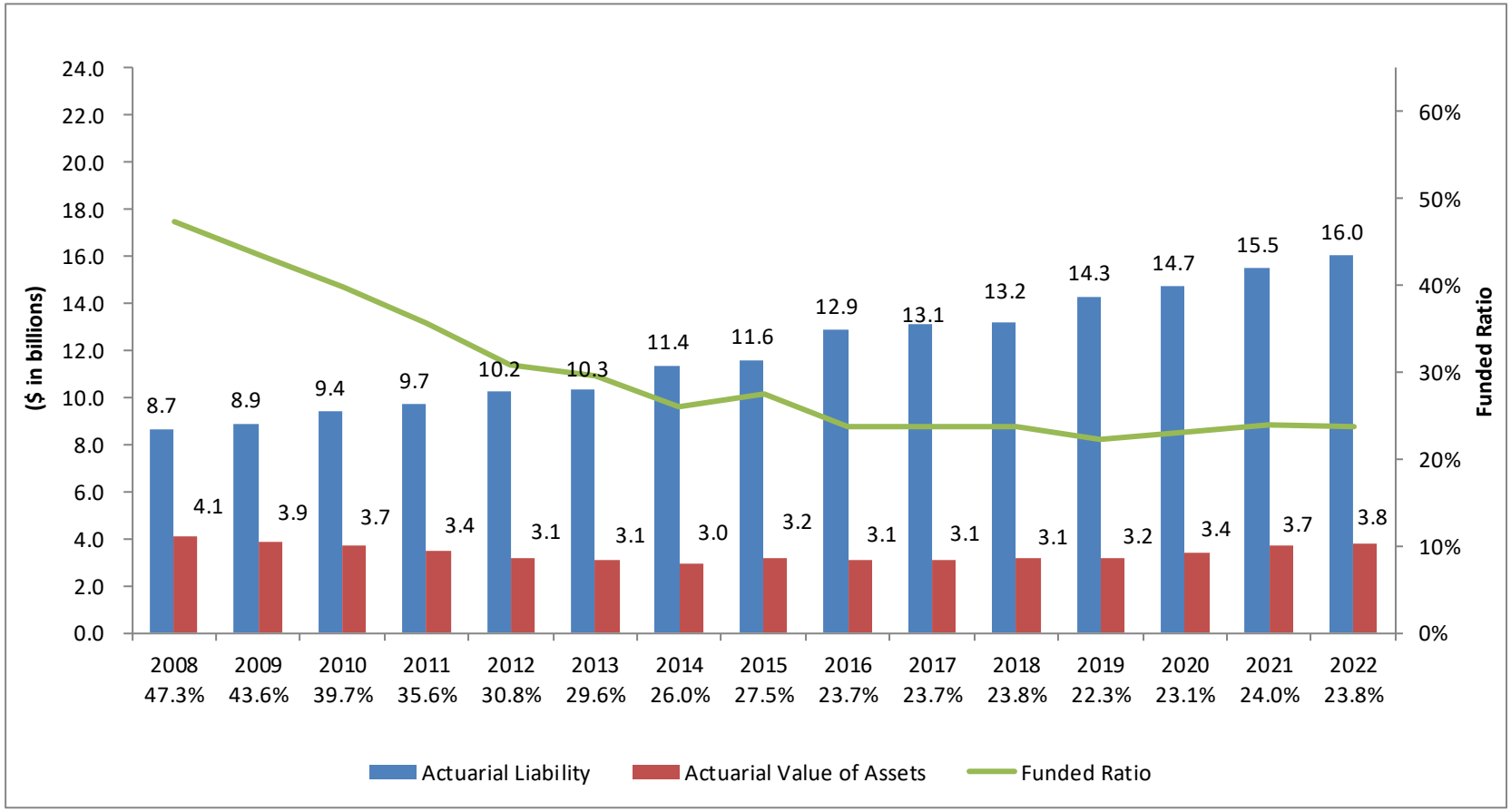
State reporting for 2016 through 2022 uses the Entry-Age Normal cost method. Years 2013 through 2015 used Projected Unit Credit for Actuarial Liabilities. Actuarial Liabilities prior to 2013 also use the Entry-Age Normal cost method. State reporting of assets is based on Actuarial (Market-Related) Value for Assets beginning in 2013 and Book Value of assets prior to 2013.

Components of Funded Ratio
Market Value of Assets



Years 2013 through 2015 used Projected Unit Credit for Actuarial Liabilities and Actuarial Liabilities for 2016 through 2022 and all years prior to 2013 used the Entry-Age Normal cost method. Market Value of Assets used for all years.

Components of Funded Ratio
Based on ADC under GASB Statement Nos. 67 and 68



ADC (under GASB) Actuarial Value of Assets based on five-year smoothing for all years. Actuarial Liabilities uses Entry-Age Normal cost method for all years.

Summary of Actuarial Valuation Results

Participants

	December 31, 2021	December 31, 2022
Active Participants		
Number	12,126	11,868
Average Age	42.4	41.8
Average Service	14.4	13.9
Average Annual Salary	$103,772 [1]	$107,352 [2]
Retirees		
Number	10,601	10,952
Average Age	69.6	69.4
Average Monthly Benefit	$6,079	$6,246
Survivors		
Number	3,130	3,154
Average Age	77.0	77.0
Average Monthly Benefit	$2,184	$2,285
Disabilities		
Number	218	219
Average Monthly Benefit	$5,347	$5,630
Children		
Number	311	314
Average Monthly Benefit	$435	$453

[1] *Average annual salary for fiscal year end December 31, 2021 would have been $100,110 without the addition of duty availability pay.*

[2] *Average annual salary for fiscal year end December 31, 2022 would have been $103,918 without the addition of duty availability pay.*

The major characteristics of the Fund participants are summarized as follows:

A large portion of the active participant population is nearing or is eligible for retirement; 33.6% of the workforce is between the ages of 45 and 54, while 32.6% have 20 or more years of service. Total participants receiving benefits under the Fund, including retirees, disabilities, survivors and children increased 2.7% during 2022 from 14,260 to 14,639. The total retiree count increased by 3.3% during 2022. Total expenditures for benefits increased from $887.1 million in 2021 to $947.6 million during 2022, or 6.8%. There are more participants receiving benefits under the Fund than active members accruing benefits.

Changes in Provisions of the Fund

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.

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.

A detailed description of the provisions of the Public Acts can be found in the Historical Information section of this report (Appendix 6).

Discussion of Actuarial Assumptions

Actuarial assumptions are used to project future demographic and economic expectations for purposes of valuing the liabilities of the plan. The assumptions should reflect current patterns. However, their primary orientation is the long-term outlook for each factor affecting the valuation. Thus, while actual experience will fluctuate over the short run, actuarial assumptions are chosen in an attempt to model the future long run experience.

There are two general types of actuarial assumptions:

1. Demographic Assumptions — reflect the flow of participants into and out of a retirement system; and

2. Economic Assumptions — reflect the effect of the economic climate on a retirement system.

Demographic assumptions can be readily studied over recent plan experience. Economic assumptions can be studied against recent experience; however, future experience is more likely to be a result of outside factors than of plan specifics. The most significant demographic assumptions are active turnover, retirement, disability incidence, and post-retirement mortality. The most significant economic assumptions are pay increases, investment return, and inflation. Other actuarial assumptions include active mortality and percent married.

Changes in Actuarial Assumptions and Methods

All actuarial assumptions remain unchanged 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 27, 2019, first effective with the December 31, 2019 actuarial valuation. The assumptions used are set forth in Appendix 4: Actuarial Methods and Assumptions.

2022 Gain/Loss Analysis

We performed a gain/loss analysis of the major factors which contributed to the change in the unfunded actuarial liability between December 31, 2021 and December 31, 2022. A discussion by source follows.

Turnover

We reviewed withdrawals in 2022 from the Fund for reasons other than retirement, death, or disability. The ratio of actual withdrawals to expected withdrawals was 511% (411% more than expected). The overall result is an actuarial gain. Members who were active as of December 31, 2021 and were on leave of absence or whose retirement was pending as of December 31, 2022 are included in this group.

Retirement

There were more retirements from active members during 2022 than expected. The ratio of actual retirements to expected retirements was 161%, resulting in an actuarial loss to the Fund.

Disability

The number of new disabled participants during 2022 was less than expected. The ratio of actual to expected disability was 63%, resulting in an actuarial gain to the Fund.

Mortality

There were more active member and annuitant deaths than expected during 2022, which resulted in a net actuarial gain to the Fund.

Pay Increase

For continuing active members in the 2021 and 2022 actuarial valuations, average salaries increased by 7.89% based on members' pay rates as of December 31 in each respective year. This was more than the expected increase of 6.03% from the 2021 salary based on the salary increase assumptions. The higher than expected salary increases resulted in an actuarial loss to the Fund.

Investment Return

During 2022, assets earned (10.61)% on a market basis, 4.50% on a book basis and 3.83% on an actuarial basis which compares to the 2022 assumed return of 6.75%. The market value rate of return was developed by the Fund's investment consultant, NEPC. The actuarial value and book value returns were estimated by GRS. During the year, the fund experienced a market value asset loss due to investment performance, and an actuarial loss on an actuarial (smoothed) value basis.

Data and Other Sources

There was a small gain on liabilities due to the retiree health subsidy that was offset by actuarial losses in liabilities due to changes in demographic data.

Plan Provision Changes

Beginning January 1, 2023, the minimum widow's annuity changed from 125% of the Federal Poverty Level to 150% of the Federal Poverty Level. This change resulted in a $38.1 million loss to the Fund. Changes in liabilities for participants impacted by the other legislative changes will flow through as a demographic gain or loss annually.

Assumption Changes

There were no changes to the actuarial assumptions during the plan year ending December 31, 2022.

Conclusion

Based on our analysis of the recent experience and expectation of the future, we believe that the actuarial assumptions are reasonable for the purpose of the measurement of the Fund's costs in effect as of December 31, 2022, under the provisions of P.A. 99-0506. Table 5 of Appendix 1 shows a more detailed development of the actuarial gains and losses for the plan year ending December 31, 2022.

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the statutory contribution requires the use of actuarial assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the actuarial assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the total required employer contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Fund's funded status); and changes in plan provisions or applicable law. The scope of this actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the Fund's future financial condition include:

1. Investment risk – actual investment returns may differ from the expected returns;
2. Asset/Liability mismatch – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. Contribution risk – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the Fund's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. Salary and Payroll risk – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. Longevity risk – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. Other demographic risks – members may terminate, retire, or become disabled at times other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The statutory contribution for tax levy year 2024 shown on page 21 should be considered as the minimum contribution that complies with the funding policy governed by statute. The timely receipt of the statutory contribution is critical to support the financial health of the Fund. Users of this report should be aware that contributions made at the statutorily determined amount do not necessarily guarantee benefit security.

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2019	2020	2021	2022
Ratio of the Market Value of Assets to Covered Payroll	2.57	2.88	3.06	2.74
Ratio of Actuarial Accrued Liability to Covered Payroll	11.61	12.29	12.29	12.57
Ratio of Actives to Retirees, Disabilities, and Beneficiaries	0.97	0.91	0.85	0.81
Ratio of Net Cash Flow to Market Value of Assets	-3.56%	0.22%	0.90%	-1.02%

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 5.0 times the payroll, a return on assets 5 percent different than assumed would equal 25 percent of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100 percent is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 13 times the payroll, a change in liability 2 percent other than assumed would equal 26 percent of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of actives to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

APPENDIX 1

RESULTS OF ACTUARIAL VALUATION

Table 1A

	December 31, 2021	December 31, 2022
Assets		
Book Value - Beginning of Year	$ 2,969,842,664	$ 3,226,512,339
Income		
Investment Income Net of Expenses	$ 222,044,504	$ 144,166,756
Employer Contributions	788,769,979	801,706,005
Employee Contributions	136,225,041	114,403,212
Miscellaneous	91,594	367,777
Subtotal	$ 1,147,131,118	$ 1,060,643,750
Outgo (Refunds, Benefits, & Administration)	$ 890,461,443	$ 951,983,627
Book Value - End of Year	$ 3,226,512,339	$ 3,335,172,462
Market Value - End of Year	3,846,664,456	3,486,779,785
Actuarial Value - End of Year	3,709,382,279	3,815,014,423
Member Counts		
Active	12,126	11,868
Retirees	10,601	10,952
Survivors	3,130	3,154
Disabilities	218	219
Inactives	940	1,151
Children	311	314
Payroll Data[1]		
Valuation Payroll	$ 1,258,338,033	$ 1,274,049,642
Average Salary	103,772	107,352

[1] *Payroll shown based on annualized pay rate at December 31, and does not include Tier 2 pensionable pay cap.*

Table 1B

Actuarial Values	December 31, 2021	December 31, 2022
Statutory Funding		
Actuarial Liability	$ 15,470,642,614	$ 16,020,814,848
Assets - Actuarial Value	3,709,382,279	3,815,014,423
Unfunded Liability	11,761,260,335	12,205,800,425
Funded Ratio	23.98%	23.81%
Statutory Employer Contribution [1]	$ 799,446,710	$ 851,100,156
(Tax Levy Year)	(2022)	(2023)
Book Value Funding		
Actuarial Liability	$ 15,470,642,614	$ 16,020,814,848
Assets - Book Value	3,226,512,339	3,335,172,462
Unfunded Liability	12,244,130,275	12,685,642,386
Funded Ratio	20.86%	20.82%
Termination Values		
Liability [2]	$ 11,767,242,674	$ 12,354,477,252
Assets - Book Value	3,226,512,339	3,335,172,462
Deficiency	8,540,730,335	9,019,304,790
Quick Ratio	27.42%	27.00%
Market Value Funding		
Actuarial Liability	$ 15,470,642,614	$ 16,020,814,848
Assets - Market Value	3,846,664,456	3,486,779,785
Unfunded Liability	11,623,978,158	12,534,035,063
Funded Ratio	24.86%	21.76%
ADC Values		
Actuarial Liability - Entry Age [3]	$ 15,470,642,614	$ 16,020,814,848
Assets - Actuarial Value	3,709,382,279	3,815,014,423
Unfunded Liability [3]	11,761,260,335	12,205,800,425
Funded Ratio	23.98%	23.81%
Actuarially Determined Contribution (ADC)	1,085,158,790	1,118,719,268
(Plan Year End)	(2022)	(2023)

[1]Pursuant to P.A. 99-0506, the fiscal year 2023 tax levy, payable in fiscal year 2024, is equal to $851,100,156 and the fiscal year 2024 tax levy, payable in fiscal year 2025, is estimated to be $928,841,536.

[2]Includes total liability for inactive and deferred members, and accumulated member contributions.

[3]Used to develop the Actuarially Determined Contribution under GASB Statement Nos. 67 and 68.

Table 1C

Active Accrued Liability and Normal Cost by Tier
As of December 31, 2022

	Tier 1 Members	Tier 2 Members [1]	Total
(1) Count	6,293	5,575	11,868
(2) Payroll [2]	$ 754,898,965	$ 519,150,677	$ 1,274,049,642
(3) Average Payroll [2]	$ 119,959	$ 93,121	$ 107,352
(4) Actuarial Accrued Liability (AAL)	$ 4,736,528,692	$ 503,239,868	$ 5,239,768,560
(5) Total Normal Cost	$ 171,446,555	$ 93,010,245	$ 264,456,800
(6) Total Normal Cost as a Percent of Pay	22.7%	17.9%	20.8%
(7) Estimated Member Contributions [3]	$ 68,129,697	$ 46,882,643	$ 115,012,340
(8) Net Normal Cost	$ 103,316,858	$ 46,127,602	$ 149,444,460
(9) Net Normal Cost as a Percent of Pay	13.7%	8.9%	11.7%

[1]Members hired on or after January 1, 2011.

[2]Payroll shown based on annualized pay rate at December 31, 2022 and does not include Tier 2 pensionable pay cap.

[3]Based on expected capped pay for plan year end December 31, 2022.

Summary of Basic Actuarial Values

Table 2

	Actuarial Present Value (APV) of Projected Benefits As of 12/31/2022	Actuarial Accrued Liability (AAL) As of 12/31/2022		
		Total	Tier 1	Tier 2
(1) Values for Active Members				
(a) Retirement	$ 7,059,533,196	$ 5,047,568,427	$ 4,604,530,719	$ 443,037,708
(b) Termination	125,918,452	18,879,394	5,973,863	12,905,531
(c) Disability	410,970,108	154,635,782	111,122,533	43,513,249
(d) Death	55,480,461	18,684,957	14,901,577	3,783,380
Total for Actives	$ 7,651,902,217	$ 5,239,768,560	$ 4,736,528,692	$ 503,239,868
(2) Values for Inactive Members				
(a) Retired	$ 9,621,138,629	$ 9,621,138,629	$ 9,620,768,074	$ 370,555
(b) Survivor	764,708,049	764,708,049	764,708,049	0
(c) Disability	269,886,748	269,886,748	254,561,340	15,325,408
(d) Inactive (Deferred Vested/ Terminated Pending Refund)	114,735,008	114,735,008	100,408,897	14,326,111
(e) Children	10,577,854	10,577,854	10,577,854	0
Total for Inactives	$ 10,781,046,288	$ 10,781,046,288	$ 10,751,024,214	$ 30,022,074
(3) Grand Totals	$ 18,432,948,505	$ 16,020,814,848	$ 15,487,552,906	$ 533,261,942
(4) Normal Cost for Active Members	$ 264,456,800			
(5) Actuarial Present Value of Future Compensation	$ 12,925,179,062			

Inactive members whose tier was not provided in the valuation data are assumed to be in Tier 1.

Development of Statutory Contribution

Table 3A

Actuarial Valuation Projection Results as of December 31, 2022
Discount Rate of 6.75%
($ in Thousands)

Year Ending	Actuarial Accrued Liability	Market Value of Assets	Actuarial Value of Assets	Unfunded Liability	Actuarial Value Funded Ratio [1]	Capped Payroll	Employer Normal Cost	Statutory Contribution [2]	Statutory Contribution as % of Pay	Employee Contributions	Benefit Payments	Admin Expenses
2022	$16,020,815	$ 3,486,780	$3,815,014	$12,205,800	23.81%	$1,273,959	$150,052	$ 802,074	63.0%	$114,403	$947,590	$ 4,394
2023	16,356,604	3,655,402	3,938,735	12,417,869	24.08%	1,311,655	149,444	851,100	64.9%	115,012	986,115	4,493
2024	16,709,095	3,908,387	4,114,143	12,594,952	24.62%	1,357,884	146,684	928,842	68.4%	122,878	996,992	4,594
2025	17,055,167	4,169,842	4,286,387	12,768,780	25.13%	1,391,037	146,317	951,520	68.4%	125,903	1,028,892	4,697
2026	17,392,015	4,439,503	4,439,503	12,952,512	25.53%	1,424,409	145,530	974,347	68.4%	128,920	1,062,657	4,803
2027	17,718,369	4,719,546	4,719,546	12,998,823	26.64%	1,461,071	144,716	999,426	68.4%	132,216	1,097,303	4,911
2028	18,034,126	5,010,222	5,010,222	13,023,904	27.78%	1,495,875	143,655	1,023,232	68.4%	135,353	1,130,957	5,022
2029	18,337,583	5,306,689	5,306,689	13,030,894	28.94%	1,522,926	141,905	1,041,737	68.4%	137,768	1,164,156	5,135
2030	18,627,341	5,607,540	5,607,540	13,019,801	30.10%	1,547,811	139,995	1,058,758	68.4%	140,004	1,197,566	5,250
2031	18,902,944	5,913,900	5,913,900	12,989,044	31.29%	1,573,042	137,990	1,076,018	68.4%	142,266	1,230,453	5,368
2032	19,164,717	6,228,531	6,228,531	12,936,186	32.50%	1,599,940	136,006	1,094,417	68.4%	144,662	1,262,256	5,489
2033	19,412,550	6,554,615	6,554,615	12,857,935	33.76%	1,629,685	134,145	1,114,764	68.4%	147,299	1,293,625	5,613
2034	19,646,445	6,892,498	6,892,498	12,753,947	35.08%	1,657,006	131,968	1,133,452	68.4%	149,695	1,323,526	5,739
2035	19,868,033	7,245,696	7,245,696	12,622,337	36.47%	1,684,758	129,959	1,152,435	68.4%	152,122	1,351,137	5,868
2036	20,078,033	7,614,484	7,614,484	12,463,549	37.92%	1,708,905	127,789	1,168,953	68.4%	154,222	1,376,760	6,000
2037	20,277,566	7,998,238	7,998,238	12,279,328	39.44%	1,727,315	125,324	1,181,546	68.4%	155,761	1,399,683	6,135
2038	20,467,432	8,397,673	8,397,673	12,069,759	41.03%	1,742,913	122,804	1,192,216	68.4%	157,048	1,420,842	6,273
2039	20,649,183	8,815,748	8,815,748	11,833,435	42.69%	1,758,199	120,401	1,202,672	68.4%	158,288	1,439,937	6,414
2040	20,824,028	9,255,073	9,255,073	11,568,955	44.44%	1,773,233	118,222	1,212,956	68.4%	159,472	1,457,502	6,559
2041	20,993,584	9,719,239	9,719,239	11,274,346	46.30%	1,788,778	116,313	1,223,589	68.4%	160,679	1,473,340	6,706
2042	21,159,344	10,212,038	10,212,038	10,947,306	48.26%	1,805,221	114,729	1,234,836	68.4%	161,978	1,487,807	6,857
2043	21,322,880	10,738,002	10,738,002	10,584,878	50.36%	1,823,354	113,505	1,247,240	68.4%	163,422	1,501,010	7,011
2044	21,485,044	11,300,139	11,300,139	10,184,905	52.60%	1,841,571	112,541	1,259,701	68.4%	164,865	1,513,499	7,169
2045	21,646,502	11,901,810	11,901,810	9,744,692	54.98%	1,860,387	111,811	1,272,572	68.4%	166,364	1,525,546	7,330
2046	21,807,991	12,546,975	12,546,975	9,261,016	57.53%	1,880,360	111,348	1,286,234	68.4%	167,923	1,537,160	7,495
2047	21,971,063	13,240,693	13,240,693	8,730,370	60.26%	1,901,749	111,249	1,300,865	68.4%	169,667	1,547,823	7,664
2048	22,136,563	13,987,250	13,987,250	8,149,313	63.19%	1,923,918	111,386	1,316,029	68.4%	171,419	1,558,016	7,836
2049	22,304,638	14,790,303	14,790,303	7,514,335	66.31%	1,946,625	111,762	1,331,562	68.4%	173,222	1,568,514	8,013
2050	22,475,998	15,654,408	15,654,408	6,821,591	69.65%	1,969,992	112,365	1,347,546	68.4%	175,131	1,578,828	8,193
2051	22,651,220	16,584,080	16,584,080	6,067,140	73.21%	1,993,654	113,113	1,363,731	68.4%	177,044	1,588,946	8,377
2052	22,831,361	17,584,703	17,584,703	5,246,658	77.02%	2,017,803	114,021	1,380,250	68.4%	179,023	1,598,520	8,566
2053	23,017,660	18,662,123	18,662,123	4,355,537	81.08%	2,042,324	115,020	1,397,023	68.4%	181,040	1,607,345	8,758
2054	23,210,601	19,821,687	19,821,687	3,388,914	85.40%	2,067,108	116,092	1,413,977	68.4%	183,034	1,616,154	8,956
2055	23,411,037	21,069,479	21,069,479	2,341,559	90.00%	2,092,325	117,315	1,431,226	68.4%	185,100	1,624,793	9,157

[1] *The funded ratio includes receivable contributions.*

[2] *Contribution receivable to be paid in the following fiscal year. No tax levy loss assumed in development of the Statutory Contribution.*

Table 3B

Key Projection Result Items

	Total
(1) Total Normal Cost for 2024	$ 269,561,570
(2) Actuarial Accrued Liability (AAL) at 12/31/2023 [1]	$ 16,356,604,427
(3) Actuarial Value of Assets at 12/31/2023	$ 3,938,735,269
(4) Unfunded Actuarial Accrued Liability (UAAL) (2-3)	$ 12,417,869,158
(5) Estimated Member Contributions during 2024	$ 122,878,000
(6) Estimated City Contribution for Tax Levy Year 2024	$ 928,841,536

[1] *Liabilities were discounted at 6.75% per year.*

Projection of Retiree Health Insurance Premium Subsidy

Table 3C

Projected Retiree Health Insurance Premium Subsidy	
Calendar Year	$ in Thousands
2023	$ 1,878
2024	1,992
2025	2,092
2026	2,172
2027	2,214

The present value as of December 31, 2022, of projected retiree health insurance premium subsidies is $22,892,226. This amount is included in the actuarial accrued liability as of December 31, 2022, and the actuarial projections used to develop the statutory contribution requirements.

Development of Actuarially Determined Contribution under GASB Statement Nos. 67 and 68 for 2023

Table 4

	Total
(1) Total Normal Cost for 2023	$ 264,456,800
(2) Actuarial Accrued Liability (AAL) at 12/31/2022	$ 16,020,814,848
(3) Unfunded AAL (UAAL)	
(a) Actuarial Value of Assets at 12/31/2022	$ 3,815,014,423
(b) UAAL (2-3(a))	12,205,800,425
(4) Amortization Payable at Middle of Year [1]	$ 928,220,140
(5) Estimated Member Contributions in 2023	$ 115,012,340
(6) Actuarially Determined Contribution (ADC) for 2023	
(a) Interest Adjustment for Semimonthly Payment	41,054,668
(b) Annual Required Contribution (1 + 4 - 5 + 6(a))	$ 1,118,719,268
(c) Annual Required Contribution (Percent of Pay)	85.29%
(7) Estimated City Contribution for Tax Levy Year 2023	
(a) in Dollars	$ 851,100,156
(b) as a Percentage of Pay	64.89%
(8) Estimated Deficiency/(Excess) for 2023	
(a) in Dollars (6(b)-7(a))	$ 267,619,112
(b) as a Percentage of Pay	20.40%

[1] *Amortization is over a 30-year open period as a level dollar amount.*

Development of Actuarial Gains and Losses for 2022

Table 5

UNFUNDED ACTUARIAL ACCRUED LIABILITY - BEGINNING OF 2022			
(1)	Actuarial Accrued Liability - 12/31/2021	$ 15,470,642,614	
(2)	Actuarial Value of Assets - 12/31/2021	3,709,382,279	
(3)	Unfunded Accrued Actuarial Liability - 12/31/2021	$ 11,761,260,335	
EXPECTED UNFUNDED ACTUARIAL ACCRUED LIABILITY - END OF 2022			
(4)	Normal Cost for 2022	$ 264,455,336	
(5)	Total Contributions for 2022	916,476,994	
(6)	Interest on (3), (4), & (5) at Valuation Rates	772,238,660	
(7)	Expected Unfunded Actuarial Accrued Liability - 12/31/2022 ((3)+(4)-(5)+(6))	$ 11,881,477,337	
DEVIATIONS FROM EXPECTED			% OF 12/31/21 AAL
(8)	(Gain)/Loss on Investment Return (Smoothed (Actuarial) Value)	$ 112,605,674	0.73%
(9)	(Gain)/Loss from Salary Changes	103,910,940	0.67%
(10)	(Gain)/Loss from Retirement	81,557,437	0.53%
(11)	(Gain)/Loss from Turnover	(26,195,776)	-0.17%
(12)	(Gain)/Loss from Mortality	(13,758,301)	-0.09%
(13)	(Gain)/Loss from Disability	(6,865,550)	-0.04%
(14)	(Gain)/Loss from New Entrants and Rehired Members	4,882,581	0.03%
(15)	(Gain)/Loss Due to Retirees Whose Benefit was Previously Suspended/Inactive	13,333,459	0.09%
(16)	(Gain)/Loss from All Other Sources [1]	16,728,891	0.11%
(17)	Composite Actuarial (Gain)/Loss	**$ 286,199,355**	**1.85%**
(18)	(Gain)/Loss from Actuarial Cost Method Change	$ -	0.00%
(19)	(Gain)/Loss from Provision Changes	$ 38,123,733	0.25%
(20)	(Gain)/Loss from Assumption Changes	$ -	0.00%
UNFUNDED ACTUARIAL ACCRUED LIABILITY - END OF 2022			
(21)	Unfunded Accrued Actuarial Liability - 12/31/2022 ((7)+(17)+(18)+(19)+(20))	$ 12,205,800,425	

[1] *Includes difference for Retiree Health Insurance Premium Subsidy.*

History of Recommended Employer Multiples*

Table 6

Year of Report	Statutory Multiple	P.A. 99-0506 Multiple	Normal Cost Plus Interest	Normal Cost Plus Amortization [3]	
				Level $	Level % of Salary
1993	2.00	N/A	3.23	3.37	2.10
1994	2.00	N/A	3.05	3.18	1.98
1995	2.00	N/A	3.34	3.49	2.17
1996	2.00	N/A	3.19	3.32	2.10
1997	2.00	N/A	3.10	3.23	2.04
1998 [1,2]	2.00	N/A	3.63	3.77	2.56
1999	2.00	N/A	3.15	3.27	2.24
2000 [1]	2.00	N/A	3.27	3.39	2.32
2001 [2]	2.00	N/A	3.63	3.78	2.56
2002	2.00	N/A	4.62	4.79	3.33
2003 [1,2]	2.00	N/A	4.46	4.63	3.23
2004 [2]	2.00	N/A	4.99	5.18	3.60
2005 [1,2]	2.00	N/A	5.33	5.56	3.85
2006	2.00	N/A	4.95	5.40	3.94
2007	2.00	N/A	4.98	5.43	3.97
2008	2.00	N/A	5.43	5.94	4.30
2009 [1]	2.00	N/A	5.87	6.42	4.61
2010	2.00	N/A	6.19	6.78	4.85
2011	2.00	N/A	5.71	6.26	4.45
2012 [1]	2.00	N/A	6.73	7.43	5.25
2013 [2]	2.00	N/A	6.92	7.60	5.44
2014 [1]	2.00	N/A	7.94	8.88	6.49
2015 [4]	N/A	4.57	7.76	8.68	6.35
2016 [1,2,5]	N/A	4.49	7.89	8.82	6.33
2017 [5]	N/A	5.13	8.49	9.49	6.80
2018 [5]	N/A	5.63	8.45	9.44	6.77
2019 [1,5]	N/A	5.63	8.65	9.81	7.22
2020 [5]	N/A	6.93	8.44	9.58	7.03
2021 [5]	N/A	7.21	8.52	9.68	7.08
2022 [5]	N/A	6.11	7.32	8.32	6.08

[1]Change in actuarial assumptions.
[2]Change in benefits.
[3]Prior to 2005, amortizations were over a 40-year period. In 2005, pension unfunded liability was amortized over a 40-year period and OPEB liability over a 30-year period. Starting in 2006, both pension and OPEB amortizations are over a 30-year open period. Starting in 2013, OPEB amortizations are over a closed 3-year period as a level percent of pay.
[4]Funding based on P.A. 96-1495, plan provisions in effect as of December 31, 2015.
[5]Funding based on P.A. 99-0506.

**Based on book value of assets through 2013, then Actuarial Value of assets starting in 2014. Assumes 4% Tax Levy Loss. Statutory contributions determined using the current funding policy shown in table 3A do not include any tax levy loss.*

Table 7

Actuarial Balance Sheet – 6% Basis

December 31, 2022

ASSETS	
Fund Balance	$(56,672,776)
Present Values of Future Contributions:	
Contributions by Members at $30.00 per Year	4,003,453
Annual City Contribution of $224,000	2,518,743
Unfunded Liability	81,911,981
TOTAL ASSETS	**$ 31,761,401**

LIABILITIES	
Present Value of Future Death Benefits (6%, Plan Mortality Basis)	
Active & Disabled Members	$ 2,315,039
Retired Members	29,446,362
TOTAL LIABILITIES	**$ 31,761,401**

Actuarial Accrued Liability Prioritized Solvency Test

Table 8

Valuation Date 12/31	(1) Active and Inactive Member Contribution	(2) Retirees and Beneficiaries	(3) Active and Inactive Members (ER Financed Portion)	Actuarial Value of Assets	Portion (%) of Present Value Covered By Assets (1)	(2)	(3)
2008	$ 1,144,380,257	$ 5,208,199,833	$ 2,299,966,099	$ 4,093,719,894	100.00%	56.63%	0.00%
2009 [1]	1,217,645,647	5,391,373,730	2,291,882,108	3,884,978,241	100.00%	49.47%	0.00%
2010	1,251,147,487	5,717,654,520	2,406,050,870	3,718,954,539	100.00%	43.16%	0.00%
2011	1,286,345,939	6,041,684,411	2,360,319,555	3,444,690,362	100.00%	35.72%	0.00%
2012 [1]	1,309,825,828	6,475,282,318	2,435,530,363	3,148,929,770	100.00%	28.40%	0.00%
2013 [2]	1,358,193,244	6,594,792,197	2,127,620,103	3,053,881,777	100.00%	25.71%	0.00%
2014 [1]	1,410,544,951	7,159,705,456	2,477,941,780	2,954,318,954	100.00%	21.56%	0.00%
2015	1,484,316,625	7,279,289,531	2,524,630,892	3,186,423,762	100.00%	23.38%	0.00%
2016 [1,2]	1,518,846,208	8,018,211,337	3,319,492,854	3,052,056,555	100.00%	19.12%	0.00%
2017	1,532,514,218	8,344,902,504	3,216,465,846	3,103,989,602	100.00%	18.83%	0.00%
2018	1,602,674,638	8,390,112,363	3,221,871,110	3,145,136,204	100.00%	18.38%	0.00%
2019 [1]	1,634,237,599	8,887,010,483	3,748,521,831	3,179,502,852	100.00%	17.39%	0.00%
2020	1,648,385,618	9,453,458,094	3,601,274,947	3,399,988,145	100.00%	18.53%	0.00%
2021	1,648,593,934	10,052,754,002	3,769,294,678	3,709,382,279	100.00%	20.50%	0.00%
2022 [2]	1,602,508,940	10,666,311,280	3,751,994,628	3,815,014,423	100.00%	20.74%	0.00%

[1]*Change in actuarial assumptions.*
[2]*Change in benefits.*

APPENDIX 2

ASSETS OF THE PLAN

Reconciliation of Assets as of December 31, 2022

The book value of the plan assets, net of accounts payable, increased from $3.227 billion as of December 31, 2021, to $3.335 billion as of December 31, 2022. The market value of the plan assets, net of accounts payable, decreased from $3.847 billion as of December 31, 2021, to $3.487 billion as of December 31, 2022. Table 9 details the development of asset values during 2022 and Table 10 shows the development of the actuarial value of assets as of December 31, 2022. In each future fiscal year, investment gains and losses will be phased in over a five-year period to determine the actuarial value of assets.

Table 9

	2021	2022
1. Market Value of assets beginning of year[1]	$ 3,441,946,255	$ 3,846,664,456
a) Adjustment as of January 1[3]	(48,376)	(119,171)
2. Income for plan year:		
a) Member contributions	$ 136,225,041	$ 114,403,212
b) City contributions	788,769,979	801,706,005
c) Investment income net of expenses[1]	370,141,406	(324,258,867)
d) Miscellaneous revenue	91,594	367,777
e) Total income	$ 1,295,228,020	$ 592,218,127
3. Disbursements for plan year:		
a) Benefit payments		
i) Pension, disability, and death benefit payments	$ 867,782,620	$ 924,761,162
ii) Healthcare premium subsidy	1,527,882	1,732,304
b) Refunds	17,766,049	21,096,110
c) Administration	3,384,892	4,394,051
d) Total disbursements	$ 890,461,443	$ 951,983,627
4. Market Value of assets end of year[1]	$ 3,846,664,456	$ 3,486,779,785
5. Estimated rate of return during year:[2]		
a) Gross	13.95%	-10.49%
b) Net of investment expense (Investment expense of $8,938,916 in 2021 and $7,959,591 in 2022)	13.80%	-10.61%

[1]Book value of assets as of December 31, 2021, is $3,226,512,339, Investment income net of expenses used for Book value for plan year 2022 is $144,166,756 and book value as of December 31, 2022, is $3,335,172,462.

[2]Plan year 2021 and 2022 returns were developed by NEPC.

[3]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.

Development of Actuarial (Market-Related) Value of Assets as of December 31, 2022

Table 10

Year Ending December 31	2021	2022	2023	2024	2025	2026
Beginning of Year:						
(1) Market Value of Assets	$ 3,441,946,255	$ 3,846,664,456				
(1a) Adjustment as of January 1 [1]	(48,376)	(119,171)				
(2) Actuarial Value of Assets	3,399,988,145	3,709,382,279				
(2a) Adjustment as of January 1 [1]	(48,376)	(119,171)				
End of Year:						
(3) Market Value of Assets	3,846,664,456	3,486,779,785				
(4) Contributions and Disbursements						
(4a) City Contributions & Misc.	788,861,573	802,073,782				
(4b) Member Contributions	136,225,041	114,403,212				
(4c) Benefit Payouts & Refunds	(887,076,551)	(947,589,576)				
(4d) Administrative Expenses	(3,384,892)	(4,394,051)				
(4e) Net of Contributions and Disbursements	34,625,171	(35,506,633)				
(5) Total Investment Income						
=(3)-(1)-(1a)-(4e)	370,141,406	(324,258,867)				
(6) Projected Rate of Return	6.75%	6.75%				
(7) Projected Investment Income						
=[(1)+(1a)]x(6)+([1+(6)]^.5-1)x(4e)	$ 233,477,625	$ 258,463,025				
(8) Investment Income in						
Excess of Projected Income	136,663,781	(582,721,892)				
(9) Excess Investment Income Recognized						
This Year (5-year recognition)						
(9a) From This Year	$ 27,332,756	$ (116,544,378)				
(9b) From One Year Ago	11,634,745	27,332,756	$ (116,544,378)			
(9c) From Two Years Ago	32,675,115	11,634,745	27,332,756	$ (116,544,378)		
(9d) From Three Years Ago	(72,303,315)	32,675,115	11,634,745	27,332,756	$ (116,544,378)	
(9e) From Four Years Ago	42,000,413	(72,303,315)	32,675,116	11,634,746	27,332,757	$ (116,544,380)
(9f) Total Recognized Investment Gain	41,339,714	(117,205,077)	(44,901,761)	(77,576,876)	(89,211,621)	(116,544,380)
(10) Change in Actuarial Value of Assets						
=(4e)+(7)+(9f)	309,442,510	105,751,315				
End of Year:						
(3) Market Value of Assets	**$ 3,846,664,456**	**$ 3,486,779,785**				
(11) Actuarial Value of Assets = (2)+(2a)+(10)	**$ 3,709,382,279**	**$ 3,815,014,423**				
(12) Difference between Market & Actuarial Values	$ 137,282,177	$ (328,234,638)				
(13) Actuarial Value Rate of Return	8.04%	3.83%				
(14) Estimated Market Value Rate of Return	13.80%	-10.61%				

[1]Adjustment for difference between end of year market value of assets from the actuarial valuations as of December 31, 2020 and December 31, 2021, and beginning of year market value of assets from the actuarial valuations as of December 31, 2021 and December 31, 2022.

APPENDIX 3

DATA REFLECTING PLAN MEMBERS

Exhibit A
Summary of Changes in Active Participants
For Fiscal Year Ending December 31, 2022

	Male	Female	Total
Number of Active Participants at Beginning of Fiscal Year[2]	**9,251**	**2,875**	**12,126**
Increases:			
Participants Added During Year	606	316	922
Participants Returning From Inactive or Disability Status	10	5	15
Total After Increases	9,867	3,196	13,063
Decreases:			
Terminations During Year	949	246	1,195
Number of Active Participants at End of Fiscal Year	**8,918**	**2,950**	**11,868**
Total Inactive Participants			1,151
Terminations:			
Withdrawal (With Refunds)[1]	131	26	157
Withdrawal (Without Refunds)	285	60	345
Ordinary Disability Benefit	7	6	13
Occupational Disease Disability Benefit	3	0	3
Duty Disability Benefit	3	0	3
Retirements	504	150	654
Deaths (Occupational)	0	0	0
Deaths (Non-occupational)	16	4	20
Totals	**949**	**246**	**1,195**

[1] *This total differs from the total of 307 shown in Exhibit D due to the fact that only 157 of the refunds were paid to participants who were considered to be active as of December 31, 2021.*

[2] *Includes one active member reclassified from male to female and four active members reclassified from female to male in the valuation data.*

Exhibit B
Summary of Changes in Annuitants and Beneficiaries
For Fiscal Year Ending December 31, 2022

	Number at Beginning of Year	Additions During Year	Terminations During Year	Number at End of Year
Service Retirement Annuities	10,601	710 [1]	359	10,952
Widow Annuities	3,063	234	209	3,088
Children's Annuities	189	21	21	189
Ordinary Disability Benefit (Non-Occupational)	31	22	20	33
Occupational Disease Disability Benefit	20	4	4	20
Duty Disability Benefit (Occupational)	167	13	14	166
Children's Disability Benefit	122	26	23	125
Widows' Compensation Annuities (Service Connected Death)	67	0	1	66
Totals	**14,260**	**1,030**	**651**	**14,639**
Annual Benefits	**$870,922,452**	**$ 83,901,460**	**$ 30,933,307**	**$923,890,605**

[1] *Includes nine retirees whose benefits were previously classified as suspended annuities.*

Exhibit C – Part I
Total Lives and Annual Salaries of Active Male Participants
Classified by Age and Years of Service as of December 31, 2022

	Years of Service										
AGE	Under 1 year	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 and over	Total	Annual Salary
Under 20										0	
											$ 0
20 to 24	187	70								257	
	$ 10,645,650	$ 6,051,681									$ 16,697,331
25 to 29	217	579	240							1,036	
	$ 12,326,850	$ 55,130,978	$ 24,448,067								$ 91,905,895
30 to 34	135	385	673	7						1,200	
	$ 7,683,702	$ 37,355,255	$ 69,020,247	$ 727,279							$ 114,786,483
35 to 39	61	201	511	275	110					1,158	
	$ 3,442,374	$ 19,425,105	$ 52,577,871	$ 30,250,212	$ 12,896,665						$ 118,592,228
40 to 44	7	72	282	212	726	197				1,496	
	392,280	$ 7,013,098	$ 29,117,216	$ 23,080,331	$ 84,726,654	$ 24,704,080					$ 169,033,659
45 to 49			78	80	406	768	99			1,431	
			$ 7,994,214	$ 8,683,040	$ 46,474,442	$ 94,061,237	$ 12,894,653				$ 170,107,585
50 to 54			2	24	231	595	709	107		1,668	
			$ 220,978	$ 2,689,480	$ 25,938,252	$ 71,197,051	$ 90,464,639	$ 13,851,862			$ 204,362,261
55 to 59				3	68	173	258	75	9	586	
				$ 323,928	$ 7,552,001	$ 20,058,986	$ 31,767,258	$ 9,779,040	$ 1,266,819		$ 70,748,032
60 to 63					2	18	41	16	9	86	
					217,468	$ 2,079,839	$ 5,167,105	$ 2,005,993	$ 1,168,761		$ 10,639,165
Total Active	607	1,307	1,786	601	1,543	1,751	1,107	198	18	8,918	
Annual Salary	$34,490,856	$124,976,117	$183,378,592	$65,754,270	$177,805,481	$212,101,193	$140,293,654	$25,636,895	$ 2,435,581		$ 966,872,639

Annual salary shown based on annualized pay rate at December 31, 2022 and does not include Tier 2 pensionable pay cap.

Exhibit C – Part II
Total Lives and Annual Salaries of Active Female Participants
Classified by Age and Years of Service as of December 31, 2022

	Years of Service										
AGE	Under 1 year	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 and over	Total	Annual Salary
Under 20										**0**	
											$ 0
20 to 24	70	15								**85**	
	$ 4,066,404	$ 1,308,927									**$ 5,375,331**
25 to 29	108	204	67							**379**	
	$ 6,098,820	$ 19,442,003	$ 6,819,297								**$ 32,360,120**
30 to 34	90	175	188							**453**	
	$ 5,114,034	$ 16,761,107	$ 19,268,071								**$ 41,143,212**
35 to 39	45	109	211	55	28					**448**	
	$ 2,545,734	$ 10,400,062	$ 21,693,849	$ 6,031,756	$ 3,267,852						**$ 43,939,252**
40 to 44	5	41	122	75	217	42				**502**	
	304,134	$ 4,067,753	$ 12,529,044	$ 8,202,246	$ 25,091,889	$ 5,304,045					**$ 55,499,111**
45 to 49			26	30	141	213	16			**426**	
			$ 2,673,362	$ 3,267,862	$ 15,928,447	$ 26,107,651	$ 2,143,537				**$ 50,120,858**
50 to 54				7	93	169	168	27		**464**	
				$ 787,375	$ 10,536,605	$ 20,311,335	$ 20,803,893	$ 3,243,496			**$ 55,682,704**
55 to 59					34	55	54	13	1	**157**	
					$ 3,718,109	$ 6,444,694	$ 6,617,262	$ 1,835,849	$ 154,118		**$ 18,770,032**
60 to 63					1	12	18	5		**36**	
					$ 112,622	$ 1,372,307	$ 2,184,275	$ 617,182			**$ 4,286,385**
Total Active	**318**	**544**	**614**	**167**	**514**	**491**	**256**	**45**	**1**	**2,950**	
Annual Salary	**$18,129,126**	**$51,979,852**	**$62,983,623**	**$18,289,239**	**$58,655,523**	**$59,540,032**	**$31,748,966**	**$5,696,527**	**$ 154,118**		**$ 307,177,005**

Annual salary shown based on annualized pay rate at December 31, 2022 and does not include Tier 2 pensionable pay cap.

Exhibit C – Part III
Total Lives and Annual Salaries of All Active Participants
Classified by Age and Years of Service as of December 31, 2022

	Years of Service										
AGE	Under 1 year	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 and over	Total	Annual Salary
Under 20										**0**	
											$ 0
20 to 24	257	85								**342**	
	$ 14,712,054	$ 7,360,608									**$ 22,072,662**
25 to 29	325	783	307							**1,415**	
	$ 18,425,670	$ 74,572,981	$ 31,267,363								**$ 124,266,015**
30 to 34	225	560	861	7						**1,653**	
	$ 12,797,736	$ 54,116,362	$ 88,288,317	727,279							**$ 155,929,695**
35 to 39	106	310	722	330	138					**1,606**	
	$ 5,988,108	$ 29,825,167	$ 74,271,720	$ 36,281,968	$ 16,164,517						**$ 162,531,480**
40 to 44	12	113	404	287	943	239				**1,998**	
	696,414	$ 11,080,851	$ 41,646,260	$ 31,282,577	$ 109,818,543	$ 30,008,125					**$ 224,532,770**
45 to 49			104	110	547	981	115			**1,857**	
			$ 10,667,576	$ 11,950,901	$ 62,402,888	$ 120,168,888	$ 15,038,189				**$ 220,228,443**
50 to 54			2	31	324	764	877	134		**2,132**	
			220,978	$ 3,476,856	$ 36,474,856	$ 91,508,386	$ 111,268,531	$ 17,095,358			**$ 260,044,964**
55 to 59				3	102	228	312	88	10	**743**	
				323,928	$ 11,270,110	$ 26,503,680	$ 38,384,520	$ 11,614,890	$ 1,420,937		**$ 89,518,064**
60 to 63					3	30	59	21	9	**122**	
					$ 330,090	$ 3,452,146	$ 7,351,379	$ 2,623,174	$ 1,168,761		**$ 14,925,550**
Total Active	**925**	**1,851**	**2,400**	**768**	**2,057**	**2,242**	**1,363**	**243**	**19**	**11,868**	
Annual Salary	**$52,619,982**	**$176,955,969**	**$246,362,215**	**$84,043,509**	**$236,461,004**	**$271,641,225**	**$172,042,620**	**$31,333,422**	**$ 2,589,699**		**$ 1,274,049,642**

Annual salary shown based on annualized pay rate at December 31, 2022 and does not include Tier 2 pensionable pay cap.
Shaded cells represent active participants that are nearing retirement or already eligible for retirement.

Exhibit D – Part I
Showing Number of Refund Payments Made during Year
To Male Employees for Fiscal Year Ending December 31, 2022

Age at Date of Refund	Length of Service at Date of Refund						
	Under 1 Year	Between 1 and 2	Between 2 and 3	Between 3 and 4	Between 4 and 5	5 and over	Total
Under 20							**0**
20 to 24			1				**1**
25 to 29		3	12	22	13	11	**61**
30 to 34	3		3	11	14	24	**55**
35 to 39	1	1	4	4	8	27	**45**
40 to 44		2		1		13	**16**
45 to 49						6	**6**
50 to 54	2	1				2	**5**
55 to 59	4						**4**
60 to 63		2			2	3	**7**
64 or older	5	6		1	1	35	**48**
Totals	**15**	**15**	**20**	**39**	**38**	**121**	**248**

Includes only number of actual refunds paid or accrued during fiscal year reported.
Includes members classified as active as of December 31, 2021, but had benefits suspended as of December 31, 2022.
Includes members previously classified as refunded as of December 31, 2022, who were previously reported as inactive as of December 31, 2021.

Exhibit D – Part II
Showing Number of Refund Payments Made during Year
To Female Employees for Fiscal Year Ending December 31, 2022

Age at Date of Refund	Length of Service at Date of Refund						
	Under 1 Year	Between 1 and 2	Between 2 and 3	Between 3 and 4	Between 4 and 5	5 and over	Total
Under 20							**0**
20 to 24							**0**
25 to 29	1		2	3	1	2	**9**
30 to 34			2	1	3	3	**9**
35 to 39	1	1	1	2	1	2	**8**
40 to 44		1			1	6	**8**
45 to 49						2	**2**
50 to 54	1						**1**
55 to 59	3	1				2	**6**
60 to 63	1	1				2	**4**
64 or older	5	1			1	5	**12**
Totals	**12**	**5**	**5**	**6**	**7**	**24**	**59**

Includes only number of actual refunds paid or accrued during fiscal year reported.
Includes members classified as active as of December 31, 2021, but had benefits suspended as of December 31, 2022.
Includes members previously classified as refunded as of December 31, 2022, who were previously reported as inactive as of December 31, 2021.

Exhibit E
Showing Statistics on Service Retirement Annuities
Classified by Age as of December 31, 2022

	MALE		FEMALE		TOTAL	
AGE	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 50	4	$ 100,033	4	$ 63,563	**8**	**$ 163,596**
50	36	2,322,173	9	518,292	**45**	**2,840,465**
51	80	5,279,104	21	1,175,492	**101**	**6,454,596**
52	118	8,394,270	39	2,541,344	**157**	**10,935,614**
53	119	8,035,598	34	2,258,718	**153**	**10,294,316**
54	69	4,314,536	26	1,723,012	**95**	**6,037,548**
55	195	14,956,238	42	3,050,838	**237**	**18,007,076**
56	221	16,592,982	76	5,260,451	**297**	**21,853,433**
57	250	19,777,763	81	5,909,139	**331**	**25,686,902**
58	298	23,444,965	101	7,618,439	**399**	**31,063,404**
59	260	20,948,089	89	6,291,899	**349**	**27,239,988**
60	243	18,835,103	98	7,294,241	**341**	**26,129,344**
61	231	18,136,468	102	7,668,120	**333**	**25,804,588**
62	250	20,092,945	99	7,585,056	**349**	**27,678,001**
63	249	19,907,578	104	7,592,463	**353**	**27,500,041**
64	208	16,643,356	122	9,318,829	**330**	**25,962,185**
65	230	18,246,526	127	9,451,923	**357**	**27,698,449**
66	194	15,095,482	109	7,495,587	**303**	**22,591,069**
67	204	16,463,454	83	5,648,574	**287**	**22,112,028**
68	219	18,206,354	89	6,192,396	**308**	**24,398,750**
69	239	19,226,889	84	5,983,971	**323**	**25,210,860**
70	251	19,973,909	94	6,684,926	**345**	**26,658,835**
71	348	28,807,403	87	6,192,458	**435**	**34,999,861**
72	369	30,838,165	99	6,640,275	**468**	**37,478,440**
73	391	31,444,243	71	4,863,117	**462**	**36,307,360**
74	437	34,881,703	88	5,611,196	**525**	**40,492,899**
75	452	35,713,966	65	4,279,574	**517**	**39,993,540**
76	432	33,119,359	37	2,054,420	**469**	**35,173,779**
77	267	19,873,966	31	1,832,680	**298**	**21,706,646**
78	259	19,343,896	32	1,949,913	**291**	**21,293,809**
79	265	19,472,194	29	1,500,617	**294**	**20,972,811**
80	240	16,850,960	16	881,591	**256**	**17,732,551**
81	193	12,863,097	12	765,406	**205**	**13,628,503**
82	155	10,636,920	12	653,422	**167**	**11,290,342**
83	122	8,317,713	2	50,905	**124**	**8,368,618**
84	140	9,106,580	2	130,981	**142**	**9,237,561**
85 to 89	310	19,264,080	7	416,918	**317**	**19,680,998**
90 to 94	148	8,613,119	0	0	**148**	**8,613,119**
95 to 99	31	1,540,782	0	0	**31**	**1,540,782**
100+	2	89,226	0	0	**2**	**89,226**
Totals	**8,729**	**$665,771,187**	**2,223**	**$155,150,746**	**10,952**	**$820,921,933**

Exhibit F
Showing Statistics on Widow's Annuities
Classified by Age as of December 31, 2022

Age	No.	Annual Payments	Age	No.	Annual Payments
Under 30	0	$ 0	65	50	$ 1,528,289
30	0	0	66	50	1,415,633
31	0	0	67	50	1,446,259
32	1	27,293	68	86	2,542,330
33	0	0	69	79	2,570,824
34	0	0	70	79	2,410,632
35	0	0	71	104	3,071,300
36	1	24,490	72	100	2,929,881
37	1	26,627	73	118	3,340,561
38	3	81,907	74	130	3,819,652
39	5	126,163	75	137	3,964,237
40	2	58,111	76	153	4,267,478
41	1	25,216	77	116	3,029,179
42	5	131,924	78	104	2,828,814
43	3	88,166	79	120	3,118,796
44	2	55,856	80	134	3,395,363
45	3	76,941	81	111	3,063,466
46	5	168,356	82	99	2,384,872
47	5	156,897	83	100	2,478,743
48	8	243,578	84	117	2,608,878
49	7	224,281	85	92	2,046,795
50	8	212,517	86	97	2,305,458
51	11	307,060	87	69	1,650,372
52	12	336,067	88	68	1,552,852
53	14	352,858	89	64	1,494,217
54	11	304,461	90	71	1,535,382
55	18	494,600	91	60	1,235,172
56	10	301,350	92	54	1,153,295
57	15	435,129	93	33	729,720
58	18	504,676	94	29	564,774
59	19	600,897	95	29	574,514
60	18	569,962	96	23	445,385
61	20	475,518	97	12	240,074
62	29	837,240	98	7	151,198
63	35	1,076,029	99	5	92,560
64	42	1,266,669	100+	6	106,336
			Total	**3,088**	**$81,684,130**

Exhibit G
Showing Statistics on Miscellaneous Annuities
For Fiscal Year Ending December 31, 2022

	No.	Annual Payments
Children's Annuities	189	$1,555,385
Widows' Compensation Annuities	66	4,783,049
Ordinary Disability Benefits	33	1,761,604
Occupational Disease Disability Benefits	20	1,319,636
Duty Disability Benefits	166	11,714,868
Children's Disability Benefits	125	150,000
Totals	**599**	**$21,284,542**

Exhibit H – Part I
Showing Male Participants Receiving Duty Disability
Classified by Age and Length of Service as of December 31, 2022

	Length of Service as of December 31, 2022													
	Under 1 Year		1 to 4		5 to 9		10 to 14		15 to 19		20 & Over		Total	
ATTAINED AGE	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30		$ -	1	$ 60,399		$ -		$ -		$ -		$ -	**1**	**$ 60,399**
30 to 34		-		-	2	119,068		-		-		-	**2**	**119,068**
35 to 39		-	1	61,911	2	138,530	1	71,758		-		-	**4**	**272,199**
40 to 44		-	1	64,761	6	395,432	7	487,437		-		-	**14**	**947,630**
45 to 49		-	1	67,822	3	202,474	5	343,329	5	327,652	2	163,011	**16**	**1,104,288**
50 to 54		-	3	203,465	6	404,762	7	500,843	14	1,022,224	7	608,992	**37**	**2,740,286**
55 to 59		-	4	288,242	2	133,804	3	198,410	11	782,806	8	637,142	**28**	**2,040,404**
60 to 63		-	3	203,465		-	2	135,643	3	201,181	5	361,716	**13**	**902,005**
Totals	**0**	**$ -**	**14**	**$ 950,065**	**21**	**$ 1,394,070**	**25**	**$ 1,737,420**	**33**	**$ 2,333,863**	**22**	**$ 1,770,861**	**115**	**$ 8,186,279**

Exhibit H – Part II
Showing Female Participants Receiving Duty Disability
Classified by Age and Length of Service as of December 31, 2022

ATTAINED AGE	Length of Service as of December 31, 2022													
	Under 1 Year		1 to 4		5 to 9		10 to 14		15 to 19		20 & Over		Total	
	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30		$ -		$ -		$ -		$ -		$ -		$ -	**0**	**$ 0**
30 to 34		-		-		-		-		-		-	**0**	**0**
35 to 39		-	1	57,429		-	1	75,246		-		-	**2**	**132,675**
40 to 44		-	1	63,703		-		-		-		-	**1**	**63,703**
45 to 49		-	1	63,703		-	3	197,946	5	370,618		-	**9**	**632,267**
50 to 54		-	3	197,946	3	199,786	4	259,005	7	487,109	3	229,185	**20**	**1,373,031**
55 to 59		-	2	133,804	1	67,822	3	199,786	4	254,085	3	219,599	**13**	**875,096**
60 to 63		-		-	1	67,822	3	235,536	2	148,459		-	**6**	**451,817**
Totals	**0**	**$ -**	**8**	**$ 516,585**	**5**	**$ 335,430**	**14**	**$ 967,519**	**18**	**$ 1,260,271**	**6**	**$ 448,784**	**51**	**$ 3,528,589**

Exhibit I – Part I
Showing Male Participants Receiving Ordinary Disability
Classified by Age and Length of Service as of December 31, 2022

	Length of Service as of December 31, 2022													
	Under 1 Year		1 to 4		5 to 9		10 to 14		15 to 19		20 & Over		Total	
ATTAINED AGE	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30		$ -		$ -		$ -		$ -		$ -		$ -	**0**	**$ -**
30 to 34		-		-		-		-		-		-	**0**	**-**
35 to 39		-		-	2	99,386		-		-		-	**2**	**99,386**
40 to 44		-		-		-		-	1	57,298	1	59,947	**2**	**117,245**
45 to 49		-		-		-		-	3	151,404	3	148,375	**6**	**299,779**
50 to 54		-		-		-		-		-	5	288,233	**5**	**288,233**
55 to 59		-		-		-		-	1	50,620	3	176,343	**4**	**226,963**
60 to 63		-		-		-		-		-		-	**0**	**-**
Totals	**0**	**$ -**	**0**	**$ -**	**2**	**$ 99,386**	**0**	**$ -**	**5**	**$ 259,322**	**12**	**$ 672,898**	**19**	**$ 1,031,606**

Exhibit I – Part II
Showing Female Participants Receiving Ordinary Disability
Classified by Age and Length of Service as of December 31, 2022

	Length of Service as of December 31, 2022													
	Under 1 Year		1 to 4		5 to 9		10 to 14		15 to 19		20 & Over			Total
ATTAINED AGE	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30		$ -		$ -		$ -		$ -		$ -		$ -	0	$ -
30 to 34		-		-		-		-		-		-	0	-
35 to 39		-		-	1	46,285		-		-		-	1	46,285
40 to 44		-		-		-		-	4	216,205		-	4	216,205
45 to 49		-		-		-	1	48,988		-	3	160,566	4	209,554
50 to 54		-		-		-		-		-	4	209,569	4	209,569
55 to 59		-		-		-		-		-	1	48,385	1	48,385
60 to 63		-		-		-		-		-		-	0	-
Totals	**0**	**$ -**	**0**	**$ -**	**1**	**$ 46,285**	**1**	**$ 48,988**	**4**	**$ 216,205**	**8**	**$ 418,520**	**14**	**$ 729,998**

Exhibit J – Part I
Showing Male Participants Receiving Occupational Disease Disability
Classified by Age and Length of Service as of December 31, 2022

	Length of Service as of December 31, 2022													
	Under 1 Year		1 to 4		5 to 9		10 to 14		15 to 19		20 & Over		Total	
ATTAINED AGE	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30		$ -		$ -		$ -		$ -		$ -		$ -	**0**	**$ -**
30 to 34		-		-		-		-		-		-	**0**	**-**
35 to 39		-		-		-		-		-		-	**0**	**-**
40 to 44		-		-		-		-		-		-	**0**	**-**
45 to 49		-		-		-	2	123,210		-	3	212,667	**5**	**335,877**
50 to 54		-		-		-		-		-	2	129,996	**2**	**129,996**
55 to 59		-		-		-		-			5	341,591	**5**	**341,591**
60 to 63		-		-		-		-		-	3	189,992	**3**	**189,992**
Totals	**0**	**$ -**	**0**	**$ -**	**0**	**$ -**	**2**	**$ 123,210**	**0**	**$ -**	**13**	**$ 874,246**	**15**	**$ 997,456**

Exhibit J – Part II
Showing Female Participants Receiving Occupational Disease Disability
Classified by Age and Length of Service as of December 31, 2022

	Length of Service as of December 31, 2022													
	Under 1 Year		1 to 4		5 to 9		10 to 14		15 to 19		20 & Over		Total	
ATTAINED AGE	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30		$ -		$ -		$ -		$ -		$ -		$ -	**0**	**$ -**
30 to 34		-		-		-		-		-		-	**0**	**-**
35 to 39		-		-		-		-		-		-	**0**	**-**
40 to 44		-		-		-		-		-		-	**0**	**-**
45 to 49		-		-		-		-	1	60,267		-	**1**	**60,267**
50 to 54		-		-		-		-		-	1	56,609	**1**	**56,609**
55 to 59		-		-		-	1	56,518			1	92,268	**2**	**148,786**
60 to 63		-		-		-		-	1	56,518		-	**1**	**56,518**
Totals	**0**	**$ -**	**0**	**$ -**	**0**	**$ -**	**1**	**$ 56,518**	**2**	**$ 116,785**	**2**	**$ 148,877**	**5**	**$ 322,180**

Exhibit K
History of Average Annual Salaries

Year End	Members in Service	Increase	Current Year Salary	Increase	Average Salary	Increase	CPI Chicago
1993	12,591	0.2 %	$ 561,156,282	4.2 %	$ 44,568	4.1 %	2.3 %
1994	13,095	4.0	599,073,276	6.8	45,748	2.6	2.9
1995	13,437	2.6	622,413,737	3.9	46,321	1.3	2.2
1996	13,475	0.3	654,149,310	5.1	48,545	4.8	3.8
1997	13,435	(0.3)	675,515,532	3.7	50,280	3.6	1.7
1998 [1]	13,586	1.1	736,401,756	9.0	54,203	7.8	1.5
1999	13,829	1.8	755,303,667	2.6	54,617	0.8	2.6
2000	13,858	0.2	759,343,026	0.5	54,795	0.3	4.0
2001	13,889	0.2	763,352,475	0.5	54,961	0.3	0.8
2002	13,720	(1.2)	866,531,789	13.5	63,158	14.9	2.5
2003	13,746	0.2	887,555,791	2.4	64,568	2.2	1.7
2004	13,569	(1.3)	874,301,958	(1.5)	64,434	(0.2)	2.2
2005	13,462	(0.8)	948,973,732	8.5	70,493	9.4	3.6
2006	13,749	2.1	1,012,983,635	6.7	73,677	4.5	0.7
2007	13,748	0.0	1,038,957,026	2.6	75,572	2.6	4.7
2008	13,373	(2.7)	1,023,580,667	(1.5)	76,541	1.3	(0.6)
2009	13,154	(1.6)	1,011,205,359	(1.2)	76,874	0.4	2.5
2010	12,737	(3.2)	1,048,084,301	3.6	82,287	7.0	1.2
2011	12,236	(3.9)	1,034,403,526	(1.3)	84,538	2.7	2.1
2012	12,026	(1.7)	1,015,170,686	(1.9)	84,415	(0.1)	1.7
2013	12,161	1.1	1,015,426,126	0.0	83,499	(1.1)	0.5
2014	12,020	(1.2)	1,074,333,318	5.8	89,379	7.0	1.5
2015	12,061	0.3	1,086,607,979	1.1	90,093	0.8	0.0
2016	12,177	1.0	1,119,526,987	3.0	91,938	2.0	1.9
2017	12,633	3.7	1,150,406,094	2.8	91,064	(1.0)	1.7
2018	13,438	6.4	1,205,324,445	4.8	89,695	(1.5)	1.1
2019	13,353	(0.6)	1,228,986,864	2.0	92,038	2.6	2.2
2020	12,715	(4.8)	1,195,980,486	(2.7)	94,061	2.2	0.9
2021	12,126	(4.6)	1,258,338,033	5.2	103,772	10.3	6.6
2022	11,868	(2.1)	1,274,049,642 [2]	1.2	107,352	3.4	5.5
Average Increase (Decrease) for the last							
5 years:		**(1.1)%**		**2.1 %**		**3.4 %**	**3.3 %**
10 years:		**(0.1)%**		**2.3 %**		**2.5 %**	**2.2 %**
30 years:		**(0.2)%**		**3.0 %**		**3.2 %**	**2.2 %**

[1] *Pay definition changed to include duty availability pay.*
[2] *Of the $1,274,049,642 current year salary, $40,750,343 is duty availability pay.*
[3] *See Appendix 4 for a complete description of the current assumptions.*

Exhibit L
New Annuities Granted during 2022

	Annuitants[4]	Widows/ Widowers of Deceased Employees[1]	Widows/ Widowers of Deceased Annuitants	Compensation Widows/ Widowers
Number retired/deceased	701	10	223	0
Average age attained	55.9	50.1	74.2	0.0
Average length of service	26.9	N/A	N/A	N/A
Average annual salary [2]	$ 110,936	N/A	N/A	N/A
Average annual final salary	$ 115,574	N/A	N/A	N/A
Total annual annuity	52,776,160	308,483	7,892,314	0
Average annual annuity	75,286	30,848	35,391	0
Total liability [(Based on 3% Comb. and 4% Amer. Exp.)]	$ 800,165,318	5,509,079	66,460,699	0
Average liability	$ 1,141,463	550,908	298,030	0
Total investment [Employee-paid for tax purposes]	$ 410,345	N/A	N/A	N/A
Average investment [3]	$ 585	N/A	N/A	N/A
Liability/cost	1,950.0	N/A	N/A	N/A
Liability/final pay	$ 9.88	N/A	N/A	N/A

[1] Not including compensation or supplemental.
[2] Average annual salary is 4 out of 10 years for members hired before January 1, 2011, and 8 out of 10 years for members hired on or after January 1, 2011.
[3] Based on previously-taxed contributions.
[4] Excludes nine retirees whose benefits were previously classified as suspended.

Exhibit M
Retirees and Beneficiaries by Type of Benefit

	ANNUITANTS			DISABILITY				Widow	
Years	Employee	Spouse[1]	Child	Ordinary	Duty	Occup.	Child	Comp.	Total
1993	5,195	3,151	294	59	211		160	66	9,136
1994	5,309	3,123	281	51	221		159	64	9,208
1995	5,510	3,133	254	51	231	1	144	60	9,384
1996	5,714	3,120	252	67	256	12	158	59	9,638
1997	5,945	3,104	240	59	270	36	130	59	9,843
1998	6,241	3,093	228	56	279	57	150	57	10,161
1999	6,520	3,118	249	57	291	76	150	58	10,519
2000	6,876	3,107	267	48	274	87	149	59	10,867
2001	7,192	3,114	255	52	265	95	143	59	11,175
2002	7,392	3,092	235	38	289	103	150	59	11,358
2003	7,498	3,083	247	29	285	97	139	63	11,441
2004	7,815	3,133	249	44	287	85	130	65	11,808
2005	8,026	3,107	247	35	298	82	139	65	11,999
2006	8,083	3,093	255	39	291	69	132	64	12,026
2007	8,155	3,137	242	52	284	65	136	64	12,135
2008	8,210	3,148	237	39	286	58	139	66	12,183
2009	8,227	3,111	232	44	284	52	138	66	12,154
2010	8,495	3,079	222	37	284	40	155	69	12,381
2011	8,763	3,091	214	43	270	36	176	70	12,663
2012	9,035	3,122	214	47	263	36	180	69	12,966
2013	9,194	3,130	206	46	269	35	213	66	13,159
2014	9,311	3,109	197	48	259	36	204	66	13,230
2015	9,385	3,078	198	41	230	35	178	65	13,210
2016	9,603	3,102	186	40	202	33	164	64	13,394
2017	9,899	3,059	185	40	197	31	154	63	13,628
2018	9,930	3,054	190	36	182	29	147	63	13,631
2019	10,078	3,070	201	40	167	25	125	65	13,771
2020	10,283	3,025	198	31	160	22	114	67	13,900
2021	10,601	3,063	189	31	167	20	122	67	14,260
2022	10,952	3,088	189	33	166	20	125	66	14,639

[1] *Includes reversionary.*

Exhibit N
Average Employee Retirement Benefits Payable

Years Ended	Average Annual Benefit	Average Current Age of Retirees	Average Age at Retirement Current Year [1]	Average Years of Benefit Service at Retirement Current Year [1]
1993	$ 24,724	68	56.9	29.6
1994	25,636	68	55.7	29.5
1995	26,996	67	55.3	29.2
1996	28,412	67	55.5	29.8
1997	29,867	67	55.0	29.3
1998	31,682	66	54.6	30.0
1999	33,220	66	54.8	29.9
2000	34,880	66	56.3	31.6
2001	36,428	66	56.4	29.8
2002	38,199	66	55.6	29.4
2003	38,998	66	57.1	30.2
2004	41,914	66	57.5	30.4
2005	43,930	67	57.3	30.6
2006	45,680	67	58.0	29.6
2007	47,392	67	58.1	29.3
2008	49,239	68	58.3	29.4
2009	50,799	68	59.2	28.6
2010	53,060	68	59.1	28.1
2011	55,104	68	59.5	27.4
2012	56,896	69	58.7	26.7
2013	58,556	69	58.2	26.1
2014	60,111	69	57.6	26.2
2015	61,702	69	57.5	26.5
2016	63,381	69	57.5	26.9
2017	65,615	69	57.5	26.6
2018	67,434	70	57.7	26.6
2019	68,746	70	57.1	26.9
2020	71,202	70	56.9	27.3
2021	72,942	70	56.1	27.0
2022	74,956	69	55.9	26.9

[1] *Averages for New Annuitants in 2022.*

Exhibit O – Part 1
History of Annuities Employee Annuitants (Male and Female)

Year End	Number of Annuitants	Total Annuities	Average Annuities
1993	5,195	$ 128,443,550	$ 24,724
1994	5,309	136,102,089	25,636
1995	5,510	148,748,836	26,996
1996	5,714	162,343,898	28,412
1997	5,945	177,557,655	29,867
1998	6,241	197,728,489	31,682
1999	6,520	216,593,933	33,220
2000	6,876	239,833,436	34,880
2001	7,192	261,991,891	36,428
2002	7,392	282,368,164	38,199
2003	7,498	292,407,321	38,998
2004	7,815	327,560,253	41,914
2005	8,026	352,579,199	43,930
2006	8,083	369,228,619	45,680
2007	8,155	386,485,701	47,392
2008	8,210	404,254,060	49,239
2009	8,227	417,924,766	50,799
2010	8,495	450,742,884	53,060
2011	8,763	482,875,300	55,104
2012	9,035	514,053,838	56,896
2013	9,194	538,368,228	58,556
2014	9,311	559,689,145	60,111
2015	9,385	579,069,731	61,702
2016	9,603	608,646,498	63,381
2017	9,899	649,527,055	65,615
2018	9,930	669,615,380	67,434
2019	10,078	692,826,321	68,746
2020	10,283	732,172,481	71,202
2021	10,601	773,262,816	72,942
2022	10,952	820,921,933	74,956

Exhibit O – Part II
History of Annuities Spouse Annuitants
(Not Including Compensation Widows)

Year End	Number of Annuitants	Total Annuities	Average Annuities
1993	3,151	$ 24,711,076	$ 7,842
1994	3,123	28,041,269	8,979
1995	3,133	28,792,959	9,190
1996	3,120	30,778,518	9,865
1997	3,104	31,492,268	10,146
1998	3,093	32,285,743	10,438
1999	3,118	36,134,606	11,589
2000	3,107	37,022,962	11,916
2001	3,114	38,316,493	12,305
2002	3,092	40,086,748	12,965
2003	3,083	39,924,324	12,950
2004	3,133	44,609,535	14,239
2005	3,107	47,658,776	15,339
2006	3,093	49,187,928	15,903
2007	3,137	51,646,225	16,464
2008	3,148	53,489,665	16,992
2009	3,111	53,381,986	17,159
2010	3,079	53,621,501	17,415
2011	3,091	55,323,666	17,898
2012	3,122	57,650,477	18,466
2013	3,130	59,360,519	18,965
2014	3,109	60,248,462	19,379
2015	3,078	61,439,136	19,961
2016	3,102	63,731,123	20,545
2017	3,059	67,469,456	22,056
2018	3,054	69,740,449	22,836
2019	3,070	72,798,906	23,713
2020	3,025	73,811,776	24,401
2021	3,063	77,483,784	25,297
2022	3,088	81,684,130	26,452

Exhibit P
Counts of Retirees and Beneficiaries with Healthcare Coverage Subsidies

Year End	Employee	Spouse [1]	Total
2009	7,763	2,285	10,048
2010	7,878	2,240	10,118
2011	8,111	2,257	10,368
2012	8,458	2,280	10,738
2013	8,539	2,270	10,809
2014	8,450	2,226	10,676
2015	8,278	2,127	10,405
2016	8,189	2,079	10,268
2017	0	0	0
2018	0	0	0
2019	0	0	0
2020 [2]	4,328	0	4,328
2021 [2]	4,499	0	4,499
2022 [2]	4,739	0	4,739

[1] *Includes children.*

[2] *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.*

Exhibit Q
Schedule of Retired Members by Types of Benefit and Monthly Benefit Levels

Monthly Benefit	Retirement		Disability		Widow [1]		Child		Totals	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Under $100	1								**1**	**0**
$100 to Under $250	5	3					73	66	**78**	**69**
$250 to Under $500	18	9					15	9	**33**	**18**
$500 to Under $750	21	5			1		46	36	**68**	**41**
$750 to Under $1,000	8	5					26	17	**34**	**22**
$1,000 to Under $2,000	44	45			36	1,421	14	12	**94**	**1,478**
$2,000 to Under $3,000	64	12			36	1,103			**100**	**1,115**
$3,000 to Under $4,000	327	86	3	1	12	407			**342**	**494**
$4,000 to Under $5,000	1,164	541	16	18		73			**1,180**	**632**
$5,000 to Under $6,000	1,841	540	94	38	3	33			**1,938**	**611**
$6,000 to Under $7,000	2,510	529	24	10		14			**2,534**	**553**
$7,000 to Under $8,000	1,624	277	8	3	1	8			**1,633**	**288**
$8,000 to Under $9,000	658	105	3			3			**661**	**108**
$9,000 to Under $10,000	219	33	1			1			**220**	**34**
$10,000 and over	225	33				2			**225**	**35**
Totals:	**8,729**	**2,223**	**149**	**70**	**89**	**3,065**	**174**	**140**	**9,141**	**5,498**

[1] *Includes reversionary.*

Exhibit R
Schedule of Average Benefit Payments for New Annuities Granted during Year

	Years of Service:	0-9	10-14	15-19	20-24	25-29	30-34	>= 35	Total
	Number of Retired Members	0	6	20	118	161	62	34	**401**
2013	Average annual salary used	$0	$62,730	$75,088	$86,979	$94,193	$99,759	$102,980	**$92,252**
	Average Monthly Benefit	$0	$1,809	$2,857	$4,164	$5,427	$6,235	$6,436	**$5,084**
	Number of Retired Members	0	4	18	122	180	44	24	**392**
2014	Average annual salary used	$0	$64,795	$72,985	$87,586	$95,372	$94,991	$104,035	**$92,097**
	Average Monthly Benefit	$0	$1,907	$2,815	$4,230	$5,746	$6,052	$6,634	**$5,189**
	Number of Retired Members	0	7	14	105	184	42	11	**363**
2015	Average annual salary used	$0	$34,263	$85,670	$90,037	$100,124	$104,876	$102,529	**$96,001**
	Average Monthly Benefit	$0	$951	$3,334	$4,271	$6,005	$6,555	$6,408	**$5,379**
	Number of Retired Members [1]	1	5	14	124	257	80	12	**493**
2016	Average annual salary used	$50,400	$23,820	$78,131	$91,293	$101,855	$108,887	$109,058	**$98,945**
	Average Monthly Benefit	$1,050	$622	$2,966	$4,292	$6,123	$6,805	$6,816	**$5,634**
	Number of Retired Members	1	2	21	166	258	118	15	**581**
2017	Average annual salary used	$94,501	$19,905	$74,798	$93,477	$98,445	$103,641	$104,267	**$97,099**
	Average Monthly Benefit	$5,709	$630	$2,904	$4,456	$5,735	$6,478	$6,517	**$5,421**
	Number of Retired Members [2]	0	1	15	105	112	95	11	**339**
2018	Average annual salary used	$0	$96,236	$85,713	$95,577	$100,721	$111,692	$130,922	**$102,505**
	Average Monthly Benefit	$0	$2,606	$3,301	$4,569	$5,901	$6,981	$8,183	**$5,740**
	Number of Retired Members [3]	1	5	14	133	204	117	7	**481**
2019	Average annual salary used	$29,649	$27,298	$72,912	$95,939	$104,238	$113,077	$122,510	**$102,493**
	Average Monthly Benefit	$618	$771	$2,935	$4,632	$6,181	$7,067	$7,657	**$5,828**
	Number of Retired Members [4]	0	1	5	126	279	134	8	**$553**
2020	Average annual salary used	$0	$15,558	$60,593	$96,945	$106,449	$117,718	$125,965	**$106,718**
	Average Monthly Benefit	$0	$357	$2,361	$4,572	$6,270	$7,357	$7,873	**$6,124**
	Number of Retired Members [5]	$0	$0	$6	$187	$364	$102	$8	**$667**
2021	Average annual salary used	$0	$0	$54,123	$99,691	$107,104	$112,400	$113,858	**$105,440**
	Average Monthly Benefit	$0	$0	$2,182	$4,737	$6,341	$7,025	$7,116	**$5,968**
	Number of Retired Members [6]	1	0	9	203	319	152	17	**701**
2022	Average annual salary used	$135,900	$0	$37,893	$105,479	$112,317	$118,827	$116,853	**$110,936**
	Average Monthly Benefit	$1,416	$0	$1,372	$5,082	$6,582	$7,427	$7,303	**$6,274**

[1] Excludes data correction for one retiree previously valued as deceased.
[2] Excludes four retirees whose annuities were reinstated after previously being classified as suspended.
[3] Excludes one retiree whose annuity was reinstated after previously being suspended.
[4] Excludes five retirees whose annuities were reinstated after previously being classified as suspended.
[5] Excludes three retirees whose annuities were reinstated after previously being classified as suspended.
[6] Excludes nine retirees whose annuities were reinstated after previously being classified as suspended.

Exhibit S
History of Retirees and Beneficiaries
Added to and Removed from Benefit Payroll

Yr.	Added		Removed		End of Year		Average Annual Benefits	Increase to Avg. Benefits
	No.	Annual Benefits.	No.	Annual Benefits	No.	Annual Benefits		
Employee Annuitants (Male and Female)								
2013	401	$ 36,004,890	242	$ 11,690,500	9,194	$ 538,368,228	$ 58,556	2.9%
2014	392	34,915,092	275	13,594,175	9,311	559,689,145	60,111	2.7%
2015	363	34,830,781	289	15,450,195	9,385	579,069,731	61,702	2.6%
2016	494	44,891,597	276	15,314,830	9,603	608,646,498	63,381	2.7%
2017	581	56,599,441	285	15,718,884	9,899	649,527,055	65,615	3.5%
2018	343	37,905,119	312	17,816,794	9,930	669,615,380	67,434	2.8%
2019	482	43,818,101	334	20,607,160	10,078	692,826,321	68,746	1.9%
2020	558	61,036,082	353	21,689,922	10,283	732,172,481	71,202	3.6%
2021	670	64,044,843	352	22,954,508	10,601	773,262,816	72,942	2.4%
2022	710	71,533,136	359	23,874,019	10,952	820,921,933	74,956	2.8%
Widow/Widower Annuitants (Not Including Compensation) [1]								
2013	157	$ 3,969,877	149	$ 2,259,835	3,130	$ 59,360,519	$ 18,965	2.7%
2014	128	3,403,918	149	2,515,975	3,109	60,248,462	19,379	2.2%
2015	147	4,022,206	178	2,831,532	3,078	61,439,136	19,961	3.0%
2016	140	4,231,504	116	1,939,517	3,102	63,731,123	20,545	2.9%
2017	158	7,074,268	201	3,335,935	3,059	67,469,456	22,056	7.4%
2018	179	5,804,968	184	3,533,975	3,054	69,740,449	22,836	3.5%
2019	185	6,443,233	169	3,384,776	3,070	72,798,906	23,713	3.8%
2020	143	4,885,497	188	3,872,627	3,025	73,811,776	24,401	2.9%
2021	216	7,479,141	178	3,807,133	3,063	77,483,784	25,297	3.7%
2022	234	8,895,028	209	4,694,682	3,088	81,684,130	26,452	4.6%

[1] *Not including Compensation Annuitants.*

Amounts shown are based on benefits in effect in that calendar year and have not been adjusted due to updated contracts and/or retroactive pay.

Exhibit T
History of Retirees and Beneficiaries
Total Retirees and Beneficiaries

Year	Annuitants and Beneficiaries Beginning Year	Additions During Year	Terminations During Year	Annuitants and Beneficiaries Year-End	Average Annuitants and Beneficiaries [1]
2013	12,966	683	490	13,159	13,078
2014	13,159	596	525	13,230	13,195
2015	13,230	588	608	13,210	13,220
2016	13,210	697	513	13,394	13,302
2017	13,394	806	572	13,628	13,511
2018	13,628	585	582	13,631	13,630
2019	13,631	735	595	13,771	13,701
2020	13,771	746	617	13,900	13,836
2021	13,900	952	592	14,260	14,080
2022	14,260	1,030	651	14,639	14,450

[1] *Average number of annuitants and beneficiaries at beginning and end of year.*

APPENDIX 4

ACTUARIAL METHODS AND ASSUMPTIONS AS OF DECEMBER 31, 2022

Actuarial Methods and Assumptions as of December 31, 2022

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 actuarial 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 are based on an experience study for the period January 1, 2014 to December 31, 2018 adopted by the Board on August 27, 2019 and became effective December 31, 2019.

Demographic Assumptions

Post-Retirement Mortality

Scaling factors of 119 percent for males, and 102 percent 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 percent for males, and 112 percent 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 percent for males, and 100 percent 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 percent based on the Z-factor. For example, the Z-factor for male retirees is 97 percent, suggesting that the data for this group is 97 percent 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 percent. The final scale of 119 percent 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 percent per year, compounded annually, net of investment expenses. The 6.75 percent assumption is composed of a 2.25 percent inflation assumption and a 4.50 percent real rate of return assumption.

General Inflation: 2.25 percent 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 2 members.

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

Future Salary Increases: The assumed base rate of individual salary increase is 3.50 percent 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 two 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 percent 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%

APPENDIX 5

SUMMARY OF PROVISIONS OF THE FUND AS OF DECEMBER 31, 2022

Summary of Principal Eligibility and Benefit Provisions
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.

Summary of Principal Eligibility and Benefit Provisions
As of December 31, 2022

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.

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.

Summary of Principal Eligibility and Benefit Provisions
As of December 31, 2022

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 was 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.

APPENDIX 6

LEGISLATIVE CHANGES 2013 THROUGH 2022

Legislative Changes 2013 through 2022

2013 Session

P.A. 98-0043 (SB 1584)

- Approved and effective June 28, 2013.
- Changes the duration of health insurance supplement payments to eligible employee annuitants to "Beginning July 1, 2008 and until such time as the city no longer provides a health care plan for such annuitants or December 31, 2016, whichever comes first."

P.A. 98-0433 (HB 2620)

- Approved and effective August 16, 2013.
- Allows for an additional exception to the RFP process for obtaining investment services for "contracts for follow-on funds with the same fund sponsor through close-end funds."

2014 Session

No legislative changes.

2015 Session

No legislative changes.

2016 Session

P.A. 99-0506

- Approved and effective May 30, 2016.
- Changes the funding policy.
    - For payment years 2016 through 2020, specifies the amount for the City of Chicago's required annual contribution to the Fund as follows: $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.
    - Beginning in payment year 2021, the City's total required contribution to the Fund shall be an amount that is equal to the normal cost of the fund, plus an amount sufficient to bring the total assets of the fund up to 90% of the total actuarial liabilities of the fund by payment year 2055 (instead of 2040).
- Changes the actuarial cost method to entry age normal.
- Includes provisions for funding from any proceeds received by the City in relation to the operation of a casino within the City.
- Provides a mechanism to enforce funding through a mandamus action.
- Creates a new minimum retirement annuity provision equal to 125% of the federal poverty level for certain persons.

P.A. 99-0905

- Approved and effective November 29, 2016.
- Specifies the manner of calculating the Tier 2 surviving spouse's annuity for Tier 2 policemen who die in service with at least 1 1/2 years of service.
- Specifies the manner of computing duty-death benefits for Tier 2 surviving spouses and provides that Tier 2 duty-death benefits are not payable where the death is the result of an intervening cause.
- Includes provisions for a minimum surviving spouse's annuity equal to 125% of the federal poverty level.
- Increases the Tier 1 automatic annual increase in retirement annuity for persons born after December 31, 1954 but before January 1, 1966.
- Amends the State Mandates Act to require implementation without reimbursement.

2017 Session

P.A. 100-0334

- Approved and effective August 25, 2017.
- States a person otherwise entitled to a survivor benefit and who has been convicted of a felony in connection with the service rendered by the member, is not eligible for such survivor benefit, if such conviction was after the effective date.
- It further states for participants that first become members after the effective date the change is a condition of employment.

2018 Session

P.A. 100-1148

- Approved and effective December 10, 2018.
- Technical correction related to filing copies of the report as required by Section 3.1 of the General Assembly Organizational Act and with the State Government Report Distribution Center for the General Assembly.

2019 Session

P.A. 100-1173

- Approved and effective June 1, 2019.
- Denied service credit applications for safety or investigative work filed between 1992 and 2008 may be reconsidered by the board.

P.A. 100-0387

- Approved and effective August 16, 2019.
- Adds provisions to felony convictions entered on or after January 1, 2019. Also states that applicants of duty or occupational disease disability retirements who are denied benefits and who challenge and prevail may seek litigation expense recovery.

2020 Session

P.A. 101-0633

- Approved and effective June 5, 2020.
- Includes COVID-19 as a cause of eligibility for ordinary death benefits and certain annuities related to death in the line of duty for a policeman who was exposed to and contracted COVID-19 on or after March 9, 2020 and on or before December 31, 2020.

2021 Session

P.A. 101-0653

- Approved and effective February 26,2021
- Extended the dates for which COVID-19 is included as a cause of eligibility for certain annuities related to death in the line of duty.

P.A. 102-0125

- Approved and effective July 23, 2021
- Made changes to provisions concerning credit for service while on a leave of absence from the police department and assigned or detailed to perform safety or investigative work.

2022 Session

P.A. 102-0806

- Approved and 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.

P.A. 102-0884

- Approved and 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.

APPENDIX 7

GLOSSARY OF TERMS

Glossary of Terms

Actuarial Accrued Liability ("AAL")	The difference between the Actuarial Present Value of Future Benefits, and the Actuarial Present Value of Future Normal Costs.
Actuarial Assumptions	Assumptions about future plan experience that affect costs or liabilities, such as: mortality, withdrawal, disablement and retirement; future increases in salary; future rates of investment earnings; future investment and administrative expenses; characteristics of members not specified in the data, such as marital status; characteristics of future members; future elections made by members; and other items.
Actuarial Cost Method	A procedure for allocating the Actuarial Present Value of Future Benefits between the Actuarial Present Value of future Normal Costs and the Actuarial Accrued Liability.
Actuarial Equivalent	Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value ("APV")	The amount of funds required to provide a payment or series of payments in the future. It is determined by discounting the future payments with an assumed interest rate and with the assumed probability each payment will be made.
Actuarial Present Value of Future Benefits ("APVFB")	The Actuarial Present Value of amounts which are expected to be paid at various future times to active members, retired members, beneficiaries receiving benefits and inactive, nonretired members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB Statement No. 67, such as the Funded Ratio and the Actuarially Determined Contribution ("ADC").
Actuarial Value of Assets ("AVA")	The value of the assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets or a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio or contribution requirement.

Glossary of Terms

Actuarially Determined Contribution ("ADC")	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation. The ADC consists of the Employer Normal Cost and Amortization Payment.
Amortization Method	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the rate at which total covered payroll of all active members is assumed to increase.
Amortization Payment	That portion of the plan contribution or ADC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.
Amortization Period	The period used in calculating the Amortization Payment.
Closed Amortization Period	A specific number of years that is reduced by one each year, and declines to zero with the passage of time. For example, if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc.
Employer Normal Cost	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Equivalent Single Amortization Period	For plans that do not establish separate amortization bases (separate components of the UAAL), this is the same as the Amortization Period. For plans that do establish separate amortization bases, this is the period over which the UAAL would be amortized if all amortization bases were combined upon the current UAAL payment.
Experience Gain/Loss	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two actuarial valuations. To the extent that actual experience differs from that assumed, Unfunded Actuarial Accrued Liabilities emerge which may be larger or smaller than projected. Gains are due to favorable experience; e.g., the assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, losses are the result of unfavorable experience; i.e., actual results that produce Unfunded Actuarial Accrued Liabilities which are larger than projected.

Glossary of Terms

Funded Ratio	The ratio of the Actuarial Value of Assets to the Actuarial Accrued Liability.
GASB	Governmental Accounting Standards Board.
GASB Statement No. 67 and GASB Statement No. 68	These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. GASB Statement No. 68, which replaced GASB Statement No. 27 effective with the fiscal year ending June 30, 2015, sets the accounting rules for the employers that sponsor or contribute to public retirement systems. GASB Statement No. 67, which replaced GASB Statement No. 25 effective with fiscal year ending June 30, 2014, sets the rules for the systems themselves.
Normal Cost	The annual cost assigned, under the Actuarial Cost Method, to the current plan year.
Open Amortization Period	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear, but will become smaller each year, either as a dollar amount or in relation to covered payroll.
Unfunded Actuarial Accrued Liability	The difference between the Actuarial Accrued Liability and Actuarial Value of Assets.
Valuation Date	The date as of which the Actuarial Present Value of Future Benefits are determined. The benefits expected to be paid in the future are discounted to this date.