Firemen's Annuity and Benefit Fund of Chicago

Actuarial Valuation and Review as of December 31, 2020

June 2021

This report has been prepared at the request of the Board of Trustees to assist in administering the Fund. This valuation report may not be copied or reproduced in any form without the consent of the Board of Trustees and may only be provided to other parties in its entirety, unless expressly authorized by Segal. The measurements shown in this actuarial valuation may not be applicable for other purposes.

Segal

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June 18, 2021

Retirement Board of the
Firemen's Annuity and Benefit Fund of Chicago
20 South Clark Street, Suite 1400
Chicago, Illinois 60603-1899

Dear Board Members:

We are pleased to submit this annual Actuarial Valuation and Review as of December 31, 2020. It summarizes the actuarial data used in the valuation; establishes the net pension liability under Governmental Accounting Standards Board (GASB) Statement No. 67 as of December 31, 2020, the pension expense for the fiscal year ending December 31, 2020, under GASB Statement No. 68, the statutory funding contribution for tax levy year 2022 (i.e., payment year 2023), and the actuarially determined contribution for the year ending December 31, 2021; and analyzes the preceding year's experience. We also provide projections of statutory contribution requirements under PA 99-0506.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Firemen's Annuity and Benefit Fund of Chicago (FABF or Fund or Plan).

Asset and Membership Data

The census information and financial information on which our calculations were based was prepared by the Fund staff. That assistance is gratefully acknowledged. We have not subjected the census data to any auditing procedures, but have examined the data for reasonableness and consistency with the prior year's data.

Actuarial Assumptions and Methods

The actuarial assumptions and methods are set by the Board of Trustees, based upon recommendations made by the Fund's actuary. The demographic assumptions and methods used for the December 31, 2020, actuarial valuation were based on an experience analysis covering the five-year period ending December 31, 2016, and were adopted by the Board, effective December 31, 2017. Economic actuarial assumptions were adopted by the Board effective December 31, 2018, based on recommendations included in the Economic Assumptions Review. These actuarial assumptions and methods comply with the parameters set by the Actuarial Standards of Practice and the parameters for disclosure of GASB 67 and 68. Further, in our opinion, the assumptions as approved by the Board appear to be reasonably related to the experience of the Fund. The investment return assumption is based on the Fund being invested according to the target asset allocation in the Investment Policy Statement. **To the extent that the liquidation of assets to pay benefit payments and expenses requires a shift in investment allocation to more liquid, lower return asset classes, a lower discount rate will likely be required in the future.**

Funding Adequacy

FABF is funded by employer and member contributions in accordance with the funding policy specified under the Illinois Pension Code (40 ILCS 5/4), which was revised on May 30, 2016 by Public Act 99-0506. Employer contributions are calculated as the sum of the employer normal cost for that fiscal year plus an amount determined as a level percent of payroll sufficient to bring the total assets of the Fund up to 90% of the actuarial accrued liability by the end of 2055. **FABF is a severly underfunded plan. The funded ratio is only 19.9% using fair value of assets and the unfunded actuarial accrued liability is $5.3 billion as of December 31, 2020. We strongly recommend an actuarial funding method that targets 100% funding where payments at least cover the normal cost plus interest on the unfunded actuarial liability and a portion of the principal balance. If the Fund becomes insolvent, the employer will be required to make contributions on a "pay as you go" basis, which means the employer would have to pay all benefits as they become due.**

Financial Results and Membership Data

This report includes the following schedules, as prepared by Segal, for the Actuarial and Financial sections of the Comprehensive Annual Financial Report:

- Actuarial
  - Active Member Valuation Data
  - Retirees and Beneficiaries Added to and Removed from Rolls
  - Solvency Test
  - Analysis of Financial Experience
- Financial
  - Schedule of Funding Progress
  - Schedule of Employer Contributions

Limitation of Actuarial Measurements

The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in plan provisions or applicable law.

Qualifications

The actuarial calculations were directed under our supervision. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.

Sincerely,

Matthew A. Strom, FSA, MAAA, EA Senior Vice President and Actuary	Kim Nicholl, FSA, MAAA, EA Senior Vice President and Actuary	Geoff Bridges, FSA, MAAA, EA Senior Consultant and Actuary

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Section 1: Actuarial Valuation Summary

Purpose

This report has been prepared by Segal to present a valuation of the Firemen's Annuity and Benefit Fund of Chicago (FABF or Fund or Plan) as of December 31, 2020. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of the Fund, as outlined in 40 ILCS 5/4 and administered by the Retirement Board;
- The characteristics of covered active members, inactive vested members, and retirees and beneficiaries as of December 31, 2020, provided by FABF staff;
- The assets of the Plan as of December 31, 2020, provided by FABF staff;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

Valuation Highlights

The following key findings were the result of this actuarial valuation:

1. **FABF is a severly underfunded plan. The funded ratio is only 19.9% using fair value of assets and the unfunded actuarial accrued liability is $5.3 billion as of December 31, 2020. Even under the statutory funding schedule, the funded ratio is projected to remain below 50% through 2042. We strongly recommend an actuarial funding method that targets 100% funding where payments at least cover the normal cost plus interest on the unfunded actuarial liability and a portion of the principal balance.**

2. For the year ended December 31, 2020, Segal has estimated the asset return on a fair value basis to be 11.4%. After gradual recognition of investment gains and losses under the asset smoothing method, the rate of return on the actuarial value of assets was 9.3%. This represents an experience gain when compared to the assumed rate of 6.75%. As of December 31, 2020, the actuarial value of assets ($1.276 billion) represents 97.5% of the fair value ($1.309 billion).

3. The fair value of assets as of December 31, 2020 is $1.31 billion, which includes $933 million of investments and $368 million of employer contributions receivable. As the employer contributions increase in the future, the receivable employer contributions will become a larger percentage of the reported fair value of assets.

4. The funded ratio based on the actuarial value of assets over the actuarial accrued liability as of December 31, 2020, is 19.4%, compared to 18.2% as of December 31, 2019. Using the fair value of assets, the funded ratio as of December 31, 2020, is 19.9%, compared to 18.4% as of December 31, 2019.

5. For the fiscal year ending December 31, 2020, the actuarially determined contribution (ADC) for pension benefits is $466,556,303. The expected employer contribution for 2020 (payable in 2021) was $371,257,505; the actual amount contributed for 2020 totaled $368,422,961. **Compared to the actuarially determined contribution of $466,556,303, the contribution deficiency is $98,133,342. Each year there is a contribution deficiency leads to an increased risk that there will be a deficiency in all future years.**

6. For the fiscal year ending December 31, 2021, the ADC is $476,497,084, which compares to the statutory employer contribution for tax levy year 2021, payable in 2022, of $367,088,562 developed in the December 31, 2019, actuarial valuation. The expected employer statutory contribution for 2022, payable in 2023, developed in this December 31, 2020, actuarial valuation is $398,641,353.

7. Reported payroll for the active membership during 2020 was 5.9% higher than projected from the December 31, 2019, actuarial valuation. These larger-than-expected salary increases generated an actuarial loss with respect to the unfunded actuarial accrued liability.

8. When measuring pension liability for GASB purposes, the Entry Age actuarial cost method is used, which is the same method that is used for funding purposes. However, because of the statutorily-required employer contributions under Public Act 99-0506, which are expected to increase substantially over time, the GASB blended discount rate calculation results in a lower discount rate (6.30%) than is used for funding purposes as of December 31, 2020. This means that the total pension liability (TPL) measure for financial reporting shown in this report will be different the actuarial accrued liability (AAL) measure for funding.

9. The net pension liability (NPL) is equal to the difference between the TPL and the Plan's fiduciary net position. The Plan's fiduciary net position is equal to the fair value of assets. The NPL increased from $5,392,669,895 as of December 31, 2019, to $5,592,244,401 as of December 31, 2020. The increase in the NPL is due, in part, to the decrease in the single equivalent discount rate.

10. As indicated in *Section 2, Subsection B* of this report, the total unrecognized investment gain as of December 31, 2020, is $32,973,093. This investment gain will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, to the extent it is not offset by recognition of investment losses derived from future experience. This implies that earning the assumed rate of investment return of 6.75% per year (net of expenses) on a fair value basis will result in investment gains on the actuarial value of assets in the next few years.

11. The current method used to determine the actuarial value of assets yields an amount that is 97.5% of the fair value of assets as of December 31, 2020. Guidelines in Actuarial Standards of Practice No. 44 (Selection and Use of Asset Valuation Methods for Pension Valuations) recommend that asset values fall within a reasonable range around the corresponding fair value. We believe the actuarial asset method currently complies with these guidelines.

12. Public Act 101-0673, effective date April 5, 2021, changed the automatic increases for Tier 1 participants. Prior to the change the provisions differed for participants born after January 1, 1966. This Public Act removes that difference so all Tier 1 participants receive the same automatic increase. Since the effective date of this Public Act is after the valuation date we have not accounted for it in this valuaiton. It will first be considered with the December 31, 2021 valuation.

Summary of Key Valuation Results		
	2020	**2019**
Funding ratios as of December 31:		
Actuarial accrued liability	$6,570,504,235	$6,256,060,133
Fair value of assets	1,308,886,480	1,149,820,815
Unfunded actuarial accrued liability on a fair value basis	5,261,617,755	5,106,239,318
Funded ratio on a fair value basis	19.92%	18.38%
Actuarial value of assets	$1,275,913,387	$1,137,089,084
Unfunded actuarial accrued liability on an actuarial value basis	$5,294,590,848	5,118,971,049
Funded ratio on an actuarial value basis	19.42%	18.18%
Book value of assets	$1,140,314,008	$1,037,486,008
Unfunded actuarial accrued liability on a book value basis	$5,430,190,227	$5,218,574,125
Funded ratio on a book value basis	17.36%	16.58%
Demographic data as of December 31:		
Number of retirees, survivors, disabilities and children	5,221	5,128
Number of inactive members	124	95
Number of active members	4,697	4,630
Total pensionable salary supplied by the Fund	$500,367,870	$457,082,316
Average pensionable salary	$106,529	$98,722

Contribution requirement for Fiscal (Tax Levy) Year:	2022	2021	2020
Statutory City contribution*	$398,641,353	$367,088,562	$371,257,505
Actuarially determined contribution requirment		476,497,828	466,556,303

**As established by Public Act 99-0506. City contributions are shown in the year that they will be booked. The contributions will be paid in the following year.*

Five-Year Projection of Statutory Contributions

Following is a five-year projection of the statutory contributoins based on a fixed contribution for payment year 2021 and statutory actuarial projections after 2021.

Projected City Contributions as of December 31, 2020		
Tax Levy Year	Payment Year	Statutory Contribution
2020	2021	$371,257,505
2021	2022	367,088,562
2022	2023	398,641,353
2023	2024	409,375,542
2024	2025	419,790,979
2022 & thereafter as % of projected pay	2023 & thereafter as % of projected pay	73.13%

The statutory contribution for payment year 2023 is $398,641,353, which is approximately 73.13% of projected payroll in 2023. For payment years after 2023, the projected city contribution is equal to 73.13% of projected payroll, which will increase as a dollar amount as payroll increases. Full projection results through 2055 are shown in *Section 4, Exhibit IX*. The statutory contribution set forth in this report represent the contribution amounts determined on a basis consistent with the state Statute and do not constitute a recommendation by Segal.

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected benefit obligations. It is an estimated forecast – the actual long-term cost of FABF will be determined by the actual benefits and expenses paid and the actual investment experience of the Fund.

In order to prepare a valuation, Segal ("Segal") relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for the Fund is based on data provided to the actuary by Fund staff. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** The valuation is based on the fair value of assets as of the valuation date, as provided by Fund staff, and uses an "actuarial value of assets" that differs from fair value to gradually reflect year-to-year changes in the fair value of assets in determining the contribution requirements.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan members for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each member for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the Fund's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The actuarial valuation is prepared at the request of the Board. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the Fund's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of FABF will be determined by the actual benefits and expenses paid and the actual investment experience of the Fund.
- If the Board is aware of any event or trend that was not considered in the valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of FABF's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.
- The measurements shown in this actuarial valuation may not be applicable for other purposes. 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; and changes in plan provisions or applicable law.

As Segal has no discretionary authority with respect to the management or assets of the Fund, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Fund.

Section 2: Actuarial Valuation Results

A. Membership Data

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, inactive members, retirees and beneficiaries.

This section presents a summary of significant statistical data on these member groups.

More detailed information for this valuation year and the preceding valuation can be found in *Section 3, Exhibits A - D*.

Member Population: 2011 – 2020

Year Ended December 31	Active Members*	Inactive Members	Retirees, Survivors, Disabilities and Children	Ratio of Non-Actives to Actives
2011	4,842	67	4,474	0.94
2012	4,740	60	4,611	0.99
2013	4,685	57	4,640	1.00
2014	4,809	65	4,703	0.99
2015	4,735	76	4,729	1.01
2016	4,760	88	4,777	1.02
2017	4,613	77	4,878	1.07
2018	4,487	92	5,022	1.14
2019	4,630	95	5,128	1.13
2020	4,697	124	5,221	1.14

* Includes ordinary disability members who continue to accrue benefit service and additional liability while on ordinary disability..

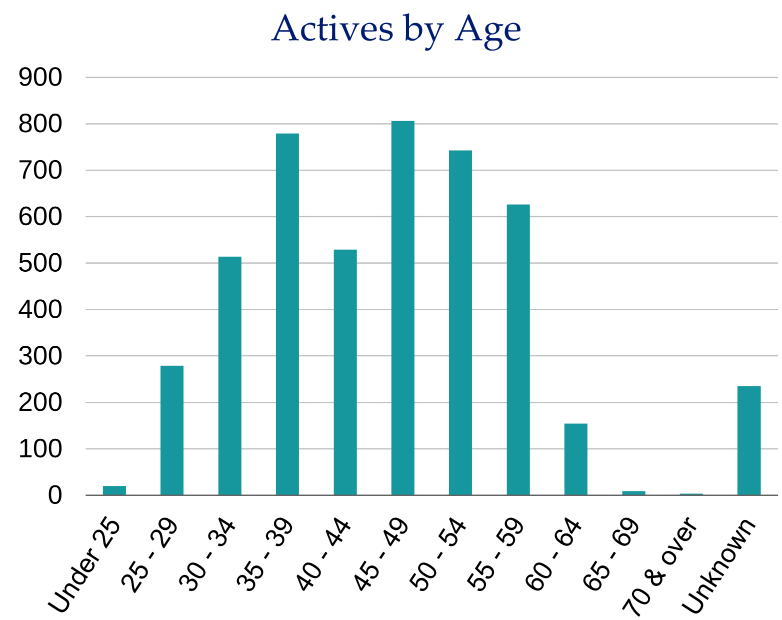
An historical perspective of how the member population has changed over the past ten valuations can be seen in this chart.

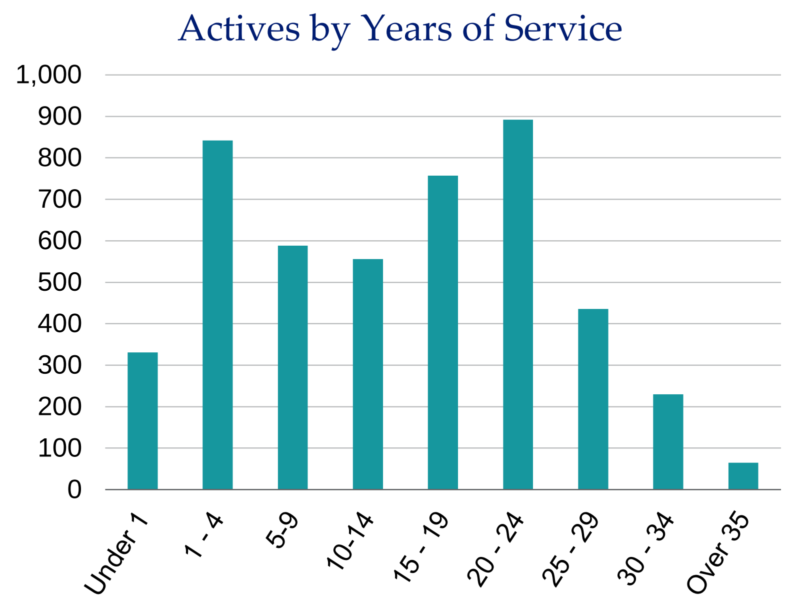
Active Members

Plan costs are affected by the age, years of service and salary of active members. In this year's valuation, there were 4,697 active members with an average age of 44.43 average years of service of 14.03 and average salary of $106,529. The 4,630 active members in the prior valuation had an average age of 44.82, average years of service of 14.02 and average salary of $98,722.

The active members included twelve members receiving ordinary disability benefits. This compares to eight members receiving ordinary disability benefits in the prior valuation.

Distribution of Active Members as of December 31, 2020





Inactive Members

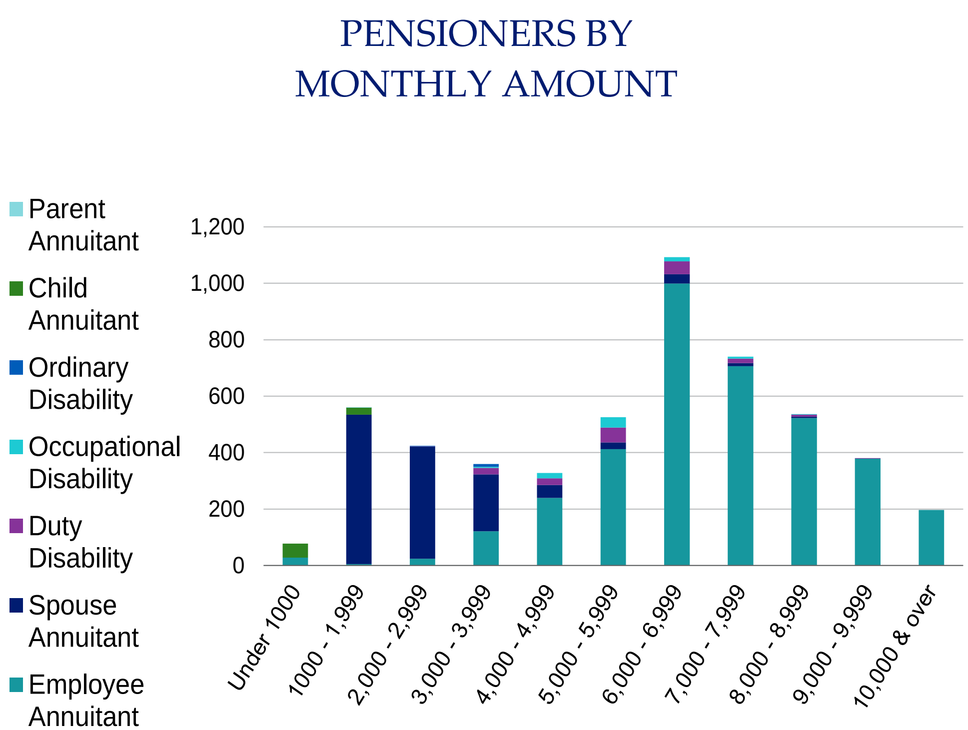
In this year's valuation, there were 34 members with a vested right to a deferred or immediate vested benefit. In addition, there were 90 members entitled to a return of their account balance.

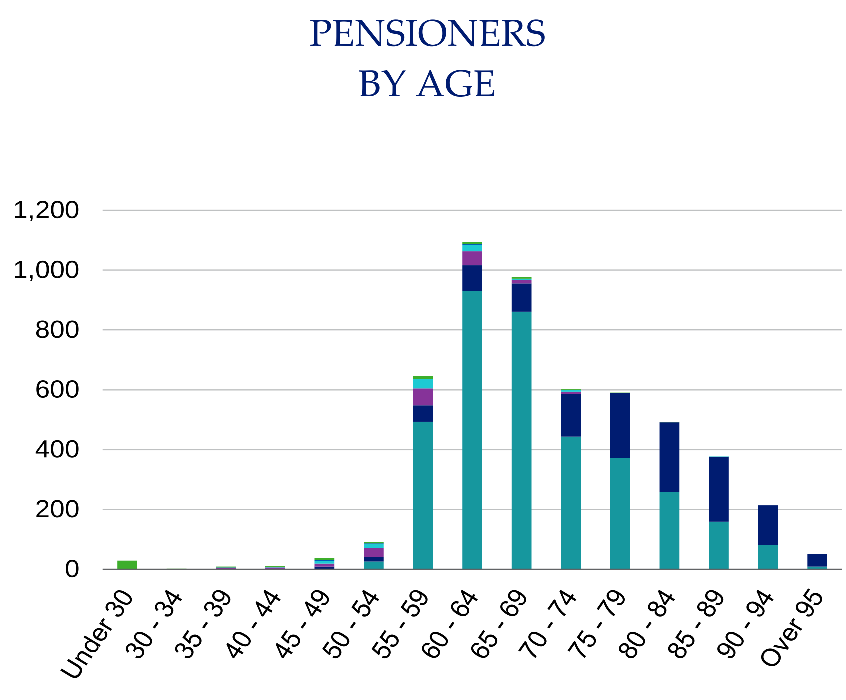
Retired Members and Survivors

As of December 31, 2020, 3,632 employee annuitants, 1,246 spouse annuitants, 172 duty disability retirees, 83 occupational disaiblity, 12 ordinary disability retirees, 75 children, and one parent were receiving total monthly benefits of $30,528,927. For comparison, in the previous valuation, there were 3,537 employee annuitants,1,261 spouse annuitants, 166 duty disability retirees, 85 occupational disaiblity, eight ordinary disability retirees, 70 children, and one parent were receiving total monthly benefits of $29,032,485.

As of December 31, 2020, the average monthly benefit for service retiree members is $7,119, compared to $6,924 in the previous valuation. The average age for service retirees is 69.0 in the current valuation, compared with 69.1 in the prior valuation.

Distribution of Pensioners as of December 31, 2020





B. Financial Information

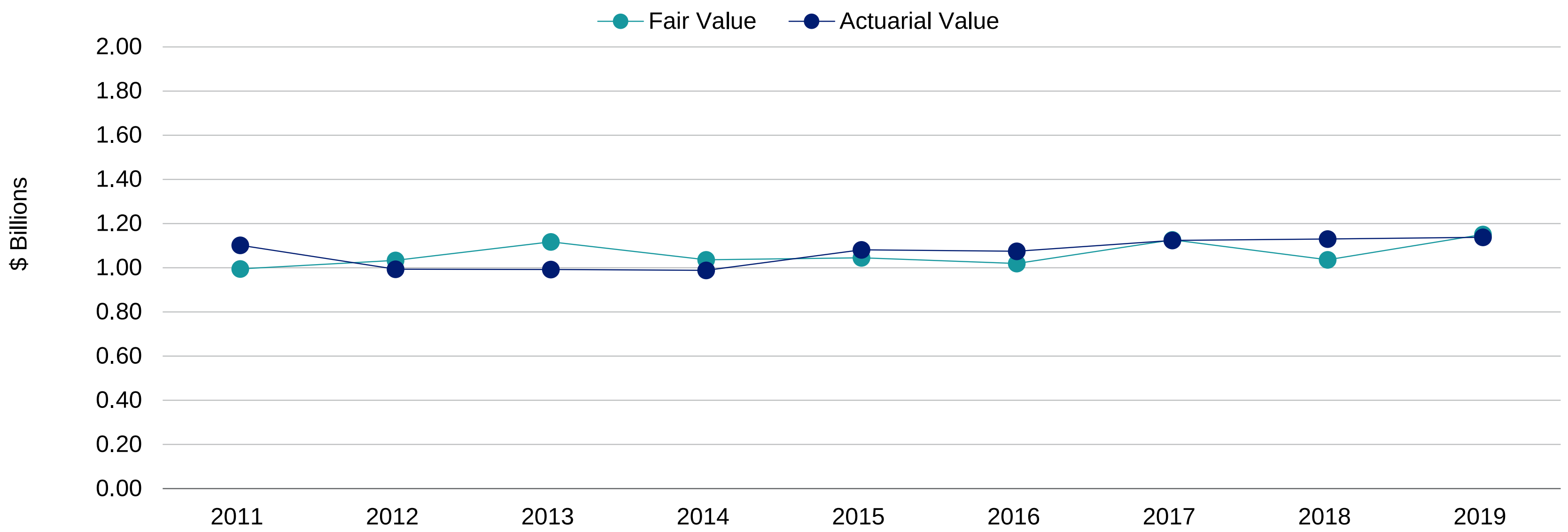
It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to fair value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. The amount of the adjustment to recognize fair value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

Determination of Actuarial Value of Assets for Year Ended December 31, 2020 and December 31, 2019

				2020		2019
1.	Fair value of assets as of prior December 31			$1,149,820,815		$1,035,790,339
2.	Employer and employee contributions and other income			422,837,614		302,511,810
3.	Benefits and expenses			369,151,693		349,563,777
4.	Expected investment income			79,424,805		68,327,844
5.	Total investment income, including income for securities lending			105,379,744		161,082,443
6.	Investment gain/(loss) for the year ended December 31: (5) – (4)			25,954,939		92,754,599
7.	Fair value of assets as of December 31			1,308,886,480		1,149,820,815
8.	Calculation of unrecognized return	Original Amount	% Not Recognized		% Not Recognized	
	(a) Year ended December 31, 2020	$25,941,752	80%	$20,753,402		--
	(b) Year ended December 31, 2019	92,754,599	60%	55,652,760	80%	$74,203,679
	(c) Year ended December 31, 2018	(141,270,068)	40%	(56,508,028)	60%	(84,762,042)
	(d) Year ended December 31, 2017	65,374,795	20%	13,074,959	40%	26,149,918
	(e) Year ended December 31, 2016	(14,299,120)		0	20%	(2,859,824)
	(f) Total unrecognized return			32,973,093		12,731,731
9.	Total actuarial value of assets as of December 31: (7) – (8f)			$1,275,913,387		$1,137,089,084

Both the actuarial value and fair value of assets are representations of the Fund's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the fair value of assets. The actuarial asset value is significant because the Fund's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

Actuarial Value of Assets vs. Fair Value of Assets as of December 31, 2011 – 2020



C. Actuarial Experience

To calculate the actuarially determined contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total loss is $157,952,187; $181,264,373 in losses from sources other than investments, partially offset by $23,312,186 in gains from investment. The net experience variation from individual sources other than investments was approximately 2.8% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

Actuarial Experience for Year Ended December 31, 2020

1.	Net gain/(loss) from investments	$23,312,186
2.	Net gain/(loss) from administrative expenses	242,439
3.	Net gain/(loss) from other experience	(181,506,812)
4.	Net experience gain/(loss): **(1) + (2) + (3)**	($157,952,187)

Investment Experience

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the FABF's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets for the 2020 plan year was 6.75%. The actual rate of return on an actuarial basis for the 2020 plan year was 9.30%.

Since the actual return for the year was more than the assumed return, the Fund experienced an actuarial gain during the year ended December 31, 2020 with regard to its investments.

Investment Experience

1.	Actual return	$85,125,625
2.	Average value of assets	915,754,655
3.	Actual rate of return: (1) ÷ (2)	9.30%
4.	Assumed rate of return	6.75%
5.	Expected return: (2) x (4)	$61,813,439
6.	Actuarial gain/(loss): (1) – (5)	$23,312,186

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the fair value investment return for the last ten years, including five-year and ten-year averages.

Investment Return – Actuarial Value vs. Fair Value: 2011 – 2020

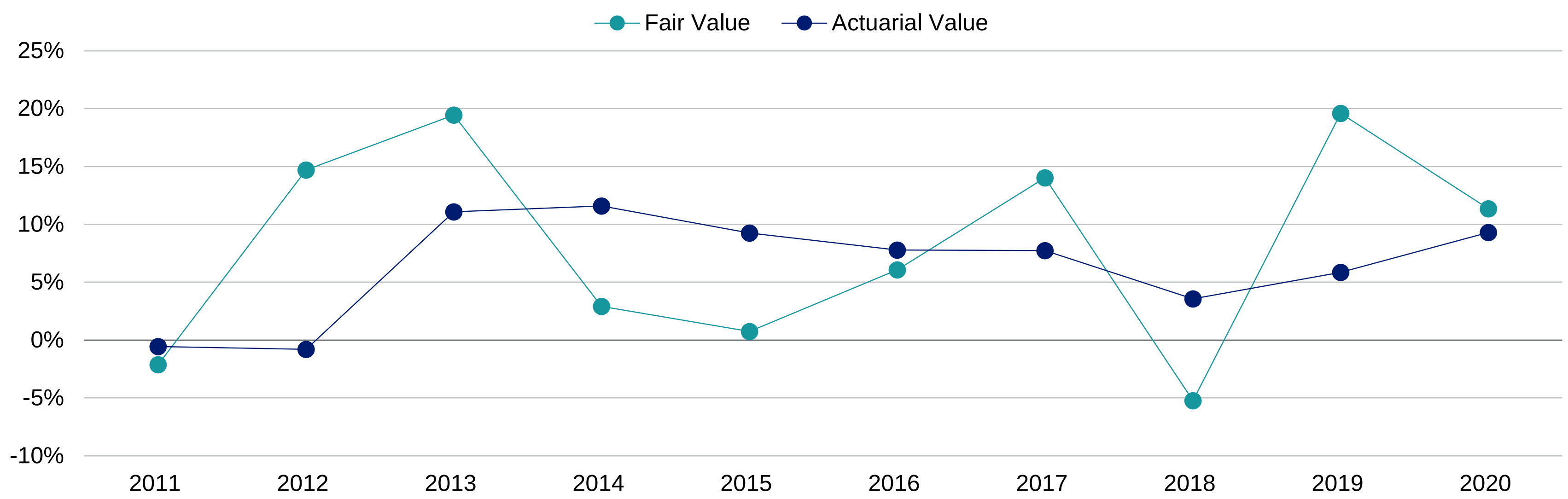
Year Ended December 31	Actuarial Value	Fair Value
2011	(0.56%)	(2.11%)
2012	(0.80%)	14.69%
2013	11.07%	19.45%
2014	11.60%	2.91%
2015	9.24%	0.73%
2016	7.79%	6.08%
2017	7.75%	14.02%
2018	3.55%	(5.23%)
2019	5.87%	19.59%
2020	9.30%	11.35%
Average Returns		
Last 5 years	6.77%	8.43%
Last 10 years	6.24%	7.59%

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the fair value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs. This chart illustrates that the asset returns on a fair value basis tend to be more volatile than asset returns on an actuarial basis.

Administrative Expenses

Administrative expenses for the year ended December 31, 2020 totaled $2,991,289 compared to the assumption of $3,122,282. This resulted in a gain of $242,439 for the year, when adjusted for timing.

Fair and Actuarial Rates of Return for Years Ended December 31, 2011 – 2020



Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among participants,
- retirement experience (earlier or later than projected),
- mortality (more or fewer deaths than projected),
- the number of disability retirements (more or fewer than projected), and
- salary increases (greater or smaller than projected).

The net loss from this other experience for the year ended December 31, 2020, amounted to $181,506,812, which is approximately 2.8% of the actuarial accrued liability.

A brief summary of the demographic gain/(loss) experience of the Fund for the year ended December 31, 2020, is shown in the chart below.

Experience Gain/(Loss) Due to Demographics For Year Ended December 31, 2020

1.	More turnover than expected	$504,066
2.	More or earlier retirement than expected	(6,366,031)
3.	More deaths than expected among retirees and beneficiaries	7,346,613
4.	Greater salary/service increases than expected for continuing actives	(105,915,709)
5.	New entrants	(2,694,585)
6.	Miscellaneous	(74,381,166)
7.	Total	($181,506,812)

D. Development of Employer Costs

Statutory Contribution

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 the end of the 2055 plan year. The projections are based on an open group, level percent of pay financing and the entry-age normal cost method.

Statutory Contribution for Tax Levy Year 2022

		Amount	% of Payroll
1.	Projected normal cost and administrative expenses for 2022	$105,086,990	19.28%
2.	Projected actuarial accrued liability at December 31, 2021	6,725,585,362	
3.	Projected actuarial value of assets at December 31, 2021	1,384,516,938	
4.	Projected unfunded/(overfunded) actuarial accrued liability: (2) – (3)	5,341,068,424	
5.	Estimated member contributions during 2022	49,880,419	
6.	Projected payroll	545,090,512	
7.	Estimated city contribution for tax levy year 2022 (payment year 2023)	398,641,353	73.13%

Actuarially Determined Contribution

The amount of actuarially determined contribution is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability. This total amount is then divided by the projected payroll for active members to determine the actuarially determined contribution of 89.69% of payroll.

The actuarially determined contribution is based on a 30-year, level dollar amortization of the unfunded actuarial accrued liability. A 30-year "rolling" amortization will never fully fund the unfunded actuarial accrued liability.

Actuarially Determined Contribution

		Year Beginning January 1, 2021	
		Amount	**% of Payroll**
1.	Total normal cost*	$104,175,107	19.61%
2.	Administrative expenses	2,991,289	0.56%
3.	Expected employee contributions**	(48,619,668)	(9.15%)
4.	Employer normal cost: (1) + (2) + (3)	58,546,728	11.02%
5.	Employer normal cost, adjusted for timing***	60,490,416	11.38%
6.	Actuarial accrued liability	6,570,504,235	
7.	Actuarial value of assets	1,275,913,387	
8.	Unfunded/(overfunded) actuarial accrued liability: (6) – (7)	5,294,590,848	
9.	Payment on unfunded actuarial accrued liability, adjusted for timing***	416,007,412	78.30%
10.	Actuarially determined contribution: (5) + (9)	$476,497,828	89.69%
11.	Projected payroll	$531,274,056	

* *Reflects timing adjustment to the middle of the year*
** *Based on payroll, adjusted to the middle of the year*
*** *Employer contributions are assumed to be paid at the end of the year*

The contribution requirements as of December 31, 2020, are based on all of the data described in the previous sections, the actuarial assumptions described in *Section 4*, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

Reconciliation of Actuarially Determined Contribution

The chart below details the changes in the actuarially determined contribution from the prior valuation to the current year's valuation.

Reconciliation of Actuarially Determined Contribution from December 31, 2019 to December 31, 2020

Actuarially Determined Contribution as of December 31, 2019	$466,556,303
Effect of plan amendment	$0
Effect of change in asset method	0
Effect of expected change in amortization payment due to payroll growth	0
Effect of rolling amortization period	(4,657,669)
Effect of change in administrative expense assumption	(250,488)
Effect of change in other actuarial assumptions	0
Effect of contributions (more)/less than actuarially determined contribution	6,194,505
Effect of investment (gain)/loss	(1,852,196)
Effect of other (gains)/losses on accrued liability	14,401,791
Effect of net other changes	(3,894,418)
Total change	$9,941,525
Actuarially Determined Contribution as of December 31, 2020	$476,497,828

E. Risk

Since the actuarial valuation results are dependent on a given set of assumptions and data as of a specific date, there is a risk that emerging results may differ significantly as actual experience differs from the assumptions.

This report does not contain a detailed analysis of the potential range of future measurements, but does include a brief discussion of some risks that may affect the Plan.

We also strongly recommend that a stochastic analysis be prepared for FABF in the context of a full risk assessment. *A stochastic analysis would involve the projection of thousands of investment return trials over the full projection period. The stochastic projections would show the most likely range of outcomes as well as the best and worst case scenarios for FABF. The stochastic analysis would also provide the range of employer contributions and the probability of employer contributions exceeding certain thresholds.*

Investment Risk (the risk that returns will be different than expected)

If the actual return on the fair value of assets for the next Plan Year were 1% different from the assumed (either higher or lower), the projected unfunded actuarial liability would change by less than 0.1%, or about $2.1 million. Given the relatively low current funded position of FABF, a change in the fair value of assets one way or the other does not have a significant impact on the unfunded actuarial liability.

Since the Plan's assets are much larger than contributions, investment performance may create significant volatility in contribution requirements. For example, for each 1% difference in return from the assumed return, the projected employer contributions for the 2022 Fiscal Year would change by approximately $0.7 million.

The fair value rate of return over the last ten years has ranged from a low of -5.2% to a high of 19.6%, with an average of 7.6%.

Longevity Risk (the risk that mortality experience will be different than expected)

The actuarial valuation includes an expectation of future improvement in life expectancy. Emerging plan experience that does not match these expectations will result in either an increase or decrease in the FABF funding policy and statutorily-required contribution amounts.

Contribution Risk

The FABF funding policy contribution requires payment of the normal cost and an amortization payment according to a schedule sufficient to become 90% funded by 2055. The statutorily-required amount systematically underfunds FABF. Among other things, it: a) is based on a funding target of 90% of the actuarial accrued liability (as opposed to 100%); and b) is based on a level percent of payroll, which back loads the contributions.

If contributions beginning 2020 fall short of the statutory schedule included in Public Act 99-0506, the risk of insolvency increases substantially. If contributions fall significantly short of that schedule, insolvency is almost inevitable.

Even if contributions follow this schedule and future experience matches the current assumptions, we project the unfunded actuarial accrued liability will not be paid off, given the 90% funding target.

Demographic Risk (the risk that participant experience will be different than assumed)

Examples of this risk include:

- Actual retirements occurring earlier or later than assumed. The value of retirement plan benefits is sensitive to the rate of benefit accruals and any early retirement subsidies that apply.
- More or less active participant turnover than assumed.
- Individual salary increases higher or lower than assumed.

Actual Experience Over the Last 5 years and Implications for the Future

Experience can help demonstrate the sensitivity of key results to the Plan's actual experience. Over the past five years:

- The investment gain/(loss) for a year has ranged from a gain of $105.6 million to a loss of $141.3 million.
- The non-investment gain/(loss) for a year has ranged from a gain of $50.1 million to a loss of $181.3 million.
- The funded percentage on the actuarial value of assets has ranged from a low of 18.18% to a high of 28.26% since 2011.

Maturity Measures

As pension plans mature, the cash need to fulfill benefit obligations will increase over time. Therefore, cash flow projections and analysis should be performed to assure that the Plan's asset allocation is aligned to meet emerging pension liabilities.

Currently the Plan has a non-active to active ratio of 1.14. For the prior year, contributions received were $53.7 million greater than benefits paid & administrative expenses. As the Plan continues to mature, more cash will be needed from the investment portfolio to meet benefit payments.

The following chart compares this year's maturity measures to the prior year:

Maturity Measures		
	2020	2019
Ratio of Fair Value of Assets to Covered Payroll	2.62	2.52
Ratio of Actuarial Accrued Liability to Covered Payroll	13.13	13.69
Ratio of Actives to Retirees and Beneficiaries	0.95	0.95
Ratio of Net Cash Flow to Fair Value of Assets	(4.10%)	(2.48%)

Section 3: Supplemental Information

Exhibit A – Table of Plan Coverage

	Year Ended December 31		
Category	**2020**	**2019**	**Change From Prior Year**
Active members in valuation:			
Number	4,697	4,630	1.4%
Average age	44.3	44.8	0.1
Average years of service	14.0	14.0	0.0
Total salary supplied by the Fund*	$500,367,870	$457,082,316	9.5%
Average salary*	$106,529	$98,722	7.9%
Total active vested members	2,936	3,152	-6.9%
Male members	4,085	4,239	-3.6%
Female members	377	391	-3.6%
Unknown sex	235	0	N/A
Tier 1 members	2,939	3,187	-7.8%
Tier 2 members	1,758	1,443	21.8%
Inactive members	124	95	30.5%
Deferred retirees	0	0	N/A
Retirees:			
Number in pay status	3,632	3,537	2.7%
Average age	69.0	69.1	-0.1
Average monthly benefit	$7,119	$6,924	2.8%
Survivors:**			
Number in pay status	1,246	1,261	-1.2%
Average age	78.7	78.7	0.0
Average monthly benefit	$2,497	$2,417	3.3%
Disability annuitants:			
Ordinary	12	8	50.0%
Occupational	83	85	-2.4%
Duty	172	166	3.6%
Children	75	70	7.1%
Parents	1	1	0.0%
Total number of members	10,042	9,853	1.9%

**Based on regular pay rate provided by the fund office and duty disability pay of $316.67 per month per active.*
***Includes Widows' Compensation annuities*

Exhibit B.1 – All Members in Active Service as of December 31, 2020

All Members in Active Service as of December 31, 2020 By Age, Years of Service, and Total Monthly Salary

		Years of Service								
Age	**Total**	**Under 1**	**1 – 4**	**5 – 9**	**10 – 14**	**15 – 19**	**20 – 24**	**25 – 29**	**30 – 34**	**35 & Over**
Under 20	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
20 – 24	20	3	17	-	-	-	-	-	-	-
	$139,034	$17,418	$121,617	-	-	-	-	-	-	-
25 – 29	279	35	241	3	-	-	-	-	-	-
	$1,968,836	$190,570	$1,754,423	$23,843	-	-	-	-	-	-
30 – 34	514	36	329	122	27	-	-	-	-	-
	$3,814,331	$194,633	$2,372,633	$1,011,097	$235,968	-	-	-	-	-
35 – 39	779	27	203	292	233	24	-	-	-	-
	$6,294,769	$151,530	$1,455,165	$2,431,945	$2,039,324	$216,805	-	-	-	-
40 – 44	529	-	35	149	198	91	52	4	-	-
	$4,646,629	-	$260,132	$1,234,170	$1,733,685	$842,630	$532,733	$43,278	-	-
45 – 49	806	-	7	20	89	243	343	104	-	-
	$7,883,067	-	$48,644	$164,275	$781,829	$2,213,355	$3,561,387	$1,113,576	-	-
50 – 54	743	-	4	2	7	253	315	120	40	2
	$7,383,030	-	$29,350	$16,984	$61,356	$2,290,633	$3,248,910	$1,277,265	$434,172	$24,360
55 – 59	626	-	1	0	1	116	144	162	165	37
	$6,590,605	-	$7,732	$0	$8,765	$1,038,969	$1,412,673	$1,720,371	$1,937,442	$464,653
60 – 64	154	-	-	-	1	28	38	44	23	20
	$1,574,298	-	-	-	$8,126	$248,590	$371,422	$444,465	$255,226	$246,468
65 – 69	9	-	-	-	-	1	0	2	1	5
	$104,492	-	-	-	-	$8,460	$0	$19,291	$12,970	$63,771
70 & Over	3	-	-	-	-	1	-	-	1	1
	$33,627	-	-	-	-	$8,765	-	-	$11,892	$12,970
Unknown	235	230	5	-	-	-	-	-	-	-
	$1,264,604	$1,237,753	$26,851	-	-	-	-	-	-	-
Total	4,697	331	842	588	556	757	892	436	230	65
	$41,697,322	$1,791,903	$6,076,548	$4,882,314	$4,869,053	$6,868,208	$9,127,125	$4,618,247	$2,651,702	$812,222

Exhibit B.2 – Male Members in Active Service as of December 31, 2020

Male Members in Active Service as of December 31, 2020 By Age, Years of Service, and Total Monthly Salary

		Years of Service								
Age	**Total**	**Under 1**	**1 – 4**	**5 – 9**	**10 – 14**	**15 – 19**	**20 – 24**	**25 – 29**	**30 – 34**	**35 & Over**
Under 20	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
20 – 24	19	3	16	-	-	-	-	-	-	-
	$132,559	$17,418	$115,141	-	-	-	-	-	-	-
25 – 29	262	33	226	3	-	-	-	-	-	-
	$1,851,739	$178,523	$1,649,374	$23,843	-	-	-	-	-	-
30 – 34	456	34	291	104	27	-	-	-	-	-
	$3,387,864	$183,893	$2,106,432	$861,571	$235,968	-	-	-	-	-
35 – 39	700	26	186	247	218	23	-	-	-	-
	$5,651,566	$146,159	$1,330,694	$2,059,085	$1,907,588	$208,040	-	-	-	-
40 – 44	467	-	27	123	188	79	46	4	-	-
	$4,114,854	-	$205,484	$1,019,019	$1,646,421	$733,243	$467,410	$43,278	-	-
45 – 49	753	-	5	15	79	229	323	102	-	-
	$7,380,433	-	$33,750	$123,481	$693,246	$2,086,471	$3,350,461	$1,093,023	-	-
50 – 54	694	-	3	2	5	238	298	111	35	2
	$6,880,445	-	$22,525	$16,984	$43,826	$2,151,520	$3,056,006	$1,182,017	$383,207	$24,360
55 – 59	582	-	1	-	1	109	128	155	151	37
	$6,122,844	-	$7,732	-	$8,765	$975,820	$1,254,509	$1,645,154	$1,766,211	$464,653
60 – 64	142	-	-	-	1	27	35	38	22	19
	$1,452,795	-	-	-	$8,126	$240,193	$341,607	$383,789	$245,581	$233,499
65 – 69	7	-	-	-	-	-	-	2	-	5
	$83,062	-	-	-	-	-	-	$19,291	-	$63,771
70 & Over	3	-	-	-	-	1	-	-	1	1
	$33,627	-	-	-	-	$8,765	-	-	$11,892	$12,970
Total	4,085	96	755	494	519	706	830	412	209	64
	$37,091,787	$525,992	$5,471,131	$4,103,983	$4,543,939	$6,404,053	$8,469,993	$4,366,552	$2,406,891	$799,252

Exhibit B.3 – Female Members in Active Service as of December 31, 2020

Female Members in Active Service as of December 31, 2020 By Age, Years of Service, and Total Monthly Salary

		Years of Service								
Age	**Total**	**Under 1**	**1 – 4**	**5 – 9**	**10 – 14**	**15 – 19**	**20 – 24**	**25 – 29**	**30 – 34**	**35 & Over**
Under 20	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
20 – 24	1	0	1	-	-	-	-	-	-	-
	$6,476	$0	$6,476	-	-	-	-	-	-	-
25 – 29	17	2	15	-	-	-	-	-	-	-
	$117,097	$12,047	$105,050	-	-	-	-	-	-	-
30 – 34	58	2	38	18	-	-	-	-	-	-
	$426,467	$10,740	$266,201	$149,526	-	-	-	-	-	-
35 – 39	79	1	17	45	15	1	-	-	-	-
	$643,203	$5,370	$124,471	$372,860	$131,737	$8,765	-	-	-	-
40 – 44	62	-	8	26	10	12	6	-	-	-
	$531,775	-	$54,649	$215,151	$87,264	$109,388	$65,324	-	-	-
45 – 49	53	-	2	5	10	14	20	2	-	-
	$502,634	-	$14,894	$40,794	$88,583	$126,884	$210,925	$20,553	-	-
50 – 54	49	-	1	-	2	15	17	9	5	-
	$502,585	-	$6,825	-	$17,530	$139,113	$192,904	$95,249	$50,964	-
55 – 59	44	-	-	-	-	7	16	7	14	-
	$467,761	-	-	-	-	$63,149	$158,164	$75,217	$171,231	-
60 – 64	12	-	-	-	-	1	3	6	1	1
	$121,504	-	-	-	-	$8,397	$29,815	$60,676	$9,646	$12,970
65 – 69	2	-	-	-	-	1	-	-	1	-
	$21,430	-	-	-	-	$8,460	-	-	$12,970	-
70 & Over	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
Total	377	5	82	94	37	51	62	24	21	1
	$3,340,931	$28,158	$578,565	$778,331	$325,114	$464,156	$657,132	$251,695	$244,811	$12,970

Exhibit B.4 – Unknown Sex Members in Active Service as of December 31, 2020

Unknown Sex Members in Active Service as of December 31, 2020 By Age, Years of Service, and Total Monthly Salary

		Years of Service								
Age	**Total**	**Under 1**	**1 – 4**	**5 – 9**	**10 – 14**	**15 – 19**	**20 – 24**	**25 – 29**	**30 – 34**	**35 & Over**
Unknown	235	230	5	-	-	-	-	-	-	-
	$1,264,604	$1,237,753	$26,851	-	-	-	-	-	-	-
Total	235	230	5	-	-	-	-	-	-	-
	$1,264,604	$1,237,753	$26,851	-	-	-	-	-	-	-

Exhibit C.1 – Number of Refunds to Male Employees

Number of Refunds Made During Year to Male Employees

	Length of Service at Date of Refund						
Age 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	-	-	-	-	-	-	-
20 – 24	-	-	-	-	-	-	-
25 – 29	1	-	-	-	-	-	1
30 – 34	-	-	-	-	-	-	-
35 – 39	-	-	-	1	-	1	2
40 – 44	-	-	1	-	-	1	2
45 – 49	1	-	-	-	-	1	2
50 – 54	-	-	-	-	-	-	-
55 – 59	-	-	-	-	-	-	-
60 & Over	-	-	-	-	-	1	1
Unknown	-	-	-	-	1	-	1
Total	2	-	1	1	1	4	9

Exhibit C.2 – Number of Refunds to Female Employees

Number of Refunds Made During Year to Female Employees

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	-	-	-	-	-	-	-
20 – 24	-	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-	-
35 – 39	-	-	-	-	-	-	-
40 – 44	-	-	-	-	-	-	-
45 – 49	-	-	-	-	-	-	-
50 – 54	-	-	-	-	-	-	-
55 – 59	-	-	-	-	-	-	-
60 & Over	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-

Exhibit D.1 – Service Retirement Annuitants as of December 31, 2020

Service Retirement Annuitants as of December 31, 2020 By Age and Annual Benefit

	Male		Female	
Age	**Number**	**Annual Payments**	**Number**	**Annual Payments**
Under 50	-	$0	-	$0
50 – 54	21	1,195,057	5	150,327
55 – 59	445	37,911,551	48	3,832,645
60 – 64	878	77,756,653	53	4,477,863
65 – 69	825	74,478,372	36	2,827,415
70 – 74	434	38,497,119	9	760,385
75 – 79	366	31,513,222	6	388,156
80 – 84	255	19,312,906	2	164,905
85 – 89	159	11,892,556	-	-
90 – 94	81	4,752,538	-	-
95 – 99	7	311,362	-	-
100 & over	2	61,085	-	-
Total	3,473	$297,682,421	159	$12,601,697

Exhibit D.2 – Spouse Annuitants as of December 31, 2020

Spouse Annuitants* as of December 31, 2020 By Age and Annual Benefit

	Male		Female	
Age	**Number**	**Annual Payments**	**Number**	**Annual Payments**
Under 45	-	$-	1	$20,275
45 – 49	-	-	9	299,577
50 – 54	-	-	15	548,514
55 – 59	1	36,921	54	1,648,668
60 – 64	3	127,234	82	2,809,606
65 – 69	3	80,169	92	3,542,966
70 – 74	2	31,900	142	4,567,450
75 – 79	1	34,674	216	7,018,783
80 – 84	2	66,295	232	6,885,218
85 – 89	-	-	216	6,254,440
90 – 94	-	-	133	2,615,997
95 – 99	1	27,040	38	666,677
100 & over	-	-	3	54,577
Total	13	$404,233	1,233	$36,932,748

*Includes Widows' Compensation annuities

Exhibit E – Statistics for Miscellaneous Annuitants

Statistics for Miscellaneous Annuitants as of December 31, 2020

Type	Number	Annual Payments
Children’s annuities	75	$886,156
Widows’ compensation annuities	72	5,437,042
Ordinary disability benefits	12	468,927
Occupational disease disability benefits	83	5,620,253
Duty disability benefits	172	11,735,562
Parent annuities	1	15,130
Total	415	$24,163,070

Exhibit F.1 – Male Participants Receiving Duty Disability

Male Participants Receiving Duty Disability

	Length of Service as of December 31, 2020													
	Under 1 Year		**1 to 4**		**5 to 9**		**10 - 14**		**15 - 19**		**20 & Over**		**Total**	
Attained Age	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment
Under 40	--	--	--	--	--	--	2	$141,966	1	$62,550	--	--	**3**	**$204,516**
40 – 44	--	--	--	--	1	$69,921	1	$72,626	2	$132,717	--	--	**4**	**$275,264**
45 – 49	--	--	--	--	--	--	1	$73,292	2	$112,226	2	$132,483	**5**	**$318,000**
50 – 54	--	--	--	--	--	--	--	--	7	$461,643	18	$1,239,405	**25**	**$1,701,048**
55 – 59	--	--	--	--	--	--	--	--	7	$515,043	42	$2,912,855	**49**	**$3,427,898**
60 & Over	1	$66,594	--	--	--	--	1	$73,292	3	$203,241	49	$3,402,881	**54**	**$3,746,007**
Total	**1**	**$66,594**	**--**	**--**	**1**	**$69,921**	**5**	**$361,175**	**22**	**$1,487,420**	**111**	**$7,687,623**	**140**	**$9,672,733**

Exhibit F.2 – Female Participants Receiving Duty Disability

Female Participants Receiving Duty Disability

	Length of Service as of December 31, 2020													
	Under 1 Year		**1 to 4**		**5 to 9**		**10 - 14**		**15 - 19**		**20 & Over**		**Total**	
Attained Age	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment
Under 40	--	--	--	--	--	--	1	$63,149	--	--	--	--	**1**	**$63,149**
40 – 44	--	--	--	--	--	--	--	--	1	$68,315	--	--	**1**	**$68,315**
45 – 49	--	--	--	--	--	--	--	--	3	$236,273	2	$175,541	**5**	**$411,813**
50 – 54	--	--	--	--	--	--	--	--	--	--	5	$369,609	**5**	**$369,609**
55 – 59	--	--	--	--	--	--	--	--	2	$116,901	6	$393,749	**8**	**$510,650**
60 & Over	--	--	--	--	--	--	--	--	--	--	12	$639,294	**12**	**$639,294**
Total	--	--	--	--	--	--	**1**	**$63,149**	**6**	**$421,488**	**25**	**$1,578,192**	**32**	**$2,062,829**

Exhibit F.3 – Male Participants Receiving Occupational Disability

Male Participants Receiving Occupational Disability

	Length of Service as of December 31, 2020													
	Under 1 Year		**1 to 4**		**5 to 9**		**10 - 14**		**15 - 19**		**20 & Over**		**Total**	
Attained Age	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment
Under 40	--	--	--	--	--	--	--	--	--	--	--	--	--	--
40 – 44	--	--	--	--	--	--	--	--	1	$56,896	--	--	**1**	**$56,896**
45 – 49	--	--	--	--	--	--	--	--	2	$124,636	5	$364,936	**7**	**$489,573**
50 – 54	--	--	--	--	--	--	--	--	3	$175,341	6	$393,212	**9**	**$568,554**
55 – 59	--	--	--	--	--	--	--	--	4	$242,735	27	$1,776,591	**31**	**$2,019,326**
60 & Over	--	--	--	--	--	--	--	--	1	$62,318	24	$1,689,632	**25**	**$1,751,950**
Total	**--**	**--**	**--**	**--**	--	--	--	--	**11**	**$661,926**	**62**	**$4,224,372**	**73**	**$4,886,298**

Exhibit F.4 – Female Participants Receiving Occupational Disability

Female Participants Receiving Occupational Disability

	Length of Service as of December 31, 2020													
	Under 1 Year		1 to 4		5 to 9		10 - 14		15 - 19		20 & Over		Total	
Attained Age	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment
Under 40	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**
40 – 44	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**
45 – 49	--	--	--	--	--	--	--	--	1	$78,884	1	$76,651	**2**	**$155,534**
50 – 54	--	--	--	--	--	--	--	--	1	$67,869	2	$128,716	**3**	**$196,585**
55 – 59	--	--	--	--	--	--	--	--	--	--	1	$86,171	**1**	**$86,171**
60 & Over	--	--	--	--	--	--	--	--	--	--	4	$295,665	**4**	**$295,665**
Total	**--**	**--**	**--**	--	--	--	--	--	**2**	**$146,753**	**8**	**$587,202**	**10**	**$733,955**

Exhibit F.5 – Male Participants Receiving Ordinary Disability

Male Participants Receiving Ordinary Disability

	Length of Service as of December 31, 2020													
	Under 1 Year		1 to 4		5 to 9		10 - 14		15 - 19		20 & Over		Total	
Attained Age	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment
Under 40	--	--	--	--	--	--	1	$35,834	--	--	--	--	**1**	**$35,834**
40 – 44	--	--	--	--	--	--	1	$38,027	--	--	--	--	**1**	**$38,027**
45 – 49	--	--	--	--	1	$38,027	--	--	--	--	1	$42,199	**2**	**$80,226**
50 – 54	--	--	--	--	--	--	--	--	2	$76,457	--	--	**2**	**$76,457**
55 – 59	--	--	--	--	--	--	--	--	--	--	--	--	--	--
60 & Over	--	--	--	--	--	--	--	--	2	$83,005	--	--	**2**	**$83,005**
Total	--	--	**--**	--	**1**	**$38,027**	**2**	**$73,860**	**4**	**$159,462**	**1**	**$42,199**	**8**	**$313,548**

Exhibit F.6 – Female Participants Receiving Ordinary Disability

Female Participants Receiving Ordinary Disability

	Length of Service as of December 31, 2020													
	Under 1 Year		1 to 4		5 to 9		10 - 14		15 - 19		20 & Over		Total	
Attained Age	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment	No	Annual Payment
Under 40	--	--	--	--	1	$35,938	--	--	--	--	--	--	**1**	**$35,938**
40 – 44	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**
45 – 49	--	--	--	--	--	--	--	--	1	$39,308	--	--	**1**	**$39,308**
50 – 54	--	--	--	--	--	--	--	--	1	$40,066	--	--	**1**	**$40,066**
55 – 59	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**
60 & Over	--	--	--	--	--	--	--	--	1	$40,066	--	--	**1**	**$40,066**
Total	--	--	--	--	**1**	**$35,938**	--	--	**3**	**$119,441**	--	--	**3**	**$155,379**

Exhibit G.1 – Reconciliation of Active and Inactive Member Data

	Unknown	Male	Female	Total
Active Members				
Number as of December 31, 2019	-	4,239	391	4,630
Increases:				
Members added during year	235	98	5	338
Members returning from inactive or disability status	-	3	1	4
Total	235	101	6	342
Decreases				
Withdrawal (with refunds)	-	6	-	6
Withdrawal (without refunds)	-	30	-	30
Ordinary disability benefit	-	-	-	-
Occupational disease disability benefit	-	7	1	8
Duty disability benefit	-	14	5	19
Retirements	-	192	13	205
Deaths (occupational)	-	-	-	-
Deaths (non-occupational)	-	6	1	7
Total	-	255	20	275
Number as of December 31, 2020	235	4,085	377	4,697
Inactive Members				
Number as of December 31, 2019	-	79	16	95
Additions	9	33	-	42
Decreases	-	12	1	13
Number as of December 31, 2020	9	100	15	124

Exhibit G.2 – Reconciliation of Annuitant and Beneficiary Data

	Number at Beginning of Year	Additions during Year	Decreases during Year	Number at End of Year
Service retirement annuities	3,537	232	137	3,632
Widow annuities	1,184	81	91	1,174
Children annuities	70	9	4	75
Parent annuities	1	-	-	1
Ordinary disability benefit	8	5	1	12
Occupational disease disability benefit	85	11	13	83
Duty disability benefit	166	20	14	172
Widows' compensation annuities	77	2	7	72

Exhibit H.1 – Summary Statement of Income and Expenses on Fair Value Basis

	Year Ended December 31, 2020		Year Ended December 31, 2019	
Net assets at fair value at the beginning of the year		$1,149,820,815		$1,035,790,339
Contribution income:				
Employer contributions	$368,422,961		$255,382,266	
Employee contributions	54,414,653		46,622,658	
Miscellaneous revenue	12,757		506,886	
Net contribution income		422,850,371		302,511,810
Investment income:				
Interest, dividends and other income	$18,574,872		$23,258,983	
Asset appreciation	93,984,233		143,016,788	
Less investment fees	(7,192,118)		(5,656,623)	
Net investment income		105,366,987		161,082,443
Total income available for benefits		$528,217,358		$463,594,253
Less benefit payments:				
Annuity payments	($362,831,685)		($342,884,926)	
Refund of contributions	(3,328,719)		(3,452,913)	
Administrative expenses	(2,991,289)		(3,225,938)	
Net benefit payments		($369,151,693)		($349,563,777)
Change in reserve for future benefits		159,065,665		114,030,476
Net assets at fair value at the end of the year		$1,308,886,480		$1,149,820,815

Exhibit H.2 – Summary Statement of Income and Expenses on Book Value Basis

	Year Ended December 31, 2020		Year Ended December 31, 2019	
Net assets at book value at the beginning of the year		$1,037,486,008		$1,027,449,272
Contribution income:				
Employer contributions	$368,422,961		$255,382,266	
Employee contributions	54,414,653		466,622,658	
Administrative expenses	12,757		506,886	
Net contribution income		422,850,371		302,511,810
Investment income:				
Interest, dividends and other income	$18,574,872		$23,258,983	
Realized investment gain/(loss)	37,746,568		39,486,343	
Less investment fees	(7,192,118)		(5,656,623)	
Net investment income		49,129,322		57,088,637
Total income available for benefits		$471,979,693		$359,600,513
Less benefit payments:				
Annuity payments	($362,831,685)		($342,884,926)	
Refund of contributions	(3,328,719)		(3,452,913)	
Administrative expenses	(2,991,289)		(3,225,938)	
Net benefit payments		($369,151,693)		($349,563,777)
Change in reserve for future benefits		$102,828,000		$10,036,736
Net assets at book value at the end of the year		$1,140,314,008		$1,037,486,008

Exhibit H.3 – Summary Statement of Plan Assets

	Year Ended December 31, 2020		Year Ended December 31, 2019	
Accounts receivable:				
Employer contributions - net	$380,731,624		$260,638,868	
Investment income	2,521,901		2,454,137	
Other	2,393,369		2,265,193	
Securities lending	19,957		45,655	
Unsettled trades	4,150,246		3,973,209	
Total accounts receivable		389,817,097		269,377,062
Prepaid expenses		215,061		142,054
Investments:				
Cash deposits and short-term investments	18,569,692		19,440,730	
Corporate bonds	101,446,163		97,235,548	
Equities	586,023,486		544,053,807	
Pooled funds	101,131,653		113,788,730	
Private equity and venture capital	42,013,685		37,407,381	
U.S. and Foreign Government obligations	76,700,331		75,306,230	
Total investments at fair value		925,885,010		887,232,066
Collateral held for securities on loan		75,812,634		80,087,047
Total assets		1,391,729,802		1,236,838,229
Liabilities:				
Accounts payable and accrued expenses	($1,320,137)		($1,272,459)	
Participant accounts	(416,690)		(537,142)	
Securities lending collateral	(75,812,634)		(80,087,047)	
Securities lending	(4,977)		(11,397)	
Unsettled trades	(5,288,884)		(5,109,369)	
Total liabilities		($82,843,322)		($87,017,414)
Net assets at fair value		1,308,886,480		1,149,820,815
Net assets at actuarial value		$1,275,913,387		$1,137,089,084

Exhibit I – Development of Fund through December 31, 2020

Year Ended December 31	Employer Contributions	Employee Contributions	Misc. Revenue	Net Investment Return*	Administrative Expenses	Benefit Payments	Actuarial Value of Assets at End of Year
2011	$85,498,002	$51,917,510	$16,891	($22,433,671)	$3,723,262	$223,580,098	$1,101,741,862
2012	84,144,328	53,272,730	7,519	135,203,228	3,584,138	233,839,850	993,283,741
2013	106,219,800	42,520,218	(59,725)	190,535,526	3,115,118	251,818,642	991,213,282
2014	109,805,454	48,056,393	7,393	30,867,889	3,069,192	266,364,393	988,141,316
2015	238,485,820	46,552,247	7,141	7,595,562	3,149,549	280,398,529	1,081,041,796
2016	156,158,391	48,959,929	6,494	60,881,106	3,216,823	288,876,397	1,074,857,735
2017	228,452,611	47,364,276	22,879	140,569,856	3,171,986	306,098,115	1,123,388,840
2018	249,684,038	45,894,781	5,853	(58,000,233)	3,285,110	324,662,304	1,130,369,929
2019	255,382,266	46,622,658	506,886	161,082,443	3,225,938	346,337,839	1,137,089,084
2020	368,422,961	54,414,653	12,757	105,366,987	2,991,289	366,160,404	1,275,913,387

* *Actuarial investment return, net of investment fees*

Exhibit J – Development of Unfunded Actuarial Accrued Liability

		Year Ending December 31	
		2020	**2019**
1.	Unfunded actuarial accrued liability at beginning of year	$5,118,971,049	$5,025,549,275
2.	Normal cost at beginning of year	99,018,739	98,575,290
3.	Administrative expenses	3,225,938	3,285,110
4.	Total contributions	(422,850,371)	(302,511,810)
5.	Interest		
	(a) Unfunded actuarial accrued liability and normal cost	$352,214,311	$345,878,408
	(b) Administrative expenses	107,098	109,060
	(c) Total contributions	(14,048,103)	(10,051,661)
	(d) Total interest: (5a) + (5b) + (5c)	338,273,306	335,935,807
6.	Expected unfunded actuarial accrued liability: (1) + (2) + (3) + (4) + (5d)	$5,136,638,661	$5,160,833,672
7.	Changes due to (gain)/loss from:		
	(a) Investments	($23,312,186)	$8,108,178
	(b) Demographics and other	181,264,373	(49,970,801)
	(c) Total changes due to (gain)/loss: (7a) + (7b)	157,952,187	(41,862,623)
8.	Change due to plan provisions	0	0
9.	Change in actuarial assumptions	0	0
10.	Unfunded actuarial accrued liability at end of year: (6) + (7c) + (8) + (9)	$5,294,590,848	$5,118,971,049

Exhibit K – Definition of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Actuarial Accrued Liability for Actives:	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial Accrued Liability for Pensioners:	The single-sum value of lifetime benefits to existing pensioners. This sum takes into account life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Actuarial Cost Method:	A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the actuarially determined contribution.
Actuarial Gain or 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 Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., FABF's assets earn more than projected, salary increases are less than 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, actuarial losses are the result of unfavorable experience, i.e., actual results yield in actuarial liabilities that are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.
Actuarially 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 value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is: a. Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.) b. Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and c. Discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits:	The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive 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, such as the Actuarially Determined Contribution (ADC) and the Net Pension Liability (NPL).
Actuarial Value of Assets (AVA):	The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.
Actuarially Determined:	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.
Actuarially Determined Contribution (ADC):	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's funding policy. The ADC consists of the Employer Normal Cost and the 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 assumed rate at which total covered payroll of all active members will increase.
Amortization Payment:	The portion of the pension plan contribution, or ADC, that is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.
Assumptions or Actuarial Assumptions:	The estimates upon which the cost of the Fund is calculated, including: a. <u>Investment return</u> - the rate of investment yield that the Fund will earn over the long-term future; b. <u>Mortality rates</u> - the death rates of employees and pensioners; life expectancy is based on these rates; c. <u>Retirement rates</u> - the rate or probability of retirement at a given age; d. <u>Withdrawal rates</u> - the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

Defined Benefit Plan:	A retirement plan in which benefits are defined by a formula applied to the member's compensation and/or years of service.
Defined Contribution Plan:	A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.
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.
Experience Study:	A periodic review and analysis of the actual experience of the Fund that may lead to a revision of one or more Actuarial Assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.
Funded Ratio:	The ratio of the Actuarial Value of Assets (AVA) to the Actuarial Accrued Liability (AAL). Plans sometimes calculate a fair value funded ratio, using the fair value of assets, rather than the AVA, as another measure of the Plan's health.
GASB:	Governmental Accounting Standards Board.
GASB 67 and GASB 68:	Governmental Accounting Standards Board Statements No. 67 and 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. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves. Governmental Accounting Standards Board Statements No. 67 and No. 68 are the successor statements to GASB Statements No. 25 and No. 27.
Investment Return:	The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.
Net Pension Liability (NPL):	The Net Pension Liability is equal to the Total Pension Liability minus the Plan Fiduciary Net Position
Normal Cost:	That portion of the Actuarial Present Value of pension plan benefits and expenses allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated.

Open Amortization Period:	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. 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, if the actuarial assumptions are realized.
Plan Fiduciary Net Position:	Fair value of assets.
Total Pension Liability (TPL):	The actuarial accrued liability under the entry age normal cost method and based on the blended discount rate as described in GASB 67 and 68.
Unfunded Actuarial Accrued Liability:	The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There is a wide range of approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.
Valuation Date or Actuarial Valuation Date:	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.

Section 4: Reporting Information

Exhibit I – Summary of Actuarial Valuation Results

The valuation was made with respect to the following data supplied to us:			
1. Retirees as of the valuation date (including survivors, disabilities, and children)			5,221
2. Members inactive during year ended December 31, 2020 (including members on Leave of absence)			124
3. Members active during the year ended December 31, 2020			4,697
Fully vested		2,936	
Not vested		1,761	

Determination of Actuarial Accrued Liability:

	Actuarial Present Value of Projected Benefits	Actuarial Present Value of Future Normal Costs	Actuarial Accrued Liability
1. Active members			
a. Retirement benefits	$2,559,297,996	$720,705,729	$1,838,592,267
b. Death benefits	92,817,099	52,166,255	40,650,844
c. Withdrawal benefits	18,686,183	20,124,521	-1,438,338
d. Disability Benefits	522,668,873	243,378,075	279,290,798
e. Total	$3,193,470,151	$1,036,374,580	$2,157,095,571
2. Inactive members			
a. Inactive vested members	$8,046,971	--	$8,046,971
b. Retirees	3,829,134,528	--	3,829,134,528
c. Spouse annuitants	248,999,978	--	248,999,978
d. Compensation widows	58,372,487	--	58,372,487
e. Ordinary disability	1,889,842	--	1,889,842
f. Occupational disease disability	85,243,637	--	85,243,637
g. Duty disability	173,827,329	--	173,827,329
h. Children	7,813,793	--	7,813,793
i. Parent annuitants	80,098	--	80,098
j. Total	$4,413,408,663	$0	$4,413,408,663
3 Total	$7,606,878,815	$1,036,374,580	$6,570,504,235

Exhibit I – Summary of Actuarial Valuation Results *(continued)*

Determination of Unfunded Actuarial Accrued Liability:		
1.	Actuarial accrued liability	$6,570,504,235
2.	Actuarial value of assets ($1,308,886,480 at fair value)	1,275,913,387
3.	Unfunded actuarial accrued liability	5,294,590,848

Components of normal cost:		Tier 1		Tier 2		Total	
		% of Payroll	Amount	% of Payroll	Amount	% of Payroll	Amount
1.	Retirement	14.99%	$54,436,443	9.98%	$16,775,750	13.40%	$71,212,193
2.	Turnover	0.35%	1,288,514	0.32%	534,760	0.34%	1,823,274
3.	Mortality	0.95%	3,460,193	0.84%	1,414,973	0.92%	4,875,166
4.	Disability	4.50%	16,326,990	3.92%	6,590,113	4.31%	22,917,103
5.	Total normal cost: (1) + (2) + (3) + (4)	20.79%	$75,512,140	15.06%	$25,315,596	18.98%	$100,827,736
6.	Total normal cost, adjusted for timing*	21.48%	78,019,061	15.56%	26,156,046	19.61%	104,175,107
7.	Administrative expenses	0.62%	2,240,243	0.45%	751,046	0.56%	2,991,289
8.	Total normal cost, including administrative expenses: (6) + (7)	22.10%	$80,259,304	16.01%	$26,907,092	20.17%	$107,166,396
9.	Expected employee contributions**					-9.15%	($48,619,668)
10.	Employer normal cost: (8) + (9)					11.02%	$58,546,728
11.	Employer normal cost, adjusted for timing***					11.39%	$60,490,416

** Reflects timing adjustment to the middle of the year*
*** Based on payroll, adjusted to the middle of the year*
**** Reflects timing adjustment to the end of the year*

Exhibit II – Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b) - (a)] / (c)
12/31/2011	$1,101,741,862	$3,898,899,224	$2,797,157,362	28.26%	$425,385,354	657.56%
12/31/2012	993,283,741	4,066,343,811	3,073,060,070	24.43%	418,964,763	733.49%
12/31/2013	991,213,282	4,136,426,376	3,145,213,094	23.96%	416,491,784	755.17%
12/31/2014	988,141,316	4,343,587,556	3,355,446,240	22.75%	460,189,982	729.14%
12/31/2015	1,081,041,796	4,666,801,476	3,585,759,980	23.16%	465,231,594	770.74%
12/31/2016	1,074,857,735	5,045,890,302	3,971,032,567	21.30%	478,470,944	829.94%
12/31/2017	1,123,388,840	5,582,426,435	4,459,037,595	20.12%	469,407,281	949.93%
12/31/2018	1,130,369,929	6,155,919,204	5,025,549,275	18.36%	456,969,301	1099.76%
12/31/2019	1,137,089,084	6,256,060,133	5,118,971,049	18.18%	457,082,316	1119.92%
12/31/2020	1,275,913,387	6,570,504,235	5,294,590,848	19.42%	500,367,870	1058.14%

Exhibit III – Solvency Test

Actuarial Valuation Date	(1) Active 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)
12/31/2011	$637,938,254	$2,261,555,896	$999,405,074	$1,101,741,862	100.00%	20.51%	0.00%
12/31/2012	644,629,930	2,459,787,835	961,926,046	993,283,741	100.00%	14.17%	0.00%
12/31/2013	661,062,321	2,535,327,207	892,816,311	991,213,282	100.00%	13.02%	0.00%
12/31/2014	670,825,942	2,675,919,242	946,985,303	988,141,316	100.00%	11.86%	0.00%
12/31/2015	692,657,194	2,875,934,283	1,045,091,771	1,081,041,796	100.00%	13.50%	0.00%
12/31/2016	702,218,711	3,107,218,181	1,236,453,410	1,074,857,735	100.00%	11.99%	0.00%
12/31/2017	701,745,771	3,520,967,001	1,359,713,663	1,123,388,840	100.00%	11.98%	0.00%
12/31/2018	684,682,219	3,993,065,563	1,478,171,422	1,130,369,929	100.00%	11.16%	0.00%
12/31/2019	717,595,358	4,195,697,523	1,342,767,251	1,137,089,084	100.00%	10.00%	0.00%
12/31/2020	718,594,775	4,405,361,692	1,446,547,768	1,275,913,387	100.00%	12.65%	0.00%

Exhibit IV – Funded Ratio

A critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the actuarial value of assets to the actuarial accrued liabilities of the Plan as calculated. High ratios indicate a well-funded plan with assets sufficient to cover the plan's actuarial accrued liabilities. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors.

The chart below depicts a history of the funded ratios for this plan using the actuarial value of assets and the fair value of assets.

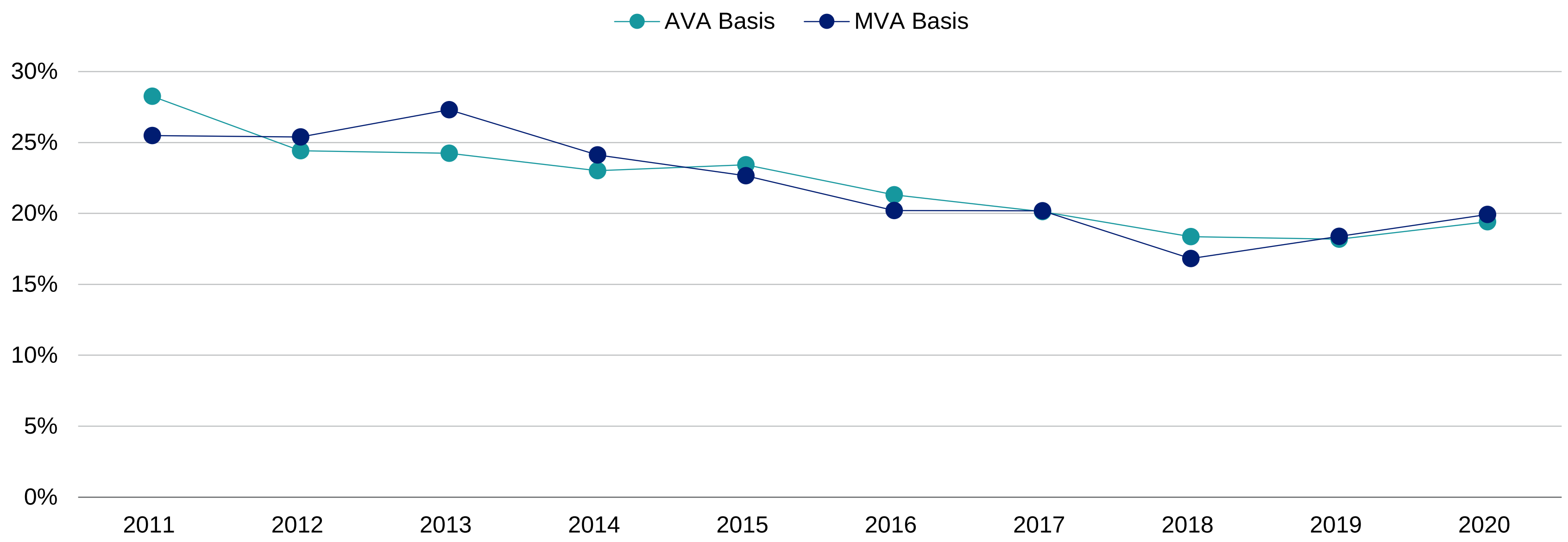


Exhibit V – History of Recommended Employer Multiples

Year of Report	Statutory Multiple	P.A. 99-0506 Multiple	Normal Cost Plus Interest	Normal Cost Plus Amortization: Level Dollar	Normal Cost Plus Amortization: Level % of Salary
1990 [1,2]	2.26	N/A	4.41	4.55	3.43
1991	2.26	N/A	4.55	4.69	3.53
1992 [2]	2.26	N/A	4.75	4.89	3.69
1993 [2]	2.26	N/A	4.89	5.03	3.81
1994 [1,2]	2.26	N/A	4.92	5.09	3.71
1995 [2]	2.26	N/A	5.16	5.33	3.78
1996	2.26	N/A	5.02	5.19	3.78
1997 [1,2,3]	2.26	N/A	3.95	4.08	3.00
1998 [2,4]	2.26	N/A	4.31	4.22	2.91
1999	2.26	N/A	3.56	3.49	2.41
2000 [1]	2.26	N/A	4.39	4.30	2.99
2001 [4]	2.26	N/A	4.61	4.44	3.12
2002	2.26	N/A	4.07	4.19	2.93
2003 [1,2]	2.26	N/A	4.90	5.08	3.18
2004 [2,5]	2.26	N/A	4.99	5.19	3.22
2005 [1,7]	2.26	N/A	4.35	4.54	3.09
2006	2.26	N/A	5.14	5.61	4.05
2007	2.26	N/A	4.93	5.39	3.89
2008	2.26	N/A	5.24	5.72	4.13
2009	2.26	N/A	5.70	6.24	4.47
2010	2.26	N/A	6.35	6.94	4.98
2011 [1]	2.26	N/A	6.81	7.47	5.30
2012	2.26	N/A	5.94	6.52	4.60
2013 [2]	2.26	N/A	5.90	6.45	4.53
2014	2.26	N/A	7.98	8.74	6.10
2015 [1]	N/A	4.66	7.12	7.90	5.72
2016 [2,8]	N/A	5.03	8.12	9.01	6.47
2017 [1,8]	N/A	5.36	8.46	9.41	6.71
2018 [1,8]	N/A	5.74	9.09	10.35	7.52
2019 [4]	N/A	8.58	9.48	10.79	7.85
2020	N/A	7.55	8.59	9.80	7.10

Notes:

[1] *Change in actuarial assumptions*
[2] *Change in benefits*
[3] *Change in asset valuation method to GASB*
[4] *Change in actuary*
[5] *To reflect long-term funding requirements, $10,182,825 and $3,229,938 have been excluded from the 2003 and 2006 employee contributions in the calculation of the respective recommended multiples. These amounts are employee contribution for retroactive pay increases.*
[6] *Prior to 2005, 40-year amortization is used. In 2005, OPEB based on 30-year amortization and pension on 40-year amortization. In 2006, 30-year amortization used for both pension and OPEB.*
[7] *There was a significant decrease in the multiple from 2004 to 2005. This change is primarily due to the significant increase in employee contributions.*
[8] *Funding based on P.A. 99-0506*

Exhibit VI – State Reporting Disclosure (40 ILCS 5/1A-110 (b)(5)(iv))

Information as of December 31	2020	2019
Actuarial Accrued Liability		
Retirees and beneficiaries	$4,405,361,692	$4,195,697,523
Active members	1,438,500,797	1,334,934,824
Accumulated active employee contributions	718,594,775	717,595,358
Payable to vested employees	8,046,971	7,832,428
Total	$6,570,504,235	$6,256,060,133
Net Assets Available for Benefits, Actuarial Value	$1,275,913,387	$1,137,089,084
Unfunded Actuarial Accrued Liability	$5,294,590,848	$5,118,971,049
Percent funded	19.42%	18.18%
Unfunded actuarial accrued liability as a percent of payroll	1,058.14%	1,119.92%
Payroll	$531,274,057	$472,471,300

Exhibit VII – Actuarial Reserve Liabilities as of December 31, 2020

	2020	2019
Accrued Liability for:		
Active members*	$2,157,095,572	$2,052,530,182
Inactive	8,046,971	7,832,428
Reserves for:		
Retirees	3,829,134,528	3,634,200,499
Spouse annuitants	248,999,978	234,677,779
Compensation widows	58,372,487	61,082,189
Ordinary disability	1,889,842	866,214
Occupational disease disability	85,243,637	85,604,048
Duty disability	173,827,329	171,759,588
Children annuitants	7,813,793	7,423,105
Parent annuitants	80,098	84,101
Total Accrued Liability	6,570,504,235	6,256,060,133
Actuarial Net Assets	1,275,913,387	1,137,089,084
Unfunded Actuarial Liabilities	$5,294,590,848	$5,118,971,049

* *Accrued liability for active participants includes retirement liability for members in ordinary disability status.*

Exhibit VIII – Ordinary Death Benefit Reserve as of December 31, 2020

	2020	2019
Assets		
Fund Balance	$22,613,747	$21,271,900
Present Value of Future Contributions:		
Contributions by members at $30 per year	1,596,512	1,570,135
Annual city contribution of $142,000	1,600,683	1,600,683
Unfunded Liability	($2,900,020)	(1,770,151)
Total Assets	$22,910,922	$22,672,567
Liabilities		
Present Value of Future Death Benefits:		
Active members	$10,098,361	$10,143,503
Retirees	12,812,561	12,529,064
Total Liabilities	$22,910,922	$22,672,567

Liabilities calculated with Plan mortality and 3% discount rate

Exhibit IX – Projection of Contributions, Liabilities, and Assets

Based on the results of the December 31, 2020, actuarial valuation, we have projected valuation results for a 35-year period (from December 31, 2020 through December 31, 2055).

For purposes of the projections, all assets, contributions, and benefit payments have been included. Our projections of contributions, liabilities, and assets are based on the actuarial assumptions, membership data and benefit provisions that were used for the regular actuarial valuation.

In order to determine projected contributions, liabilities, and assets, certain calculations need to be made that are not normally required in a regular actuarial valuation. Benefit payout requirements, actuarial liabilities, and payroll were estimated over the period from 2021 through 2055 by projecting the membership of the Fund over the 35-year period, taking into account the impact of new entrants into the Fund over the 35-year period.

To make the required projections, assumptions needed to be made regarding the age and salary distribution of new entrants as well as the size of the active membership of the Fund. The assumptions regarding the profile of new entrants to the Fund were based on the recent experience of the Fund with regard to new entrants. The size of the active membership of the Fund was assumed to remain constant over the 35-year projection period. The results of our projections are shown on the following pages.

Exhibit IX – Projection of Contributions, Liabilities, and Assets *(continued)*

Projection and Development of Statutory Contribution Based on the December 31, 2020 Actuarial Valuation

(All dollar amounts are in thousands. Employer Contributions are shown on a cash basis in the fiscal year they are actually paid, not receivable.
The funded ratio includes receivable contributions. Actuarial Liability and asset figures as of end of year.)

Year Ending	Actuarial Accrued Liability	Market Value of Assets	Actuarial Value of Assets	Unfunded Liability	Actuarial Value Funded Ratio	Capped Payroll	Employer Normal Cost	Statutory Contribution	Statutory Contribution as % of Pay	Employee Contributions	Benefit Payments	Admin Expenses
2020	$ 6,570,504	$ 1,308,886	$ 1,275,913	$ 5,294,591	19.42%	$ 500,368	$ 60,279	$ 368,436	73.63%	$ 54,415	$ 366,160	$ 2,991
2021	6,725,585	1,408,938	1,384,525	5,341,061	20.59%	531,274	55,164	367,089	69.10%	48,620	383,331	3,059
2022	6,873,603	1,529,796	1,500,869	5,372,734	21.84%	545,091	55,106	398,641	73.13%	49,880	401,473	3,127
2023	7,015,102	1,652,278	1,647,090	5,368,012	23.48%	559,768	55,266	409,376	73.13%	51,220	418,931	3,198
2024	7,149,639	1,776,216	1,776,216	5,373,423	24.84%	574,010	55,716	419,791	73.13%	52,519	436,649	3,270
2025	7,276,150	1,898,224	1,898,224	5,377,926	26.09%	584,325	56,198	427,335	73.13%	53,461	454,603	3,343
2026	7,393,893	2,016,908	2,016,908	5,376,985	27.28%	593,147	56,703	433,787	73.13%	54,266	472,633	3,419
2027	7,503,197	2,133,333	2,133,333	5,369,863	28.43%	601,847	56,798	440,149	73.13%	55,059	489,335	3,495
2028	7,604,598	2,249,487	2,249,487	5,355,111	29.58%	612,163	57,028	447,694	73.13%	56,001	505,256	3,574
2029	7,698,909	2,367,275	2,367,275	5,331,634	30.75%	623,631	57,484	456,080	73.13%	57,047	520,215	3,655
2030	7,786,484	2,487,394	2,487,394	5,299,089	31.95%	635,034	58,114	464,420	73.13%	58,088	534,540	3,737
2031	7,866,667	2,609,773	2,609,773	5,256,894	33.18%	645,889	58,398	472,359	73.13%	59,078	548,648	3,821
2032	7,939,676	2,732,446	2,732,446	5,207,231	34.42%	653,148	58,889	477,667	73.13%	59,741	561,936	3,907
2033	8,006,193	2,856,857	2,856,857	5,149,336	35.68%	661,023	59,601	483,427	73.13%	60,459	574,380	3,995
2034	8,066,626	2,983,010	2,983,010	5,083,616	36.98%	667,872	60,507	488,436	73.13%	61,084	586,105	4,085
2035	8,121,940	3,111,268	3,111,268	5,010,672	38.31%	673,537	61,674	492,578	73.13%	61,601	596,656	4,176
2036	8,172,943	3,242,527	3,242,527	4,930,416	39.67%	678,565	62,798	496,256	73.13%	62,060	605,983	4,270
2037	8,220,546	3,378,140	3,378,140	4,842,406	41.09%	683,601	63,981	499,938	73.13%	62,520	614,208	4,367
2038	8,265,274	3,519,140	3,519,140	4,746,135	42.58%	688,620	65,170	503,609	73.13%	62,978	621,703	4,465
2039	8,307,845	3,666,695	3,666,695	4,641,150	44.14%	693,602	66,431	507,253	73.13%	63,432	628,386	4,565
2040	8,349,112	3,822,241	3,822,241	4,526,871	45.78%	698,693	67,776	510,975	73.13%	63,897	634,196	4,668
2041	8,389,219	3,987,131	3,987,131	4,402,088	47.53%	704,313	68,934	515,086	73.13%	64,409	639,635	4,773
2042	8,428,295	4,161,896	4,161,896	4,266,399	49.38%	709,331	69,963	518,755	73.13%	64,867	644,683	4,880
2043	8,467,039	4,348,327	4,348,327	4,118,712	51.36%	714,708	70,912	522,688	73.13%	65,358	648,935	4,990
2044	8,504,094	4,546,024	4,546,024	3,958,069	53.46%	720,330	71,885	526,800	73.13%	65,871	654,523	5,102
2045	8,538,717	4,755,661	4,755,661	3,783,055	55.70%	725,820	72,257	530,815	73.13%	66,372	660,085	5,217
2046	8,571,331	4,979,441	4,979,441	3,591,890	58.09%	732,280	72,534	535,538	73.13%	66,961	665,069	5,335
2047	8,603,325	5,220,191	5,220,191	3,383,134	60.68%	739,231	72,809	540,622	73.13%	67,596	668,619	5,455
2048	8,636,317	5,480,941	5,480,941	3,155,376	63.46%	746,726	73,240	546,103	73.13%	68,280	670,773	5,577
2049	8,671,498	5,764,340	5,764,340	2,907,158	66.47%	754,705	73,831	551,939	73.13%	69,008	672,048	5,703
2050	8,709,686	6,072,567	6,072,567	2,637,118	69.72%	762,698	74,446	557,785	73.13%	69,737	672,696	5,831
2051	8,750,303	6,406,699	6,406,699	2,343,604	73.22%	771,066	75,145	563,904	73.13%	70,501	674,219	5,962
2052	8,793,941	6,769,683	6,769,683	2,024,259	76.98%	779,679	75,286	570,203	73.13%	71,287	674,773	6,097
2053	8,843,829	7,166,249	7,166,249	1,677,580	81.03%	788,410	75,731	576,588	73.13%	72,083	672,720	6,234
2054	8,901,219	7,598,841	7,598,841	1,302,378	85.37%	797,247	76,861	583,051	73.13%	72,890	670,580	6,374
2055	8,967,009	8,070,306	8,070,306	896,703	90.00%	806,202	78,048	589,600	73.13%	73,707	668,126	6,517

Exhibit X.1 – Comparison of Employer Contribution to Actuarially Determined Contribution

Plan Year Ended December 31	Actuarially Determined Contributions (ADC)*	Actual Contributions**	Percentage Contributed
2011	$250,056,273	$82,869,839	19.48%
2012	271,505,718	81,521,883	19.46%
2013	294,877,895	103,669,015	24.89%
2014	304,265,411	107,334,399	23.32%
2015	323,544,987	236,104,362	50.75%
2016	333,952,291	154,101,396	32.21%
2017	372,845,121	228,452,611	48.67%
2018	412,220,284	249,684,038	54.64%
2019	442,044,761	255,382,266	57.77%
2020	466,556,303	368,422,961	78.97%
2021	476,497,828	--	--

* *The historical FABF Funding Policy does not conform to Actuarial Standards of practice. Therefore, the Actuarially Determined Contribution is equal to the normal cost plus an amount to amortize the unfunded actuarial accrued liability using level dollar payments and a 30-year amortization period. Amounts prior to 2015 were based on the Annual Required Contribution, which was equal to the normal cost plus an amount to amortize the unfunded actuarial accrued liability using a 30-year open period and level dollar amortization.*

** *Receivable amount to be paid the following year.*

Exhibit X.2 – History of Active Member Valuation Data

December 31	Active Members	Percent Increase	Annual Salaries	Percent Increase	Average Salary	Percent Increase	Actuarial Assumption	CPI Chicago
1990	5,337	2.0%	$211,869,720	9.1%	$39,698	6.9%	6.00%	5.4%
1991	5,323	-0.3%	227,649,000	7.4%	42,767	7.7%	6.00%	4.0%
1992	5,204	-2.2%	223,578,000	-1.8%	42,963	0.5%	6.00%	3.0%
1993	5,124	-1.5%	221,600,136	-0.9%	43,247	0.7%	6.00%	3.0%
1993	4,710	-8.1%	202,080,072	-8.8%	42,904	-0.8%	6.00%	3.0%
1994	4,753	0.9%	226,703,496	12.2%	47,697	11.2%	6.00%	2.2%
1995	4,678	-1.6%	228,604,584	0.8%	48,868	2.5%	6.00%	3.2%
1996	4,806	2.7%	233,033,832	1.9%	48,488	-0.8%	6.00%	2.7%
1997	4,856	1.0%	234,726,936	0.7%	48,338	-0.3%	5.00%	2.7%
1998	4,783	-1.5%	262,248,978	11.7%	54,829	13.4%	5.00%	1.5%
1999	4,855	1.5%	271,335,540	3.5%	55,888	1.9%	5.00%	2.6%
2000	4,878	0.5%	275,106,756	1.4%	56,397	0.9%	5.00%	4.0%
2001	4,930	1.1%	277,964,912	1.0%	56,382	0.0%	5.00%	0.8%
2002	4,910	-0.4%	277,053,144	-0.3%	56,426	0.1%	5.00%	2.5%
2003	4,909	0.0%	335,170,501	21.0%	68,277	21.0%	5.00%	1.7%
2004	4,856	-1.1%	334,423,753	-0.2%	68,868	0.9%	5.00%	2.2%
2005	4,999	2.9%	341,252,492	2.0%	68,264	-0.9%	5.00%	3.6%
2006	5,078	1.6%	387,442,074	13.5%	76,298	11.8%	5.00%	0.7%
2007	4,938	-2.8%	388,881,954	0.4%	78,753	3.2%	5.00%	4.7%
2008	5,037	2.0%	396,181,778	1.9%	78,654	-0.1%	5.00%	-0.6%
2009	5,137	2.0%	400,912,173	1.2%	78,044	-0.8%	5.00%	2.5%
2010	5,052	-1.7%	400,404,320	-0.1%	79,257	1.6%	5.00%	1.2%
2011	4,842	-4.2%	425,385,354	6.2%	87,853	10.8%	5.00%	2.1%
2012	4,740	-2.1%	418,964,763	-1.5%	88,389	0.6%	5.00%	1.7%
2013	4,685	-1.2%	416,491,784	-0.6%	88,899	0.6%	4.25%	0.5%
2014	4,809	2.6%	443,743,202	6.5%	92,273	3.8%	4.25%	1.5%
2015	4,735	-1.5%	449,037,894	1.2%	94,834	2.8%	3.75%	0.0%
2016	4,760	0.5%	461,906,144	2.9%	97,039	2.3%	3.75%	1.9%
2017	4,613	-3.1%	452,800,481	-2.0%	98,157	1.2%	3.75%	1.7%
2018	4,487	-2.7%	440,816,101	-2.6%	98,243	0.1%	3.50%	1.1%
2019	4,630	3.2%	457,082,316	3.7%	98,722	0.5%	3.50%	2.2%
2020	4,697	1.4%	500,367,870	9.5%	106,529	7.9%	3.50%	0.9%
Average Increase for the last 5 Years				**2.3%**		**2.4%**		**1.6%**

Exhibit X.3 – New Annuities Granted During 2020

	Annuitants	Widow(er)s of Deceased Employees**	Widow(er)s of Deceased Annuitants	Compensation Widow(er)s***
Number retired/deceased	232	3	68	2
Average age attained	59.7	56.2	77.4	57.4
Average length of service	29.4	20.0	31.4	30.5
Average spouse age	58.9	N/A	N/A	N/A
Average annual salary	$113,150	N/A	N/A	N/A
Average annual final salary	$116,294	N/A	N/A	N/A
Total annual annuity	$19,182,450	$100,389	$2,610,954	$151,479
Average annual annuity	$82,683	$33,463	$38,396	$75,740
Total statutory liability	$281,199,540	$1,272,381	$20,766,189	$2,067,977
Average liability	$1,212,067	$424,127	$305,385	$1,033,989
Total investment (employee paid)	$54,288,359	N/A	N/A	N/A
Average investment*	$234,002	N/A	N/A	N/A
Liability/cost	5.18	N/A	N/A	N/A
Liability/final pay	10.42	N/A	N/A	N/A

* *Based on previously taxed contributions.*
** *Not including compensation or supplemental.*
*** *Does not include transfers from Supplemental Widows*

Exhibit X.4 – History of Retirees and Beneficiaries by Type of Benefit

	Annuitants					Disability				
December 31	Employee	Spouse	Supp. Widow(er)*	Child	Parent	Ordinary	Duty	Occupational	Widow(er) Comp.	Total
1990	2,242	1,248	67	106	1	11	253	133	51	4,112
1991	2,226	1,264	65	121	1	14	267	143	49	4,150
1992	2,261	1,277	68	113	1	11	286	147	40	4,204
1993	2,257	1,291	69	114	1	10	274	140	35	4,191
1994	2,207	1,316	66	114	2	6	284	142	36	4,173
1995	2,248	1,332	62	110	1	8	297	144	40	4,242
1996	2,257	1,328	61	110	1	8	292	169	44	4,270
1997	2,235	1,348	60	111	1	11	296	194	46	4,302
1998	2,251	1,360	56	125	2	8	295	197	49	4,343
1999	2,351	1,450	56	139	2	5	295	203	49	4,550
2000	2,538	1,440	51	132	2	6	257	139	49	4,614
2001	2,422	1,330	-	116	2	2	262	147	89	4,370
2002	2,411	1,330	-	121	1	2	257	144	85	4,351
2003	2,412	1,322	-	119	1	3	249	121	82	4,309
2004	2,441	1,352	-	114	1	7	244	113	81	4,353
2005	2,442	1,330	-	111	1	7	254	107	105	4,357
2006	2,459	1,322	-	110	1	6	257	113	114	4,382
2007	2,488	1,300	-	105	1	4	266	114	113	4,391
2008	2,471	1,306	-	98	1	4	269	124	108	4,381
2009	2,556	1,292	-	89	1	4	262	121	107	4,432
2010	2,577	1,261	-	83	1	4	259	124	100	4,409
2011	2,665	1,253	-	85	1	4	249	121	100	4,478
2012	2,821	1,260	-	83	1	2	232	116	98	4,613
2013	2,883	1,242	-	83	1	2	220	112	99	4,642
2014	2,977	1,222	-	82	1	1	220	108	93	4,704
2015	3,044	1,198	-	79	1	3	212	107	88	4,732
2016	3,130	1,175	-	84	1	3	202	100	85	4,780
2017	3,257	1,181	-	79	1	8	190	86	84	4,886
2018	3,422	1,181	-	78	1	6	170	89	81	5,028
2019	3,537	1,184	-	70	1	8	166	85	77	5,128
2020	3,632	1,174	-	75	1	12	172	83	72	5,221

** In 2001, all Supplemental Widows were moved into the Compenensation Widows group.*

Exhibit X.5 – History of Average Employee Retirement Benefits Payable

	All Retirees		Retirees Who Retired During the Prior Year		
Retirement Year	Average Annual Benefit	Average Age	Average Annual Benefit	Average Age	Average Years of Service
1990	$20,853	68	$30,038	60.3	30.9
1991	21,942	69	30,983	60.0	31.4
1992	23,503	69	32,758	59.9	31.3
1993	25,031	69	34,267	61.6	31.7
1994	26,262	70	34,391	59.8	31.2
1995	27,935	70	38,872	60.3	32.1
1996	29,304	70	40,406	60.4	32.0
1997	30,787	70	41,543	59.8	31.6
1998	32,503	71	43,905	60.1	32.1
1999	34,067	71	44,001	60.4	31.4
2000	36,458	71	48,534	63.5	34.2
2001	38,048	71	45,768	60.2	30.9
2002	40,052	71	45,346	59.7	30.8
2003	42,131	71	50,943	60.2	31.7
2004	45,675	71	59,608	60.0	32.1
2005	47,917	71	59,117	59.2	31.4
2006	50,171	71	61,172	57.7	30.1
2007	52,446	71	64,076	58.1	30.0
2008	54,492	71	61,577	57.4	29.6
2009	57,023	71	67,310	57.8	30.3
2010	59,133	71	67,386	59.0	29.7
2011	61,879	71	70,893	58.5	29.4
2012	64,860	70	75,675	58.5	30.4
2013	67,286	70	73,808	57.6	30.2
2014	69,977	70	78,042	57.4	30.5
2015	71,823	70	73,541	58.4	28.7
2016	74,125	70	78,725	58.6	29.6
2017	77,904	69	82,815	58.4	30.4
2018	80,461	69	83,938	58.6	29.9
2019	83,088	69	83,406	59.0	29.0
2020	85,431	69	82,683	59.7	29.3

Exhibit X.6 – History of Annuities 1990 – 2020

	Employee Annuitants			Widow/Widower Annuitants		
December 31	Number of Annuitants	Total Annuities	Average Annuities	Number of Annuitants	Total Annuities	Average Annuities
1990	2,242	$46,752,084	$20,853	1,316	$8,031,199	$6,103
1991	2,226	48,843,715	21,942	1,330	9,316,132	7,005
1992	2,261	53,140,074	23,503	1,346	10,774,709	8,005
1993	2,257	56,495,862	25,031	1,361	12,121,722	8,906
1994	2,207	57,960,522	26,262	1,384	13,680,765	9,885
1995	2,248	62,797,419	27,935	1,395	14,495,633	10,391
1996	2,257	66,139,690	29,304	1,389	14,709,232	10,590
1997	2,235	68,808,890	30,787	1,409	15,397,832	10,928
1998	2,251	73,163,601	32,503	1,418	15,969,975	11,262
1999	2,351	80,090,897	34,067	1,508	18,136,173	12,027
2000	2,538	92,529,624	36,458	1,493	18,352,906	12,293
2001	2,422	92,152,832	38,048	1,332	16,516,021	12,399
2002	2,411	96,565,842	40,052	1,331	17,006,519	12,777
2003	2,412	101,620,962	42,131	1,323	17,490,584	13,220
2004	2,441	111,491,737	45,675	1,353	19,297,527	14,263
2005	2,442	117,014,053	47,917	1,331	20,481,794	15,388
2006	2,459	123,371,713	50,171	1,323	21,123,202	15,966
2007	2,488	130,485,435	52,446	1,301	21,290,764	16,365
2008	2,471	134,649,295	54,492	1,307	22,164,269	16,958
2009	2,556	145,751,375	57,023	1,293	22,652,897	17,520
2010	2,577	152,385,721	59,133	1,262	22,832,364	18,092
2011	2,665	164,908,801	61,879	1,254	23,449,616	18,700
2012	2,821	182,970,558	64,860	1,261	24,681,837	19,573
2013	2,883	193,984,459	67,286	1,243	25,252,147	20,315
2014	2,977	208,322,397	69,977	1,223	25,524,937	20,871
2015	3,044	218,628,245	71,823	1,199	26,048,384	21,725
2016	3,130	232,010,024	74,125	1,176	26,436,619	22,480
2017	3,257	253,734,772	77,904	1,182	28,637,750	24,228
2018	3,422	275,336,159	80,461	1,182	29,674,018	25,105
2019	3,537	293,881,951	83,088	1,184	30,733,318	25,957
2020	3,632	310,284,118	85,431	1,174	31,899,939	27,172

Exhibit X.7 – History of Annuitants Added to Payrolls 2005 – 2020

Employee Annuitants								
	Added[1]		Removed		End of Year			
Year Ended 12/31	Number	Annual Payment	Number	Annual Payment	Number	Annual Payment	Average Annual Benefit	Increase in Average Benefit
2005	126	$10,248,119	125	$4,725,803	2,442	$117,014,053	$47,917	4.9%
2006	123	10,689,546	106	4,331,886	2,459	123,371,713	50,171	4.7%
2007	126	11,168,192	97	4,054,470	2,488	130,485,435	52,446	4.5%
2008	109	9,696,869	126	5,533,009	2,471	134,649,295	54,492	3.9%
2009	185	15,610,755	100	4,508,675	2,556	145,751,375	57,023	4.6%
2010	117	11,242,038	96	4,607,692	2,577	152,385,721	59,133	3.7%
2011	197	18,074,820	109	5,551,740	2,665	164,908,801	61,879	4.6%
2012	275	24,560,716	119	6,498,959	2,821	182,970,558	64,860	4.8%
2013	187	17,780,058	125	6,766,157	2,883	193,984,459	67,286	3.7%
2014	211	20,629,503	117	6,291,565	2,977	208,322,397	69,977	4.0%
2015	175	17,023,263	108	6,717,415	3,044	218,628,245	71,823	2.6%
2016	199	20,036,064	113	6,654,285	3,130	232,010,024	74,125	3.2%
2017	252	29,720,953	125	7,996,205	3,257	253,734,772	77,904	5.1%
2018	278	29,352,500	113	7,751,113	3,422	275,336,159	80,461	3.3%
2019	243	26,821,900	128	8,276,108	3,537	293,881,951	83,088	3.3%
2020	232	26,120,255	137	9,718,087	3,632	310,284,118	85,431	2.8%

[1] Includes COLA increases for continuing annuitants

Exhibit X.8 – History of Widow/Widowers Added to Payrolls 2005 – 2020

Widow/Widower Annuitants								
	Added		Removed		End of Year			
Year Ended 12/31	Number	Annual Payment	Number	Annual Payment	Number	Annual Payment	Average Annual Benefit	Increase in Average Benefit
2005	94	$2,596,899	116	$1,412,632	1,331	$20,481,794	$15,388	7.9%
2006	84	1,964,568	92	1,323,160	1,323	21,123,202	15,966	3.8%
2007	59	1,341,091	81	1,173,529	1,301	21,290,764	16,365	2.5%
2008	77	1,796,751	71	923,246	1,307	22,164,269	16,958	3.6%
2009	66	1,605,852	80	1,117,224	1,293	22,652,897	17,520	3.3%
2010	55	1,404,275	86	1,224,808	1,262	22,832,364	18,092	3.3%
2011	62	1,661,849	70	1,044,597	1,254	23,449,616	18,700	3.4%
2012	79	2,361,949	72	1,129,728	1,261	24,681,837	19,573	4.7%
2013	71	2,032,935	89	1,462,625	1,243	25,252,147	20,315	3.8%
2014	59	1,675,707	79	1,402,917	1,223	25,524,937	20,871	2.7%
2015	61	2,029,302	85	1,505,855	1,199	26,048,384	21,725	4.1%
2016	64	2,523,786	87	1,612,104	1,176	26,436,619	22,480	3.5%
2017	83	3,605,382	77	1,404,251	1,182	28,637,750	24,228	7.8%
2018	71	4,644,122	71	1,406,722	1,182	29,674,018	25,105	3.6%
2019	68	2,394,217	66	1,334,917	1,184	30,733,318	25,957	3.4%
2020	81	3,115,757	91	1,949,136	1,174	31,899,939	27,172	4.7%

Exhibit XI.1 – Actuarial Assumptions and Actuarial Cost Method

Rationale for Assumptions

The information and analysis used in supporting each assumption that has a significant effect on this actuarial valuation is shown in the Experience Study performed for the Period January 1, 2012 through December 31, 2016. Current data is reviewed in conjunction with each annual valuation.

Mortality Rates:

Post-retirement

The RP-2014 Blue Collar Healthy Annuitant Mortality Table, with scaling factors of 106 percent for males and 98 percent for females, projected generationally using scale MP-2017 (effective December 31, 2017).

Disabled:

The RP-2014 Blue Collar Healthy Annuitant Mortality Table, with scaling factors of 107 percent for males and 99 percent for females, projected generationally using scale MP-2017 (effective December 31, 2017).

Pre-retirement:

The RP-2014 Blue Collar Employee Mortality Table, with scaling factors of 92 percent for males and 100 percent for females, projected generationally using scale MP-2017 (effective December 31, 2017).

The mortality tables specified above were determined to reasonably reflect the mortality experience of the Plan as of the valuation date. The mortality table was then adjusted to future years using generational projection under scale MP-2017 to reflect future mortality improvements.

Termination Rates:

These service-based rates are based on recent experience of the Fund (effective December 31, 2017).

Service	Rate (%)
0 - 0.99	2.00
1 - 1.99	0.80
2 - 8.99	0.60
9 - 13.99	0.50
14 - 29.99	0.40
30 and over	0.00

Retirement Rates:

Retirement rates are based on the recent experience of the Fund (effective December 31, 2017).

	Hired before January 1, 2011		Hired on or after January 1, 2011	
Attained Age	Firefighters	Paramedics	Firefighters	Paramedics
50	2%	3%	1%	1%
51	2%	3%	1%	1%
52	2%	3%	1%	1%
53	2%	4%	1%	1%
54	4%	8%	1%	1%
55	12%	8%	13%	8%
56	12%	10%	13%	10%
57	13%	10%	14%	10%
58	13%	12%	14%	12%
59	16%	12%	16%	12%
60	20%	15%	20%	15%
61	25%	15%	25%	15%
62	60%	20%	60%	20%
63	100%	30%	100%	30%
64		40%		40%
65		100%		100%

Disability Rates:

Disability rates are based on the recent experience of the Fund (effective December 31, 2017).

Attained Age	Rate
20 - 24	0.09%
25 – 29	0.09%
30 - 34	0.10%
35 - 39	0.10%
40 - 44	0.18%
45 - 49	0.38%
50 - 54	1.066%
55 - 59	2.08%
60 - 63	2.5%

Unknown Data for Participants:	Same as those exhibited by participants with similar known characteristics. If not specified, participants are assumed to be male.
Spouse:	75% of members are assumed to be married, female spouses are assumed to be three years younger than male spouses, and 100% of spouses are assumed to be opposite gender. No assumption is made about other dependents.
Reciprocal Service:	No assumption for reciprocal service.
Military Service:	No assumption for military service.
Benefit Service:	Exact fractional years of service are used to determine the amount of benefit payable. After a participant has 20 years of service, future benefit service is increased to the nearest integer.
Decrement Timing:	All decrements are assumed to occur mid-year.
Decrement Relativity:	Decrement rates are used directly, without adjustment for multiple decrement table effects.
Decrement Operation:	Turnover decrements do not operate after member reached 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.
Beneficiary COLA Approximation:	For current retirees, benefits for future survivors were increased by 35% to approximate the value of COLA benefits earned prior to the retirees' death.
Member Contributions:	Based on payroll, adjusted to the middle of the year.
Net Investment Return:	6.75% per year, net of investment expense (effective December 31, 2018). The 6.75% assumption is composed of 2.25% inflation plus 4.50% real rate of return.
Inflation:	2.25% per year. The inflation assumption is used to determine annual increases in pension and the pensionable salary cap for Tier 2 members.
Wage Inflation and Payroll Growth:	3.5% per year.

Salary Increases:

Years of Service	Base Rate	Wage Inflation	Total
0	21.50%	3.50%	25.00%
1	9.50%	3.50%	13.00%
2	5.75%	3.50%	9.25%
3	4.75%	3.50%	8.25%
4	4.75%	3.50%	8.25%
5	0.50%	3.50%	4.00%
6 - 8	0.00%	3.50%	3.50%
9	3.25%	3.50%	6.75%
10 - 13	0.00%	3.50%	3.50%
14	3.25%	3.50%	6.75%
15 - 18	0.00%	3.50%	3.50%
19	3.75%	3.50%	7.25%
20 - 23	0.00%	3.50%	3.50%
24	3.00%	3.50%	6.50%
25 - 28	0.00%	3.50%	3.50%
29	1.25%	3.50%	4.75%
30 and over	0.00%	3.50%	3.50%

Administrative Expenses: Equal to actual expenses for the prior year. For purposes of the projection, future administrative expenses are assumed to increase by 2.25% each year.

Actuarial Value of Assets: Fair value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual fair value return and the expected return on the fair value, and is recognized over a five - year period.

Actuarial Cost Method:	Entry Age Normal. Under this method, a normal cost is calculated for each employee that is the level annual contribution as a percent of pay required to be made from the employee's date of hire for as long as he/she remains active so that sufficient assets will be accumulated to provide his/her benefit. The accrued liability is the difference between the present value of all future benefits and the present value of all future normal costs.

Exhibit XI.2 – Projection Assumptions

Active Population	Active members who are expected to 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.
New Entrant Profile:	The entry age of future new entrants 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, 2019. These members were hired from January 1, 2015 through December 31, 2019. We did not include hires during 2020 since date of birth was not provided for them. The group hired due to the Lewis Settlement was excluded from the development of the new entrant profile. Approximately 90% of the new entrants are assumed male.

Entry Age	Number
Less than 25	85
25 to 30	270
30 to 35	275
35 to 40	91
40 to 45	8
45 and over	5

New Entrant Pay:	Based on the most recent employment contract, new entrants were assumed to earn $62,674 for the plan year ending December 31, 2021. The new entrant pay for member hired after 2021 is assumed to increase by the wage inflation assumption of 3.5%.
New Entrant Pay Increases:	Pay for new entrants is assumed to increase by the wage inflation and the service based salary increase assumptions. The projections assumed a pay cap of $118,053 for 2021, increasing by 1.125% per year after plan year 2021. The annual increase of 1.125% is based on 50% of the CPI-U increase, which is assumed to be 2.25%.

Exhibit XII – Summary of Plan Provisions

This exhibit summarizes the major provisions of the Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Membership:	Any employee of the City of Chicago in its fire service as a firefighter, fire paramedic, fire engineer, marine engineer, or fire pilot, whose duty is to participate in the work of controlling and extinguishing fire at the location of any such fire, whether or not he is assigned to fire service other than the actual extinguishing of fire.
Tiers:	Tier 1: First hired before January 1, 2011 Tier 2: First hired on or after January 1, 2011
Employee Contributions:	Members of the Fund are required to contribute 9 1/8% of pensionable salary to the Fund as follows: 7 1/8% for the firefighter's annuity, 1.5% for the spouse's annuity, 3/8 of 1% for the automatic increases in the retirement annuity, and 1/8 of 1% for ordinary disability benefits. The contribution for ordinary disability benefits is not refundable.
Final Average Salary:	For Tier 1 members, the final average salary is the average salary of the highest four consecutive years within the last 10 years of service prior to retirement. For Tier 2 members, the final average salary is the average pensionable salary of the highest eight 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% or ½ of the change in CPI-U, not less than zero. For 2020, the salary limit was $115,929.
Service:	All periods of active service, vacation, leave of absence with whole or part pay, military service, periods of disability for which the member receives a disability benefit, and leave of absence without pay to perform the duties of a member of the General Assembly prior to January 9, 1997. Service is computed on a day-to-day basis. Employees may purchase the 1980 strike time and periods of suspension less than one year. Employees may purchase, with 4% interest, periods of employment of the Chicago Fire Department from 1970 until the employee entered the Fund.

Retirement Annuity:

Tier 1

All Tier 1 retirement annuities are limited to 75% of highest salary. For participants who retire at age 50 or over with at least 20 years of service the minimum monthly annuity is the greater of $1,050 or 125% of the Federal Poverty Level. Retirement is mandatory at age 63, except for emergency medical technicians.

Earned Annuity

Eligibility: Age 50 and 10 years of service

The earned annuity is based on Employee contributions accumulated for age and service annuity plus 1/10th of the sums accumulated from City contributions for the age and service annuity for each year of service over 10. At age 50 with 20 years of service or at age 63, the annuity is based on all sums accumulated to his or her credit.

Minimum Formula Annuity

Eligibility: Age 50 and 20 years of service

The Minimum Formula Annuity is equal to 50% plus 2.5% for each year or fractional year of service over 20 years times final average salary. May not exceed 75% of final average salary.

Alternative Minimum Formula Annuity

Eligibility: Age 53 and 23 years of service

The Alternative Minimum Formula Annuity is equal to 50% plus 2% of average salary for each year of service or fraction thereof after attaining age 53 with 23 years of service. Each participant who has completed 23 years of service before attaining age 53 shall have an additional 1% of average salary added for each year of service or fraction thereof in excess of 23 years up to age 53.

Compulsory Retirement Annuity

Eligibility: Age 63 and 10 years of service

The Compulsory Retirement Annuity is equal to 30% of average salary for the first 10 years of service plus 2% of average salary for each completed year of service or fraction thereof in excess of 10 years, but not to exceed a maximum of 50% of average salary. The participant is entitled to statutory post retirement increases.

Tier 2

Monthly Retirement Annuity

	Eligibility: Age 50 and 10 years of service The Monthly Retirement Annuity is equal to 2.5% of average salary for each year of service, subject to an annuity reduction factor of one-half of 1% for each month that the participant's age at retirement is under age 55. Monthly retirement annuities shall not exceed 75% of average salary.
Automatic Increase:	
Tier 1	Born before January 1, 1966 and either 20 or more years of service or receiving Compulsory Retirement Annuity: An employee annuitant is eligible to receive an annual increase of 3% of the original annuity (simple). This increase begins in January of the year of the first payment date following age 55 as long as the participant has been retired at least one year and one month. If the participant is over age 54 at retirement date, the automatic increase begins the first of the month following the first anniversary of his retirement and again each January 1st thereafter for life. Born after January 1, 1966 and either 20 or more years of service or receiving Compulsory Retirement Annuity: An employee annuitant is eligible to receive an annual increase of 1.5% of the original annuity (simple). This increase begins in January of the year of the first payment date following age 60 as long as the participant has been retired at least one year and one month. If the participant is over age 59 at retirement date, the automatic increase begins the first of the month following the first anniversary of his retirement and again each January 1st thereafter for a maximum of 20 increases.
Tier 2	An employee annuitant or surviving spouse who is eligible to receive an increase in annuity benefit, shall receive an annual increase equal to the lesser of 3% or ½ of the annual unadjusted percentage increase in the Consumer Price Index-U. The increase is based on the amount of the originally granted benefit (simple). This increase begins in January of the year of the first payment date following the later of: 1) the attainment of age 60, or 2) the first anniversary of the annuity start date

Widow/Widower Annuity:	Payable until remarriage if the widow/widower remarries before age 60, except Compensation and Supplemental Annuities. If the annuity is suspended because the widow/widower remarries before age 60, annuity payments will be resumed if the subsequent marriage ends. Any widow/widower's annuity, which was suspended on account of remarriage prior to December 31, 1989, will be resumed if subsequent marriage ends, the later of July 14, 1995, or when the marriage ended. Beginning January 16, 2004, widows retain their rights to benefits after remarriage at any age. Benefits are not available to a widow of a firefighter who received a refund of contributions for widow's benefits, unless the refund is repaid with 4% interest per year.
Death in Service (Non-Duty)	The greater of: 1) if the firefighter dies with at least 1.5 years of serve, 30% of the salary attached to the rank of a first class firefighter in the classified career service at the time of the firefighter's death, 2) 50% of the annuity the deceased firefighter would have received if he had retired just prior to the date of death, 3) Earned Annuity benefit based on the total salary deductions and City contributions for age and service annuity and widow/widower's annuity. The widow of an active firefighter with 10 or more years of service will receive no less than 50% of the benefit that an active firefighter would have received had they attained age 50 and 20 years of service.
Death in Service (Duty Related)	Compensation annuity – The annuity paid to the spouse is equal to 75% of the firefighter's salary attached to his civil service position at the time of his death. The amount increases as the salary of the position increases.
Death in Service (Duty Disability)	Compensation annuity – The annuity paid to the spouse is equal to 75% of the firefighter's salary attached to his civil service position at the time of his death. The amount increases as the salary of the position increases. Death after retirement - If the firefighter dies after retirement, the spouse's annuity is equal to the greater of: 12) 50% (66-2/3% for Tier 2) of the annuity the deceased firefighter was receiving at the date of death, or 2) Earned annuity benefit based on the sums accumulated for the spouse annuity plus 10% of the accumulated City contributions for each year of service from 10 to 20 years, and the full accumulated City contributions after 20 years of service. The minimum annuity for any widow/widower is 125% of the Federal Poverty Level. For Tier 2 members, the annuity payable to the surviving spouse is equal to 66 2/3% of the participant's accrued retirement annuity without a reduction due to age.

Child Annuity:	A child's annuity is provided for an unmarried child of a deceased employee who is under the age of 18 (except where the child is so physically or mentally handicapped as to be unable to support himself). The annuity is 10% of the current annual maximum salary of a first class firefighter while a widow/widower survives and 15% when no widow/widower survives.
Family Maximum:	The total annuities for widow/widower and children cannot exceed 60% for non-duty death, or 100% for duty death, or the current maximum annual salary of a first class firefighter.
Parent Annuity:	A parent's annuity is provided for each surviving parent of a firefighter who dies prior to separation from service, or while out of service with at least 20 years of service, provided that there is no widow/widower or child and that the deceased firefighter was contributing to their support. The benefit is equal to 18% of the current annual salary attached to the classified position held by the firefighter at the time of death for each surviving parent.
Duty Disability Benefit:	Any employee who becomes disabled as the result of an injury incurred in the performance of any act of duty has a right to receive a duty disability benefit in the amount of 75% of salary at date of injury, plus $30 a month for each unmarried child less than age 18. If the child is handicapped, the $30.00 is payable until the participant is removed from his disability status. Child's duty disability benefit is limited to 25% of the employee's salary as of the date of injury. Effective January 1, 1994, the minimum benefit, if the employee has been on disability at least 10 years, is 50% of current salary of the rank held by the employee when he was removed from the Department payroll, regardless of whether that removal occurred before the disability date. The City contributes salary deductions for annuity purposes for the duty disability benefit. Such amounts contributed by the City after December 31, 1981, while the employee is receiving duty disability benefits, are not refundable to the employee and will be used for annuity purposes only.

Occupational Disease Disability Benefit:	Participants with a minimum of seven years of credible service that become disabled from heart disease, tuberculosis, any disease of the lungs or respiratory tract, AIDS, hepatitis C, stroke, or cancer that develops while employed by the department are entitled to occupational disease disability benefits. In order to receive this occupation disease disability benefit, the cancer involved must be a type which may be caused by exposure to heat, radiation or a known carcinogen as defined by the Internal Agency for Research on Cancer. Occupation disease disability benefits are equal to 65% of the participant's salary on the date of removal from payroll. The participant's children are also entitled to child's disability benefits in the amount of $30.00 per month per child under age 18. If the child is handicapped, the $30.00 is payable until the participant is removed from his disability status. The total amount of this benefit is not to exceed 75% of salary at the time of the grant. This benefit is fixed at the time the participant leaves the Fire Department payroll and is payable until the earlier of death, retirement, or a return to active duty. Effective January 1, 1994, no occupational disease disability benefit that has been payable for at least 10 years shall be less than 50% of the current salary attached from time to time to the rank and grade held by the participant at the time of his removal from the department payroll, regardless of whether that removal occurred before the effective date.
Ordinary Disability Benefit:	This benefit is granted for disabilities incurred other than in performance of an act of duty and is 50% of salary less 9% (for pension deductions) as of the last day worked. Length of time on disability is limited to a maximum of 50% of the employee's total service or five years, whichever occurs first. Ordinary disability benefits terminate when the disability ceases or the participant becomes eligible for minimum formula annuity. No children's benefits are payable.
Death Benefit:	An ordinary death benefit is paid to the designated beneficiary or beneficiaries of deceased participants. For active participants age 49 and under, the death benefit amounts to $12,000.00 and is reduced by $400.00 for each year over age 49 to a minimum of $6,000.00. A participant on disability is treated as though he were in active service in this regard. Eligible beneficiaries for participants retired after January 1, 1962, in receipt of retirement benefits, and whose separation from service (active duty) was effective on or after the participant's attainment of age 50, and application for such annuity was made within 60 days after separation from service (active duty), receive $6,000.00.

Refunds:	To Firefighters: Entire amount with interest An employee who resigns before age 50, or before age 57 with less than 10 years of service, is entitled to all salary deductions accumulated with interest to date of resignation (excluding ordinary disability pension deductions) with interest at 3%. A firefighter who receives a refund and who subsequently reenters service shall not receive (nor his or her widow/widower or parent) any annuity benefit or pension unless the refund is repaid with 4% interest. Repayment must be made within two years after reentry. For Widow/Widower Annuity: If the firefighter is not married when he retires on annuity, he or she will receive a refund of all his or her contribution, with interest, for the spouse's annuity. Refunds of Remaining Amounts: Amounts contributed by a firefighter, that have not been paid as an annuity or refund are refundable to the employee's estate with interest to the date of retirement or death, if the employee died in service. If there are children under age 18, the amount necessary to pay children annuities will not be refunded. No refund is paid to a widow/widower whose annuity is suspended because of marriage.
Compensation Widows:	Beginning January 1, 2001, mandatory retirement will have no effect on Widow benefits. Effective with the December 31, 2001, actuarial valuation, all Supplemental Widows have been reclassified as Compensation Widows.
Plan Year:	January 1 through December 31

Exhibit XIII – Legislative Changes in Plan Provisions

1968 to 1979 Sessions

- Compensation widow/widower annuities changed from $300 to 75% of salary.
- Supplemental widow/widower annuities became 40% of salary.
- Five-year average salary became four years.
- Minimum employee annuities increased from $200 in stages.
- Minimum widow/widower annuities increased from $100 in stages.
- Children's annuities changed from $40/$60 to 10%/15% of salary of first class firefighter.
- Parent annuities increased to 18% of salary of first class firefighter.
- Lump sum benefits were increased.
- The deduction from salary increased from 1% to 1.5% of salary for the spouse annuity.

1979 Session

SB 854

- Recall of elective members of the Board of Trustees.

HB 291

- Authorizes invesment in Time Deposits of Certificate of Deposit.

HB 2012

- Under IRS Code Section 414(h), employer may pick up the employee contributions for all compensation earned after December 31, 1980, by a reduction in the cash salary or an offset to a future salary increase or by a combination of both.

1980 Session

- Transfer of credit to the General Assembly System.

HB 3635

- Reversed all changes made by HB 2012 and put the pick-up section as a new paragraph; they are treated as employee contributions for all purposes, including refunds and determination of the tax levy.

1981 Session

SB 21

- Actuarial Reporting Standards.

SB 851

- Authorizes investments in conventional mortgage pass-through securities.

SB 879

- Financial statement required by Department of Insurance within 6 months and actuarial statement within 9 months; $100 penalty per day if late.

HB 291

- Increase minimum survivor’s annuity from $200 to $250.

Spring 1982 Session

SB 740

- Three percent post-retiremtn increase for employees born before January 1, 1930. All increases begin at age 60 instead of age 63 effective July 1, 1982.

SB 1127

- Group health hospital and surgical insurance premium $55 for annuitant not qualified to receive Medicare: $21 if annuitant is qualified, effectve January 1, 1983.

SB 1579

- Expanded fiduciary standards, prohibited transactions, civil action may be brought by Attorney General or by a participant; list of permitted investments moved to general section of the statute.

HB 2361

- Election by mail ballot.

Spring 1983 Session

SB 22

- Delegation of investment authority restrictions.

SB 1147

- Minimum reporting and actuarial information for 1984.

HB 366, SB 288

- Changes fiduciary standards: party in interest definition; reasonable care of co-fiduciary; eliminates civil action.

HB 377

- Cancer as occupational disability.

HB 380

- Paramedics as members July 1, 1983.

HB 455

- Bill of Rights.

HB 483

- Temporary position defined.

HB 514

- 10 percent prudent person investment category.

HB 755

- Change in lump sum death benefit: $6,000 if retired; $12,000 if active and under age 50, reduced bt $400 each year age age 50 or older.

HB 758

- Vote by mail.
- 50/20 2% minimum annuity formula (52/22 in 1984; 51/21 in 1985; 50/20 in 1986 and after).
- 30% salary of first class firefighter; widow/widower of active employee with 1.5 years of service effective June 30, 1984.
- 50% of retirement pension being paid (includes increases); widow/widower of retiree effective June 30, 1984.

City Ordinance

- Change in lump sum death benefit: $6,000 if retired; $12,000 if active and under age 50, reduced bt $400 each year age age 50 or older.
- Changes compulsory retirement from 63 to 70.

1984 Session

- Direct deposit.
- Illinois Public Employees' Pension Laws Commission abolished.

1985 Session

HB 164

- Occupational disability benefits from 50% to 65% of salary for new disabilities.
- Survivors; annuity for death in service 50% of the firefighter's annuity as if the deceased firefighter had retired just prior to the date of death.
- Removes alcoholism and venereal disease prohibition against paying ordinary disability.
- Removes adoption before age 50 requirement for child's benefit.

1986 Session

HB 2630

- Removes the age 18 limitation for handicapped children of duty and occupational disease disability recipients.
- Provides for waiver of annual physical examination for disability recipients if firefighter is permanently disabled and unable to ever return to service.

1987 Session

- No legislative changes.

1988 Session – City Ordinance

- Compulsory retirement changed to age 63.

1989 Session

HB 332

- $325 minimum widow/widower annuity effective January 1, 1988.

SB 95

- Changed the amount of fund paid health insurance "supplement" from January 1, 1988 until December 31, 1992 to $65 per month for each annuitant not qualified to receive Medicare benefits (and $35 if qualified) and from January 1, 1993 until December 31, 1997 the amounts are $75 and $45, respectively. Widows will now be eligible for supplement. The City will be required to pay 50% of the aggregated cost of health care claims for the retired group under all health care plans offered by the City. A procedure was established for the City to determine, with the help of an independent actuary, the aggregate cost of claims and premiums for each calendar year from 1989 through 1997 for the retired group.
- $475 minimum employee annuity effective January 1, 1990.
- Compensation and Supplemental annuitants may remarry after 1989 without loss of benefits.
- Employee refunds must be repaid at 4% before the later of two years after the date of reentry or January 1, 1992.
- Three percent postretirement increase beginning January 1, 1990, for employees born after December 31, 1929, and before January 1, 1940.
- Emplyee may purchase periods of suspension (not to exceed a total of one year of service) and 1980 strike time (not to exceed 23 days). Paramedic who transferred from the pension fund established under Article 8 of this Code to this Fund by operation of Public Act 83-780 may purchase Article 8 service at 4% annual compound interest rate prior to January 1, 1992, if the employee received a refund from the Article 8 fund.

HB 332

1990 Session

SB 136

- Amends Chapter 120, Paragraph 671 of the Revenue Act to provide for a separate listing on the tax bill of the dollar amount of tax due from the person assessed which is allocable to a tax levied under the Illinois Pension Code, or any other tax levied by a municipality or township for public pension or retirement purposes. Effective January 1, 1990.

SB 1951

- Signed January 14, 1991. Service credit will be given for any periods prior to January 14, 1993, that an active firefighter who is a member of the General Assembly is absent to perform his legislative duties. No payment is required for this service credit. The current salary of the rank would be used for average salary for annuity purposes.
- Any firefighter who had service as a paramedic in the Municipal Fund and received a refund of contributions could receive credit for the service in the Fire Fund by making written application to the Board by January 1, 1992, and paying for the serive.
- Beginning December 31, 1990, any firefighter with at least 20 years of service may withdraw from the service at any age and receive an annuity calculated under Section 6-128 beginning at age 50 if under that age at withdrawal.
- Beginning January 1, 1990, the minimum widow/widower annuity is $400 per month for all those receiving a widow/widower annuity on January 14, 1991, and for future widow/widowers of employees who retired at age 50 or over with at least 20 years of service.
- If a widow/widower remarries after December 31, 1989, after attaining age 60, the annuity will continue without interruption. If the annuity is suspended because of remarriage before attaining age 60, annuity payments will be resumed if the subsequent marriage ends.
- If any widow/widower receives a widow/widower annuity from the Fire Fund and after December 31, 1989, marries a firefighter in the Fund, his/her first widow/widower annuity will be canceled if she accepts payment of a second widow/widower's annuity after he dies.
- Beginning January 14, 1991, any city officer can transfer his Fire service to the Municipal Fund.

1991 Session

- No legislative changes.

1992 Session

HB 969

- Approved March 26, 1992.
- Beginning January 1992, the minimum retirement annuity (requires retirement at age 50 or over with at least 20 years of service) was increased to $650 per month and the minimum widow/widower annuity was increased to $500 for those receiving an annuity and those who will be eligible in the future (requires retirement or death in service at age 50 or over with at least 20 years of service).

SB 1650

- Approved January 25, 1993.
- The minimum retirement annuity (requires retirement at age 50 with at least 20 years of service) was increased to $750 per month on January 1, 1993, and $850 per month on January 1, 1994.
- The minimum widow/widower annuity (requires retirement or death in service at age 50 or over with at least 20 years of service) was increased to $600 per month on January 1, 1993, and $700 per month on January 1, 1994, for those eligible present and future widow/widowers.
- Service credit will be given for any periods in General Assembly prior to January 9, 1997 (instead of January 14, 1993),
- The annuitant may waive all or any portion of his annuity.

1993 Session

SB 358

- Approved January 10, 1994.
- Beginnning January 1, 1994, minimum Duty and Occupational Disease Disabilities have been established, if the employee has been on disability for 10 years: 50% of current salary of rank at removal from Department payroll.

ADEA

- Effecitive January 1, 1994, the federal law (ADEA) allowing compulsory retirement at age 63 lapsed. As such, duty disability and occupational disease disability beneifts and widow/widower compensation benefits may be “open ended”; i.e., without limiting age.

1994 Session

- No legislative changes.

1995 Session

SB 114

- Approved July 14, 1995.
- The minimum widow/widower annuity was increased to $700 per month to anyone entitled to receive a widow/widower annuity.
- A widow/widower's annuity that was previously terminated because of remarriage before December 31, 1989, will be resumed upon proper application if the subsequent marriage has ended.
- Employees have until two years after the date of reentry or Januuary 1, 2000, to repay a refund.
- For employee annuitants born before January 1, 1945, the 3% postretirement increase begins at age 55.
- The provisions relating to purchase of credit for certain periods of service as a paramedic or other fire department employee were changed.
- The City is authorized to substitute funds obtained from Borrowings and other sources for a portion of its authorized tax levy for pension purposes.
- The amount of earnings that may be taken into account by any retirement system is limited to the maximum dollar limitation specified in Section 401(a)(17) of the Internal Revenue Code, except for persons who became Members before 1996.
- The Plan is authorized to make certain involuntary distributions required by Section 401(a)(9) of the Internal Revenue Code.

SB 424

- Approved July 7, 1995.
- The Pension Laws Commission was created as a legislative support services agency.

1996 Session

SBJPA

- On August 20, 1996, the Small Business Job Protection Act was signed by President Clinton.
- Treatment of governmental plans under Code Section 415:
- Rule limiting annual benefit to 100 percent of the average of the highest three-year compensation no longer applies.
- Excess benefit plans are permitted to provide Members with benefits in excess of the Code Section 415 limits.
- Early retirement reduction does not apply to certain survivor and disability benefits.
- The definition of compensation now includes elective deferrals.

- Taxation of distributions:
  - $5,000 death benefit exclusion was repealed for deaths after August 20, 1996.
  - Five-year averaging for lump sum distributions was repealed effective January 1, 2000.
  - Annuity payments will be taxed according to a simplified general rule, which uses investment and age as of annuity starting date for annuities, which start on or after November 19, 1996.

1997 Session

HB 313

- Signed June 27, 1997.
- Coverage in the City group health insurance is extended through June 30, 2002, with some modification in plans offered. Pension fund supplement remains at $45 and $75 for Medicare eligible and non-Medicare eligible annuitants, respectively.

1998 Union Contract Cost of Living Increases

- The following salary increases are scheduled:
  - 1.5% effective July 1, 1995.
  - 1.5% effective January 1, 1996.
  - 1.5% effective July 1, 1996.
  - 3.5% effective January 1, 1997.
  - 3.75% effective January 1, 1998.
  - 2.25% effective January 1, 1999.

1998 Session

- The minimum widow/widower annuity (requires retirement or death in service at age 50 or over with at least 20 years of service) was increased to $800 per month on January 1, 1999, for those eligible present and future widow/widowers.

1999 Session

- No legislative changes.

2000 Session

- In 2000, the City of Chicago enacted mandatory retirement for all firefighters, except for emergency medical technicians, upon attainment of age 63.

2001 Session

- No legislative changes.

2002 Session

HB 5168

- Effective June 28, 2002.
- The pension fund subsidy for retiree health insurance was extended through June 30, 2003 (other than child annuitants). The subsidy is $75 per month if the annuitant is not eligible for Medicare and $45 per month if the annuitant is eligible for Medicare.

2003 Session

SB 1701

- Effective July 1, 2003.
- The healthcare benefits were extended and increased to $85 per month for non-Medicare eligible participants and $55 per month for Medicare eligible participants for the period from July 1, 2003, through June 30, 2008. Thereafter, the benefits are extended and increased from $85 to $95 and $55 to $65 for the period July 1, 2008, to June 30, 2013.
- The healthcare benefits referred to above are not and shall not be construed to be pension or retirement benefits for the purposes of Section 5 of Article XIII of the Illinois Constitution of 1970.

2004 Session

PA 93-0654

- Effective January 16, 2004.
- Changes to the definition of salary used for benefit calculations.
  - For members born before 1955, who hold an exempt position above career service rank, salary means the actual salary attached to the exempt rank position.
  - Salary as an ambulance commander shall be included. Employee contributions must be made retroactively before January 1, 2006. Beneficiaries may also make the contributions.
  - Additional compensation for being licensed as an EMT shall be included.
  - Duty availability pay shall be included. Employee contributions must be made retroactively before January 1, 2006. Beneficiaries may also make the contributions.

- An employee who reaches the compulsory retirement age with greater than 10 years of service, but less than 20, is now entitled to an annuity of 30% of average salary for the first 10 years of service plus an additional 2% for each year in excess in excess of 10, not to exceed 50%
- The minimum annuity formula accrual rate for service after 20 years was increased from 2% to 2.5% with total benefits limited to 75% of final average pay.
- The minimum annuity was increased to $900 per month during 2004 and $1,000 per month thereafter.
- The widow of an active firefighter with 10 or more years of service will receive no less than 50% of the benefit the active firefighter would have received had he attained age 50 and 20 years of service.
- A widow who was married to a deceased firefighter before the firefighter began to receive a retirement annuity and for at least one year preceding the firefighter's death is entitled to a widow's benefit. Any refunded contributions must be repaid with 4% interest.
- A widow's benefit will continue following remarriage. Those annuities previously terminated will resume.
- Members born prior to January 1, 1955, are entitled to a 3% simple COLA commencing at the later of age 55 or the first anniversary of retirement. Members born on or after January 1, 1955, are entitled to a 1.5% COLA commencing at the later of age 60 or the first anniversary of retirement limited to 30%. Previously the cutoff date was January 1, 1945.
- Former City contributions for paramedics will be transferred to this fund with 11% interest and credited to the individual firefighter if he or she pays for the prior service as a paramedic in full.

Bertucci court opinion

- Effective June 29, 2004.
- For members who die while receiving duty disability payments, the widow's benefit is now 75% of the member's salary attached to his civil service position. The benefit increases as the salary attached to this position increases. Previously the widow's benefit was 50% of the member's benefit.

PA 93-0917 (HB 378)

- Changes the widow eligibility conditions by expanding widow benefits that were previously limited by marriage conditions after withdrawal or disability. Benefits cannot be reinstated or granted earlier than January 16, 2004.
- A firefighter who accumulated service under the Municipal Employees' Annuity and Benefit Fund of Chicago, who terminated and received a refund, may purchase such service credit until January 1, 2005. Those firefighters who retired after January 16, 2004, but before the effective date of this act, may still purchase service before January 1, 2005, and have their benefit recalculated. Employer contributions with interest for such service will be transferred from the Municipal Employees' Annuity and Benefit Fund to the Firemen's Annuity and Benefit Fund.

2005 Session

SB 23

- Approved June 27, 2005.
- Prohibits the investment or deposit from the retirement system or pension fund to certain entities doing business in or with the government of the Republic of the Sudan. Fund managing companies must certify that under Section 1-110.5 of the pension code that they have not loaned to, invested in, or otherwise transferred any of the pension fund assets to a forbidden entity.

2006 Session

- No legislative changes.

2007 Session

PA 95-0279

- Beginning January 1, 2008, removes restriction that a child be born or legally adopted before withdrawal from service for a child's annuity. Removes restriction requiring that adoption proceedings must have been initiated one year prior to the firefighter's death.

2008 Session

- No legislative changes.

2009 Session

PA 95-1036

- Effective February 17, 2009.
- Allows a terminally ill firefighter to apply for disability while still an active member.

PA 96-0006

- Effective April 3, 2009.
- The Illinois Governmental Ethics Act.

PA 96-260

- Effective August 11, 2009.

- A firefighter may purchase up to 24 months of service credit attributed to service in the armed forces of the United States prior to employment as a firefighter by making contributions to the Fund equal to: (i) employee contributions during the period served, (ii) employer normal costs during the period served and (iii) compound interest at the actuarially assumed rate from date of membership in the Fund until the date of payment.

PA 96-727

- Effective August 25, 2009.
- Extends the repayment of refund for reinstated service to January 1, 2001, with interest calculated at the actuarially assumed rate.
- Allows a firefighter to transfer eligible service with the Article 8 Fund – the Municipal Employees' Annuity and Benefit Fund of Chicago. The firefighter is required to pay the Fund an amount equal to; (i) employee contributions during the period served, (ii) employer normal costs during the period served and (iii) compound interest at the actuarially assumed rate from date of membership in the Fund until the date of payment. Written application must be made by January 1, 2010.
- Allows a firefighter to transfer up to 10 years of eligible service with the Article 4 Fund – "Downstate Fund." The firefighter is required to pay to the Fund an amount such that the transfer results in no additional unfunded actuarial accrued liability to the Fund based on the assumptions and methods used in the most recent actuarial valuation. Contributions transferred from the Downstate Fund are used to offset the required payment from the firefighter.
- Allows the Fund to recover damages from a third party responsible for the death or disability payable from the Fund.

PA 96-753

- Effective August 25, 2009.
- Provides that it is the public policy of the State to encourage pension funds to promote the economy of Illinois through the use of economic opportunity investments within the bounds of financial and fiduciary prudence.
- Requires the Fund to instruct the investment advisors to utilize investment strategies designed to ensure that all securities transactions are executed in such a manner that the total explicit and implicit costs and the total proceeds in every transaction are the most favorable under the circumstances.

2010 Session

Public Act 96-1466

- Effective August 20, 2010.
- Members entering the Fund on or after January 1, 2011, shall not be given service credit in the Fund for any period of time in which the member was in receipt of retirement benefits from any annuity and benefit fund in operation in the City.

Public Act 96-1495 (HB 3538)

- Effective January 1, 2011.
- Changes the financing for the Fund. Assets are marked to market at March 30, 2011. For fiscal years after March 30, 2011, actuarial value of assets is used based on five-year smoothing. The City levies a new tax starting in FY 2015. Each year, employer contributions combined with member contributions and other fund revenue must be equal to the amount that is sufficient to produce 90% funding by the end of fiscal year 2040. The projections are based on an open group projection and level percent of pay financing and statutorily required contributions, then the State, starting in FY 2016, could withhold State grants to the City, and directly deposit the withheld funds into the FABF, The withheld funds are limited to 33% of total State grants to City in FY 2016, 67% in FY 2017, and 100% on and after FY 2018,
- Establishes a new tier of benefits for participants that first become members on or after the effective date of January 1, 2011.
  - Minimum retirement eligibility is at age 55 with 10 years of service.
  - The annuity is based on an accrual rate of 2.5%, subject to a maximum of 75%
  - Employees may retire at age 50 with 10 years of service with the annuity based on an accrual rate of 2.5%, reduced by one half of one percent per month for retirement prior to age 55, subject to a maximum of 75%
  - Final average compensation is based on the average of the highest consecutive 96 months within the last 120 months of service.
  - Establishes a cap on final average salary of $106,800, as automatically increased by the lesser of 3 percent or one-half of the annual increase in the Consumer Price Index-U during the preceding 12-months.
  - Changes provisions for automatic increases in annuity:
    - Increases are equal to the lesser of 3 percent or one-half of the annual increase in the Consumer Price Index-U during the preceding 12-months, commencing at age 60 with no 30% cap.
    - Increase is applied to the original granted retirement annuity (simple).
  - Changes benefits provided to surviving spouses:
    - Surviving spouse annuity is equal to 66 2/3 percent of the participant's earned retirement annuity at the date of death.
    - Provides an automatic increase in annuity:
      - Increases are equal to the lesser of 3 percent or one-half of the annual increase in the Consumer Price Index-U during the preceding 12-months.
      - Increase is applied to the original granted retirement annuity (simple).

2011 Session

Public Act 97-0530 (SB 1672)

- Approved August 23, 2011.
- Requires all pension funds and retirement systems subject to the Code to comply with the federal Heroes Earnings Assistance and Relief Tax Act of 2008.

Public Act 97-0609 (SB 1831)

- Approved August 26, 2011.
- Applies to those members hired on or after January 1, 2012.
- Provides that if a new hire is receiving a retirement annuity or pension and accepts a contractual position to provide services to a governmental entity from which he or she has retired, then that person's annuity or pension will be suspended during that contractual service.
- Makes it a Class A misdemeanor for a pensioner who is seeking contractual employment to fail to notify certain persons about his or her retirement status before accepting an employment contract.

Public Act 97-0504 (HB 1670)

- Approved August 23, 2011.
- Amends the Open Meetings Act.
  - Requires each elected or appointed member of a public body subject to this Act who is such a member on the effective date of the amendatory Act to successfully complete the electronic training curriculum developed and administered by the Public Access Counselor.
  - Requires those members to complete the training not later than one year after the effective date of the amendatory Act.
  - Requires each elected or appointed member of a public body subject to the Act who becomes such a member after the effective date of the amendatory Act to successfully complete the electronic training curriculum developed and administered by the Public Access Counselor.
  - Requires those members to complete the training not later than the 90th day after the date the member either (i) takes the oath of office, if the member is required to take an oath of office to assume the person's duties as a member of the public body or (ii) otherwise assumes responsibilities as a member of the public body, if the member is not required to take an oath of office to assume the person's duties as a member of the governmental body.

- Requires each member who successfully completes the curriculum to file a copy of the certificate of completion with the public body.
- Provides that the failure of one or more members of a public body to complete the training required by this Section does not affect the validity of an action taken by the public body.
- Provides that an elected or appointed member of a public body subject to this Act who has successfully completed the required training and filed a copy of the certificate of completion with the public body is not required to subsequently complete that training.

2012 Session

Public Act 97-0651

- Approved and effective January 5, 2012.
- Requires any reasonable suspicion of fraud against the Fund to be reported to the State's Attorney for investigation.
- Changes provisions for Union Leaves of Absence.

2013 Session

Public Act 98-0043 (HB 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."

Public Act 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

Public Act 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. 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 mandamus.
- Creates a new minimum retirement annuity provision equal to 125% of the federal poverty level for certain persons.

Public Act 99-0905

- Approved and effective November 29, 2016.
- Specifies the manner of calculating the Tier 2 surviving spouse's annuity for Tier 2 firefighters who die in service with at least 1 ½ years of service.
- Specifies the manner of calculating 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 annuity equal to 125% of the federal poverty level.
- Increases the Tier 1 automatic increase in retirement annuity for persons born after December 31, 1954, but before January 1, 1966.
- Amends the States Mandates Act to require implementation without reimbursement.

2017 Session

Public Act 100-0344

- Approved and effective August 25, 2017.
- Provides for the forfeiture of benefits for any person who otherwise would receive a survivor benefit who is convicted of any felony relating to or arising out of or in connection with the service of the member from whom the benefit results.

Public Act 100-0539

- Approved and effective November 7, 2017.
- For firefighters born after December 31,1954, but before January 1, 1996, changed the initial increase granted and provides for a 3% increase if a 1.5% increase was previously granted.

Public Act 100-0544

- Approved and effective November 8, 2017.
- At any time during the six months following the effective date of the Public Act, an active member may apply for a transfer of up to 10 years of his or her creditable service accumulated in an Article 4 (downstate) pension fund.

2018 Session

Public Act 100-1144

- Approved and effective November 28, 2018.
- Authorizes a person to participate in the Chicago Firefighter Article if he or she:
  - Is or was employed and receiving a salary as a firefighter;
  - Has at least 5 years of service under the Chicago Firefighter Article;
  - Is employed in a position covered under a specified provision of the Chicago Municipal Article relating to aldermen and member of the city council;
  - Made an election under the Chicago Municipal Article to not receive service credit or be a participant under that Article; and
  - Made an election to participate under the Chicago Firefighter Article.
- Defines salary for such a person as the lesser of:
  - The salary associated with the highest career service rank under the Chicago Firefighter Article, or
  - The actual salary received by that person for service under a specified provision of the Chicago Municipal Article relating to aldermen and members of the city council.

Public Act 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

Public Act 101-0096

- Approved and effective July 19, 2019.
- Changed the term length for the annuitant member of the Retirement Board of the Firemen's Annuity and Benefit Fund.

Public Act 101-0365

- Approved and effective August 9, 2019.
- For firefighters entering service after January 1, 2020 changed the criteria for conclusive evidence of birth date.

Public Act 101-0474

- Approved and effective August 23, 2019.
- Provides for transfer of service between the Fund and Article 4 pension funds.

2020 Session

Public Act 101-0633

- Approved and effective June 5, 2020.
- Establishes presumptions regarding death because of exposure and contraction of COVID-19.

2021 Session

Public Act 101-0653

- Approved and effective February 26, 2021.
- Extends the end date of the period for which certain presumptions apply regarding death because of exposure and contraction of COVID-19.

Public Act 101-0673

- Approved and effective April 5, 2021.
- For Tier 1 firefighters born after January 1, 1966, changed the age of first increase and the amount of increases.
-

Section 5: GASB 67 and 68 Information

Exhibit 1 – Net Pension Liability

The components of the net pension liability at December 31, 2020, were as follows:	
Total pension liability	$6,901,130,881
Plan fiduciary net position	1,308,886,480
Net pension liability	5,592,244,401
Plan fiduciary net position as a percentage of the total pension liability	18.97%

Actuarial assumptions. The total pension liability was determined by an actuarial valuation as of December 31, 2019, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.25%
Salary increases	3.50% to 25.00%, varying by years of service
Investment rate of return	6.75%, net of investment expense
Municipal bond index	2.12%, based on the Bond Buyer 20-Bond Index of general obligation municipal bonds as of December 31, 2020
Single equivalent discount rate	6.30%
Cost of living adjustments	Tier 1: 3% compound Tier 2: The lesser of 3% or one-half of the change in CPI, simple

Post-retirement mortality rates were based on the RP-2014 Blue Collar Healthy Annuitant Mortality Tables, scaled by 106% for males and 98% for females, and projected generationally using scale MP-2017. Disabled mortality rates were based on the RP-2014 Blue Collar Healthy Annuitant Mortality Tables, scaled by 107% for males and 99% for females, and projected generationally using scale MP-2017.Pre-retirement mortality rates were based on the RP-2014 Blue Collar Employee Mortality, scaled by 92% for males and 100% for females, projected generationally using scale MP-2017.

The actuarial assumptions used in the December 31, 2020, valuation were based on the results of an experience study for the period January 1, 2012, through December 31, 2016.

Discount rate: The discount rate used to measure the total pension liability was 6.30%.The projection of cash flows used to determine the discount rate assumed member contributions will be made according to the contribution rate applicable for each member's tier and that employer contributions will be made as specified by Public Act 99-0506. For this purpose, only employer contributions that are intended to fund benefits of current plan members and their beneficiaries are included. Projected employer contributions and contributions from future plan members that are intended to fund the service costs of future plan members and their beneficiaries are not included. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make projected future benefit payments of current plan members through the year 2077. Therefore, the long-term expected rate of return on pension plan investments of 6.75% was applied to projected benefit benefits for all periods through 2076 and the municipal bond index rate of 2.12% was applied thereafter to determine the total pension liability. This results in a single equivalent discount rate of 6.30%.

Sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability as of December 31, 2020, calculated using the discount rate of 6.30%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.30%) or 1-percentage-point higher (7.30%) than the current rate:

	1% Decrease (5.30%)	**Current Discount Rate (6.30%)**	**1% Increase (7.30%)**
Net pension liability as of December 31, 2020	$6,430,419,190	$5,592,244,401	$4,891,244,244

Exhibit 2 – Schedules of Changes in Net Pension Liability

	2020	2019
Total pension liability		
Service cost	$109,486,816	$102,141,348
Interest	410,128,090	408,586,099
Change of benefit terms	0	0
Differences between expected and actual experience	174,717,534	(65,213,748)
Changes of assumptions	30,468,135	190,954,465
Benefit payments, including refunds of employee contributions	(366,160,404)	(346,337,839)
Net change in total pension liability	358,640,171	$290,130,325
Total pension liability – beginning	6,542,490,710	6,252,360,385
Total pension liability – ending (a)	$6,901,130,881	$6,542,490,710
Plan fiduciary net position		
Contributions – employer*	$368,422,961	$255,382,266
Contributions – employee	54,414,653	46,622,658
Net investment income	105,366,987	161,082,443
Benefit payments, including refunds of employee contributions	(366,160,404)	(346,337,839)
Administrative expense	(2,991,289)	(3,225,938)
Other	12,757	506,886
Net change in plan fiduciary net position	159,065,665	114,030,476
Plan fiduciary net position – beginning	1,149,820,815	1,035,790,339
Plan fiduciary net position – ending (b)	$1,308,886,480	$1,149,820,815
Fund’s net pension liability – ending (a) – (b)	$5,592,244,401	$5,392,669,895
Plan fiduciary net position as a percentage of the total pension liability	18.97%	17.57%
Covered employee payroll	$500,367,870	$457,082,316
Fund’s net pension liability as percentage of covered employee payroll	1117.63%	1179.80%

** Receivable amount to be paid the following year*

Exhibit 3 – Reconciliation of Net Pension Liability

Changes in the net pension liability from the beginning of the year to the end of the year arise from the net difference between changes in the total pension liability and plan fiduciary net position that occurred during the year. Changes in net pension liability will be recognized immediately as pension expense, or reported as deferred outflows of resources related to pensions or deferred inflows of resources related to pensions, depending on the nature of the change.

Differences between actual and expected investment-related experience are recognized over a closed five-year period. Differences between actual and expected non-investment-related experience and changes of assumptions are recognized over the average of the expected remaining service lives of all members who are provided with pensions through the pension plan (active employees and inactive employees). The amounts below that are not included in pension expense for the current year are included in deferred outflows of resources or deferred inflows of resources related to pensions.

	Increase/(Decrease) For Fiscal Year Ending December 31, 2020		
	Total Pension Liability (a)	**Plan Fiduciary Net Position (b)**	**Net Pension Liability (a) – (b)**
Balances at beginning of year	$6,542,490,710	$1,149,820,815	$5,392,669,895
Changes for the year			
Service cost	109,486,816		109,486,816
Interest	410,128,090		410,128,090
Differences between expected and actual experience	174,717,534		174,717,534
Contributions – employer	0	368,422,961	(368,422,961)
Contributions – member	0	54,414,653	(54,414,653)
Other income	0	12,757	(12,757)
Net investment income	0	105,366,987	(105,366,987)
Benefit payments, including refunds of employee contributions	(366,160,404)	(366,160,404)	0
Administrative expense	0	(2,991,289)	2,991,289
Change of assumptions	30,468,135	0	30,468,135
Changes of benefit terms	0	0	0
Net changes	358,640,171	159,065,665	199,574,306
Balances at end of year	$6,901,130,881	$1,308,886,480	$5,592,244,401

Exhibit 4 – Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

	Year Established	Original Balance	Original Amortization Period	Amortization Amount	Outstanding Balance at December 31, 2020
Outflows					
Assumption	2015	$176,281,502	5.9897	$29,127,636	$0
Demographic	2016	24,110,158	5.8667	4,109,663	3,561,843
Investment	2016	14,299,119	5.0000	2,859,823	0
Demographic	2017	26,954,338	5.9972	4,494,487	8,976,390
Assumption	2017	414,218,762	5.9972	69,068,692	137,943,994
Assumption	2018	382,610,753	5.9966	63,804,615	191,196,908
Investment	2018	141,270,068	5.0000	28,254,014	56,508,026
Assumption	2019	190,954,465	6.0508	31,558,548	127,837,369
Demographic	2020	174,717,534	6.4542	27,070,449	147,647,085
Assumption	2020	30,468,135	6.4542	4,720,683	25,747,452
Total outflows				**$265,068,611**	**$699,419,067**
Inflows					
Demographic	2015	$7,980,712	5.9897	$1,318,682	$0
Assumption	2016	74,372,930	5.8667	12,677,132	10,987,270
Investment	2017	65,374,796	5.0000	13,074,959	13,074,959
Demographic	2018	56,417,879	5.9966	9,408,311	28,192,946
Demographic	2019	65,213,748	6.0508	10,777,707	43,658,334
Investment	2019	105,587,267	5.0000	21,117,455	63,352,359
Investment	2020	42,694,156	5.0000	8,538,832	34,155,324
Total inflows				**$76,913,076**	**$193,421,192**

** The average expected remaining service lives of all members is 6.4542 years, determined as of January 1,2020. This amount is equal to the total expected remaining service of 63,593 years, divided by total employees that are provided with pensions through the plan of 9,853 (as shown in the table below).*

	Expected Remaining Service	Counts	Average of the Expected Remaining Service
Actives Members	63,593	4,630	13.7350
Inactive Members		95	
In Pay Members		5,128	
Total Employees	63,593	9,853	6.4542

Exhibit 4 – Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions *(continued)*

At December 31, 2020, deferred outflows of resources and deferred inflows of resources related to pensions are:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	$160,185,318	$71,851,280
Changes of assumptions	482,725,723	10,987,270
Net differences between projected and actual earnings on pension plan investments	N/A	54,074,616
Total	$642,911,041	$136,913,166

Deferred outflows of resources and deferred inflows of resources related to pensions will be recognized as follows:

Year ended December 31:	
2021	$158,628,800
2022	178,923,210
2023	77,127,043
2024	44,033,142
2025	32,846,803
Thereafter	14,438,877

Exhibit 5 – Pension Expense

	Fiscal Year Ending December 31, 2020	Fiscal Year Ending December 31, 2019
Components of pension expense		
Service cost	$109,486,816	$102,141,348
Interest on the total pension liability	410,128,090	408,586,099
Projected earnings on plan investments	(62,672,831)	(55,495,176)
Contributions – member	(54,414,653)	(46,622,658)
Other income	(12,757)	(506,886)
Administrative expense	2,991,289	3,225,938
Recognition of:		
Changes of assumptions	185,603,043	181,185,496
Difference between expected and actual experience	14,169,899	(12,914,274)
Difference between projected and actual earnings on pension plan investments	(11,617,407)	11,990,191
Change of benefit terms	0	0
Total pension expense	$593,661,489	$591,590,078

Exhibit 6 – Schedule of Employer Contributions

Year Ended December 31	Actuarially Determined Contributions*	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Actual Employee Payroll**	Contributions as a Percentage of Covered Employee Payroll
2010	$218,338,037	$80,947,311	$137,440,726	$400,404,320	20.22%
2011	250,056,273	82,869,839	167,186,434	425,385,354	19.48%
2012	271,505,718	81,521,883	189,983,835	418,964,763	19.46%
2013	294,877,895	103,669,015	191,208,880	416,491,784	24.89%
2014	304,265,411	107,334,399	196,931,012	460,189,982	23.32%
2015	323,544,987	236,104,362	87,440,625	465,231,594	50.75%
2016	333,952,291	154,101,396	179,850,895	478,470,944	32.21%
2017	372,845,121	228,452,611	144,392,510	469,407,281	48.67%
2018	412,220,284	249,684,038	162,536,246	456,969,301	54.64%
2019	442,044,761	255,382,266	186,662,495	457,082,316	55.87%
2020	466,556,303	368,422,961	98,133,342	500,367,870	73.63%

* The historical FABF Statutory Funding Policy does not conform to Actuarial Standards of Practice; therefore, the Actuarially Determined Contribution is equal to the normal cost plus an amount to amortize the undedunded liability using level dollar payments and a 30-year amortization period. Amounts for fiscal years prior to 2015 were based on the “ARC,” which was equal to normal cost plus an amount to amortize the unfunded liability using a 30-year open period level dollar amortiization.

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

Notes to Exhibit 6

Valuation date	Actuarially determined contribution amount is determined as of December 31, with appropriate interest to the end of the year.
Methods and assumptions used to establish "actuarially determined contribution" rates:	
Actuarial cost method	Entry Age Actuarial cost method
Amortization method	30-year open, level dollar amortization
Asset valuation method	5-year smoothed fair value
Actuarial assumptions:	
Investment rate of return	6.75%, net of investment expense
Projected salary increases	3.50% to 25.00%, varying by years of service
Mortality	Post-retirement mortality rates were based on the RP-2014 Blue Collar Healthy Annuitant Mortality Tables, scaled by 106% for males and 98% for females, and projected generationally using scale MP-2017. Disabled mortality rates were based on the RP-2014 Blue Collar Healthy Annuitant Mortality Tables, scaled by 107% for males and 99% for females, and projected generationally using scale MP-2017.Pre-retirement mortality rates were based on the RP-2014 Blue Collar Employee Mortality, scaled by 92% for males and 100% for females, projected generationally using scale MP-2017.
Cost of living adjustments	Tier 1: 3% compound Tier 2: The lesser of 3% or one-half of the change in CPI, simple
Other assumptions:	Same as those used in the December 31, 2020, actuarial funding valuations.

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