



Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve

County Employees' and Officers' Annuity and Benefit Fund of Cook County

**Combined Actuarial Valuation as of
December 31, 2019**



www.CavMacConsulting.com



Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

June 4, 2020

Board of Trustees
County Employees' and Officers' Annuity and Benefit Fund of Cook County
Chicago, Illinois

RE: December 31, 2019 Actuarial Valuation

Ladies and Gentlemen:

In accordance with your request, we have completed an actuarial valuation of the County Employees' and Officers' Annuity and Benefit Fund of Cook County ("CEABF" or "the Fund") as of December 31, 2019. The major findings of the valuation are contained in this report. Cavanaugh Macdonald Consulting (CMC) performs the actuarial valuation annually.

For purposes of GASB Statement No. 67 and GASB Statement No. 74, we have performed separate actuarial valuations of the pension benefits and retiree health insurance benefits provided by the CEABF and have prepared actuarial reports based on these valuations. As has been done in past years, we have also performed this combined actuarial valuation of the pension and retiree health insurance benefits provided by the Fund to measure the overall funded status and contribution requirements of the Fund. We believe that such a combined valuation is required under Section 9-199 of the Illinois Pension Code which provides that the Fund shall submit a report each year "containing a detailed statement of the affairs of the Fund, its income and expenditures, and assets and liabilities...". This report is intended to present the results of the combined valuation. For more details on the Funds, readers are encouraged to review the separate GASB 67 and 74 reports. In particular, the separate GASB 75 report values retiree health liabilities at an unfunded 2.75% discount rate, while this combined report values retiree health liabilities at the funded discount rate of 7.25%.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the CEABF's staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information provided in prior years. All exhibits, with the exception of Exhibits 2.1 and 2.2, were prepared by the actuary. The valuation results depend on the integrity of this information. The benefits considered are those delineated in the Fund. The CEABF was established on January 1, 1926 and is governed by legislation contained in the Illinois Compiled statutes, particularly Chapter 40, as amended and restated effective December 31, 2019. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

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

3802 Raynor Pkwy, Suite 202, Bellevue, NE 68123
Phone (402) 905-4461 • Fax (402) 905-4464
www.CavMacConsulting.com
Offices in Kennesaw, GA • Bellevue, NE



The CEABF is funded by Employer and Member Contributions. The County levies a tax annually equal to the total amount of contributions made by the members in the calendar year 2 years prior to the year of the levy, multiplied by 1.54. This funding mechanism is insufficient to meet the needs of the CEABF. We project that the CEABF will become insolvent in 2043. We recommend that a funding policy be legislated that is sufficient to pay the Normal Costs of active Fund members, Fund expenses, and amortize the Unfunded Actuarial Accrued Liability as a level percent of payroll (or salary) over a period no longer than 30 years.

The economic and demographic assumptions used in the valuation were adopted by the Board and first reflected in the December 31, 2017 valuation. The Board's recent practice is to review the experience of the CEABF at least once every four years to determine if any changes to the valuation assumptions are warranted. The assumptions used in the valuation are based on recommendations made and approved by the Board as part of an Experience Study covering plan years from January 1, 2013 through December 31, 2016. A summary of the actuarial assumptions and methods used in this actuarial valuation are shown in Appendix C of Section VI beginning on page 46.

Actuarial computations presented in this report are for purposes of determining the actuarial contribution rates for funding the System based on the Board's funding policy report and all supporting schedules to meet the parameters and requirements for disclosure of Governmental Accounting Standards Board (GASB) Statement No. 67 and No. 68. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

The actuary prepared, or assisted in preparing, the following supporting information for the actuarial valuation:

- Comparative Summary of Key Actuarial Valuation Results
- Actuarial Liabilities and Normal Cost
- Actuarial Contributions
- Actuarial Balance Sheet
- Solvency Test
- Reconciliation of Change in Unfunded Actuarial Liability
- History of UAAL and Funded Ratio
- Determination of Actuarial Value of Assets
- Membership Projection
- Payroll Projection
- Projection of Employer Contribution Amounts
- Projection of Funded Status
- Table of Projected Actuarial Results
- Historical Asset Volatility Ratios
- Historical Cash Flows
- Liability Maturity Measures
- Membership Data
- Summary of Benefit Provisions
- Summary of Substantive Plan Provisions for Retiree Health Care
- Description of Actuarial Methods and Valuation Procedures
 - Actuarial Cost Method
 - Asset Valuation Method
 - Valuation Procedures
- Summary of Actuarial Assumptions for Pension Fund



- Summary of Actuarial Assumptions and Methods for Retiree Health Care

Just before these results were published, on May 21, 2020, the Levin case was decided in the plaintiff's favor. As of the date of the report, Cook County Pension Fund (CCPF) is not yet able to reasonably ascertain which individuals might be granted benefits, nor do they know what those benefits might be. Consequently, we cannot provide any reasonable range of the impact of this court decision at this time and the cost impact of the Levin case is not included in the results of this valuation report.

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

This is to certify that the independent consulting actuaries, Larry Langer, Wendy Ludbrook and Brad Wild, are members of the American Academy of Actuaries, have experience in performing valuations for public retirement plans, and meet the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained herein. The valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board and the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement fund and on actuarial assumptions that are internally consistent and reasonable based on the actual experience of the System and future expectations. However, the Board of Trustees has the final decision regarding the selection of the assumptions and adopted them as indicated in Appendix B.

Respectfully submitted,

A handwritten signature in blue ink, consisting of stylized initials 'LL'.

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink, reading 'Wendy Ludbrook' in a cursive style.

Wendy T. Ludbrook, FSA, EA, FCA, MAAA
Senior Actuary

A handwritten signature in blue ink, reading 'Bradley R. Wild' in a cursive style.

Bradley R. Wild, ASA, FCA, MAAA
Senior Actuary

A handwritten signature in blue ink, reading 'Ryan Gundersen' in a cursive style.

Ryan Gundersen
Senior Consultant



TABLE OF CONTENTS

Executive Summary.....	1
Section I: Valuation Results	8
Exhibit 1.1 – Actuarial Liabilities and Normal Cost.....	8
Exhibit 1.2 – Actuarial Contributions	9
Exhibit 1.3 – Actuarial Balance Sheet	10
Exhibit 1.4 – Solvency Test	11
Exhibit 1.5 – Reconciliation of Change in Unfunded Actuarial Liability	12
Exhibit 1.6 – History of UAAL and Funded Ratio	13
Section II: Fund Assets	14
Exhibit 2.1 – Summary of Fair Value of Assets	14
Exhibit 2.2 – Changes in Fair Value of Assets	15
Exhibit 2.3 – Determination of Actuarial Value of Assets	16
Section III: Projections	17
Exhibit 3.1 – Membership Projection	17
Exhibit 3.2 – Payroll Projection.....	18
Exhibit 3.3 – Projection of Employer Contributions	19
Exhibit 3.4 – Projection of Funded Status	20
Exhibit 3.5 – Table of Projected Actuarial Results.....	21
Section IV: Risk Considerations	22
Exhibit 4.1 – Historical Asset Volatility Ratios.....	24
Exhibit 4.2 – Historical Cash Flows	25
Exhibit 4.3 – Liability Maturity Measures.....	26
Section V: Member Data.....	27
Exhibit 5.1 – Summary of Members Included in the Valuation	27
Exhibit 5.2 – Age and Service Distribution of Active Members - Total	28
Exhibit 5.3 – Age and Salary Distribution of Active Members	29
Exhibit 5.4 – Schedule of Active Member Data	30
Exhibit 5.5 – Member Data Reconciliation	31
Exhibit 5.6 – Retirees and Beneficiaries Added to and Removed from Rolls	32
Exhibit 5.7 – Schedule of Retired Member Data	33
Exhibit 5.8 – Schedule of Retired Members by Type of Benefit and Option Elected	34
Exhibit 5.9 – Schedule of Retired Members and Beneficiaries	35
Exhibit 5.10 – Schedule of Benefit Payments.....	36



TABLE OF CONTENTS

Section VI: Appendices	37
Appendix A – Summary of Benefit Provisions	37
Appendix B – Summary of Substantive Plan Provisions for Retiree Health Care	42
Appendix C - Description of Actuarial Methods and Valuation Procedures	46
A. Actuarial Cost Method	46
B. Asset Valuation Method.....	47
C. Valuation Procedures	47
Appendix D – Summary of Actuarial Assumptions for Pension Fund.....	48
Appendix E – Summary of Actuarial Assumptions and Methods for Retiree Health Care Plan.....	52
Appendix F – Summary of Legislative Changes	60



EXECUTIVE SUMMARY

Overview

The County Employees' and Officers' Annuity and Benefit Fund of Cook County ("CEABF" or "the Fund") provides pension and ancillary benefit payments to the active, retired and separated employees of the County. A Retirement Board comprised of retiree, employee, and appointed representatives is responsible for administering the Fund and providing oversight of the investment policy. This report presents the results of the actuarial valuation of the Fund benefits as of the valuation date of December 31, 2019.

Purpose

An actuarial valuation is performed on the Fund annually as of the end of the fiscal year. The primary purposes of performing the valuation are:

- to estimate the liabilities for the future benefits expected to be provided by the System;
- to determine the actuarial contribution rate, based on the System's funding policy;
- to measure and disclose various asset and liability measures;
- to monitor any deviation between actual System experience and experience predicted by the actuarial assumptions so that recommendations for assumption changes can be made when appropriate;
- to analyze and report on any significant trends in contributions, assets and liabilities over the past several years.

Membership

Actives: As of December 31, 2019, there were 19,551 employees in active service (including 159 on disability) covered under the provisions of the Fund. The significant age, service, salary and accumulated contribution information for these employees is summarized below, along with comparative figures from the last actuarial valuation one year earlier.

	December 31, 2019	December 31, 2018
Number of active employees	19,551	19,671
Average age	47.8	47.9
Average years of service	13.9	14.1
Total annual payroll for year ended	\$ 1,553,498,503	\$ 1,533,721,507
Average annual salary	79,459	77,969
Total accumulated contributions	\$ 1,812,755,798	\$ 1,811,815,691
Average accumulated contributions	92,719	92,106

The number of active members decreased by 0.6% from the previous valuation date. The average age of the active members decreased by 0.1 years, and the average service decreased by 0.2 years. The total annual salary increased by 1.3%. The average salary increased by 1.9% from the previous valuation.

Distributions of active members by age, service, and salary are given in Exhibits 5.2 and 5.3, beginning on page 28.

The salaries shown for active members are the actual salaries reported, but limited by the dollar amount defined under Internal Revenue Code Section 401(a)(17) for affected Tier 1 members and to the paycap legislated for affected Tier 2 members.



EXECUTIVE SUMMARY

A schedule of active member data and reconciliation of the active membership from the previous year is shown in Exhibits 5.4 and 5.5 beginning on page 30.

Disabilities: There were 159 disabled members (included in the active data). There were 160 disabilities in the prior year.

Retirees and Beneficiaries: In addition to the active members, there were 16,305 retired members and 2,838 beneficiaries who are receiving monthly benefit payments on the valuation date. The significant age and annual benefit information for these members are summarized below with comparative figures from the last actuarial valuation performed one year earlier.

	December 31, 2019	December 31, 2018
Number of members receiving payments		
Retirees	16,305	15,820
Beneficiaries	<u>2,838</u>	<u>2,782</u>
Total	19,143	18,602
Average age	72.3	72.2
Annual benefit amounts		
Retirees	\$ 778,302,518	\$ 725,247,543
Beneficiaries	<u>62,084,048</u>	<u>57,466,491</u>
Total	\$ 840,386,566	\$ 782,714,034
Average annual benefit payments	\$ 43,900	\$ 42,077

The number of retired members and beneficiaries increased by 2.9% from the previous valuation date. The average age of the retired members increased by 0.1 years. The total annual benefit payments for these members increased by 7.4% from the previous valuation date.

Distributions of retired members by age and form of payment are given in Exhibits 5.7 through 5.10 on pages 33 through 36.

Inactives: In addition to the active and retired members, there were 15,422 inactive members who did not elect to receive their accumulated contributions when they left covered employment. The age information for these inactive members is summarized below with comparative figures from the last actuarial valuation one year earlier.

	December 31, 2019	December 31, 2018
Number of inactive members	15,422	14,898
Average age	49.1	48.5

The number of inactive members increased by 3.5% from the previous valuation. The average age of the inactive members increased by 0.6 years.

In our opinion, the membership data collected and prepared for use in this actuarial valuation meets the data quality standards required under Actuarial Standards of Practice No. 23.



EXECUTIVE SUMMARY

Fund Assets

The Fund's assets are held in trust and invested for the exclusive benefit of Fund members. The trust is funded by member and employer contributions, and pays benefits directly to eligible members in accordance with Fund provisions. The assets are audited annually and are reported at fair value. On a fair value basis, the Fund has a Net Position Available for Benefits of \$11.5 billion as of December 31, 2019. This includes an increase of \$1.6 billion from the Net Position Available for Benefits of \$9.9 billion as of December 31, 2018. During the prior year, the fair value of assets experienced an investment rate of return of 19.1% (net of investment expenses), as reported by the investment consultant.

In order to reduce the volatility investment gains and losses can have on the Fund's actuarially required contribution and funded status, the Board has adopted a five-year smoothing method to determine the actuarial value of assets used for funding purposes. This method recognizes gains and losses, i.e. the difference between actual investment return during the year and the expected return based on the valuation interest rate, on a level basis over a five year period. In our opinion, this method complies with Actuarial Standards of Practice No. 44.

As of December 31, 2019, the assets available for benefits on an actuarial value basis were \$11.0 billion. This includes an increase of \$0.5 billion over the actuarial value of assets of \$10.5 billion as of December 31, 2018. During 2019, the actuarial value of assets experienced an actuarial rate of return of 6.8% which is based on a five-year averaging of investment returns.

A summary of the assets held for investment, a summary of changes in assets, and the development of the actuarial value of assets is shown in Section II beginning on page 14.

Actuarial Experience

Differences between the expected experience based on the actuarial assumptions and the actual experience create changes in the actuarial accrued liability, actuarial value of assets, and the unfunded actuarial accrued liability from one year to the next. These changes create an actuarial gain if the experience is favorable and an actuarial loss if the experience is unfavorable. The Fund experienced a total net actuarial loss of \$0.2 billion during the prior year. This net loss is about 1.1% of the Fund's prior year actuarial accrued liability. The net loss is a combination of two principal factors, demographic experience and investment performance under actuarial smoothing. Below is a more detailed discussion.

The demographic experience tracks actual changes in the Fund's population compared to the assumptions for decrements such as mortality, turnover, and retirement, as well as pay increases. The Fund experienced a demographic loss of \$148.5 million during the year ending December 31, 2019. This loss increased the unfunded actuarial accrued liability by \$148.5 million and decreased the funded ratio by 0.51%.

There were 17,613 active members who were also reported active in the December 31, 2018 actuarial valuation. The total pensionable salary for this group increased by 3.7%, which was lower than the 5.7% increase that was expected.

Continued tracking of the demographic experience is warranted in order to confirm the appropriateness of the actuarial assumptions. Details of the demographic, economic, and other assumptions used to value the Fund liabilities and normal cost can be found in Appendix C, D and E. In our opinion, the economic assumptions comply with Actuarial Standards of Practice No. 27 and the demographic assumptions comply with Actuarial Standards of Practice No. 35.

On the asset side, the rate of return on the fair value of assets for the year ending December 31, 2019 was reported to be 19.1%, which was higher than the assumed rate of 7.25%.



EXECUTIVE SUMMARY

The Fund experienced a loss on an actuarial value of assets basis. The rate of return on the actuarial value of Fund assets for the year ending December 31, 2019 was approximately 6.8% compared to the assumption of 7.25%, resulting in an asset loss of \$0.05 billion. This loss increased the unfunded actuarial accrued liability by \$0.05 billion and decreased the funded ratio by 0.3%.

The rate of return on the fair value of assets for the year ending December 31, 2019 was higher than the assumed rate of 7.25%. The actuarial value of the assets recognizes only 20% of the 2019 unexpected change in fair value, delaying the recognition of the remaining 80% over the next four years. Moreover, the actuarial value of assets also recognizes deferred portions of prior years' gains and losses on fair value. The investment loss recognized this year is primarily due to the investment loss in 2018. It should be noted that the Fund's assumed asset return of 7.25% during 2019 is a long-term rate and short-term performance is not necessarily indicative of expected long-term future returns.

A summary of the actuarial gains and losses experienced during the prior year is shown in Exhibit 1.5 on page 12.

Actuarial Contributions

The current contribution mechanism is not sufficient to fund the CEABF in an actuarially sound manner. The County levies a tax annually equal to the total amount of contributions made by the members in the calendar year 2 years prior to the year of the levy, multiplied by 1.54. This funding policy is insufficient to meet the needs of the CEABF. We project that the CEABF will become insolvent in 2043. **We recommend that a funding policy be legislated that is sufficient to pay the Normal Costs of active Fund members, Fund expenses, and amortize the unfunded actuarial accrued liability as a level percent of payroll (or salary) over a period no longer than 30 years.** We summarize those costs in the next paragraph.

The normal cost represents the cost of the benefits that accrue during the year for active members under the Entry Age Actuarial Cost Method. It is determined as a level percentage of pay which, if paid from entry age to the assumed retirement age, assuming all the actuarial assumptions are exactly met by experience, would accumulate to a fund sufficient to pay all benefits provided by the Fund. The expected member contributions are subtracted from this amount to determine the employer normal cost. The employer normal cost for 2020 has been determined to be \$94.8 million, or 5.90% of pay. This represents an increase in the employer normal cost rate of 0.04% of pay from last year's employer normal cost rate of 5.86%.

The cost method also determines the actuarial accrued liability which represents the value of all accumulated past normal cost payments. This amount is compared to the actuarial value of assets to determine if the Fund is ahead or behind in funding as of the valuation date. The difference between the total actuarial accrued liability and the actuarial value of assets equals the amount of unfunded actuarial accrued liability or surplus (if negative) on the valuation date. This amount is amortized and added to the employer normal cost plus Fund expenses to determine the annual actuarially required employer contribution for the year.

The unfunded actuarial accrued liability as of December 31, 2019 is \$6.97 billion. This represents an increase of \$175 million in the unfunded actuarial accrued liability from last year's amount of \$6.79 billion. The annual payment required to amortize the unfunded actuarial accrued liability of \$6.97 billion, over a period of 30 years, as of December 31, 2019 is \$555.8 million, or 34.6% of pay.

The annual actuarially required employer contribution for fiscal year ending December 31, 2021 is \$650.5 million, or 40.5% of pay. This represents an increase of \$14.2 million in the employer contribution amount of \$636.3 million for fiscal year ending December 31, 2020, or an increase of 1.0% of pay from last year's employer contribution rate of 39.5%.



EXECUTIVE SUMMARY

The actuarial liabilities and development of the annual actuarial employer contribution is shown in Exhibits 1.1 and 1.2 beginning on page 8.

In our opinion, the measurement of the benefit obligations and determination of the actuarial cost of the Fund is performed in compliance with Actuarial Standards of Practice No. 4.

Funded Status

The funded status is a measure of the progress that has been made in funding the Fund as of the valuation date. It is determined as a ratio of the actuarial value of assets divided by the total actuarial accrued liability on the valuation date. A ratio of over 100% represents a Fund that is ahead in funding, and a ratio of less than 100% represents a Fund that is behind in funding on the valuation date.

As of December 31, 2019 the funded ratio of the Fund is 61.19%. This represents an increase of 0.44% from last year's funded ratio of 60.75% as of December 31, 2018.

Where presented, references to “funded ratio” and “unfunded accrued liability” are typically measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the Fund if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

A history of the unfunded actuarial accrued liability and the funded ratio is shown in Exhibit 1.6 on page 13.

Accounting Information

The Governmental Accounting Standards Board (GASB) issues statements which establish financial reporting standards for defined benefit pension Funds and accounting for the pension expenditures and expenses for governmental employers. The required financial reporting information for the Fund and the Employer under GASB No. 67 and GASB No. 74 can be found in separate reports.

Projections

As part of the annual actuarial valuation, a forecast of expected future valuation results is performed over a 35-year period beginning on the valuation date. This analysis provides a dynamic look into the future to identify trends in future employer contributions and funded status. The forecast replaces active members who are assumed to decrement (retire, separate, etc.) during the period with new employees resulting in a stable active membership. The forecast assumes all actuarial assumptions are exactly realized each year during the forecast period. The results of these forecasts can be found in Section III.

Changes in Fund Provisions

There were no changes in benefits or other Fund provisions for pension considered in this actuarial valuation since the last valuation performed as of December 31, 2018.

The following changes in benefits and other fund provisions in the Retiree Health Insurance actuarial valuation have been made since the last valuation performed as of December 31, 2018:



EXECUTIVE SUMMARY

- The 2020 subsidy for member health benefits was changed from 41% to 38% for annuitants in the Choice Plan Medicare, and from 38% to 34% for annuitants in the Choice Plus Plan Medicare.
- The 2020 subsidy for survivor health benefits was changed from 54% to 48% for survivors in the Choice Plan Medicare, and from 51% to 44% for survivors in the Choice Plus Plan Medicare.
- The 2020 subsidy for survivor health benefits was changed from 61% to 58% for survivors in the Choice Plan non-Medicare, and from 56% to 53% for survivors in the Choice Plus Plan non-Medicare.

The new provisions were estimated to decrease the actuarial accrued liability of the Fund by \$49.4 million as of December 31, 2019.

A description of the plan provisions can be found in Appendix A and B of Section VI of the report beginning on page 37.

Changes in Actuarial Assumptions, Methods, or Procedures

The assumptions used in this valuation were developed as part of an Experience Study covering plan years from January 1, 2013 through December 31, 2016 and first used in the December 31, 2017 actuarial valuation.

In valuing retiree health care benefits, the assumption pertaining to health care cost trend rates was reset to begin in fiscal year 2020 which increased the actuarial accrued liability of the Fund by \$10.3 million. Additionally, per capita medical costs were updated based on claims, enrollment, drug rebates and EGWP subsidies for the period January 1, 2019 through December 31, 2019. These changes decreased the actuarial accrued liability of the Fund by \$30.2 million.

A description of the assumptions and methods can be found in Appendix C, D, and E of Section VI of the report beginning on page 46.

All results presented in this report for years prior to the December 31, 2018 were performed by the prior actuary(s).



COUNTY EMPLOYEES' AND OFFICERS' ANNUITY AND BENEFIT FUND

PRINCIPAL VALUATION RESULTS

Actuarial Valuation as of	December 31, 2019	December 31, 2018
Summary of Member Data		
Number of Members Included in the Valuation:		
Active Members	19,551	19,671
Retirees and Beneficiaries	19,143	18,602
Inactive Members	<u>15,422</u>	<u>14,898</u>
Total	54,116	53,171
Annual Payroll		
Average	\$ 79,459	\$ 77,969
Annual Benefit Payments		
Retirees and Beneficiaries (Average) ¹	\$ 43,900	\$ 42,077
Investment Returns		
Fair Value Rate of Return (net of investment expenses) ²	19.1%	-3.8%
Actuarial Value Rate of Return	6.8%	4.8%
Summary of Assets and Liabilities		
Total Actuarial Accrued Liability	\$ 17,949,663,806	\$ 17,303,773,833
Actuarial Value of Assets	<u>10,983,364,279</u>	<u>10,512,756,514</u>
Unfunded Actuarial Accrued Liability	\$ 6,966,299,527	\$ 6,791,017,319
Funded Ratio	61.19%	60.75%
Fiscal Year Ending	December 31, 2021	December 31, 2020
Employer Actuarial Required Contribution		
Employer Normal Cost	\$ 94,753,253	\$ 94,560,637
Amortization of Unfunded Actuarial Accrued Liability (Surplus)	<u>555,759,226</u>	<u>541,775,517</u>
Employer Actuarial Required Contribution	\$ 650,512,479	\$ 636,336,154
Actual Statutory/Contribution	\$ 200,406,970	\$ 207,378,554
Supplemental Contribution	TBD	\$ 306,215,000
Amount by which employer statutory contributions are expected to fall short of the actuarially determined contribution	\$ 450,105,509	\$ 428,957,600
Required tax multiple for employer contribution to meet the actuarially determined contribution	5.00	4.73
Solvency Date	2043	2040

¹The average annual benefit payments for retirees only is \$47,734 as of December 31, 2019 and \$45,844 as of December 31, 2018

²Rate of return Provided by the CCPF.



SECTION I – VALUATION RESULTS

EXHIBIT 1.1

ACTUARIAL LIABILITIES AND NORMAL COST

Actuarial Liabilities	Tier 1	Tier 2	Total	December 31, 2018 Total
1. Present Value of Projected Benefits				
a. Retirement Benefits	\$ 7,181,088,950	\$ 368,211,570	\$ 7,549,300,520	\$ 7,585,203,210
b. Withdrawal Benefits	188,779,624	156,148,764	344,928,388	342,097,200
c. Death Benefits	78,986,064	10,673,345	89,659,409	90,010,426
d. Retiree Health Insurance	534,589,350	81,312,319	615,901,669	647,228,957
Total	\$ 7,983,443,988	\$ 616,345,998	\$ 8,599,789,986	\$ 8,664,539,793
2. Retired Members and Beneficiaries Receiving Pension Benefits	9,684,357,475	649,464	9,685,006,939	9,050,032,658
3. Retired Members' Retiree Health Insurance	504,067,458	173,130	504,240,588	457,700,286
4. Inactive Members with Deferred Pension Benefits	727,509,634	23,834,994	751,344,628	748,001,561
5. Inactive Members' Retiree Health Insurance	37,960,743	-	37,960,743	41,096,097
6. Total Present Value of Projected Benefits (1. + 2. + 3. + 4. + 5.)	\$ 18,937,339,298	\$ 641,003,586	\$ 19,578,342,884	\$ 18,961,370,396
7. Present Value of Future Normal Costs	1,256,459,582	372,219,496	1,628,679,078	1,657,596,563
8. Total Actuarial Accrued Liability (6. - 7.)	\$ 17,680,879,716	\$ 268,784,090	\$ 17,949,663,806	\$ 17,303,773,833

Normal Cost as of December 31, 2019	Tier 1	Tier 2	Total	December 31, 2018 Total
Projected Capped Payroll for Fiscal Year 2020	\$ 1,127,206,535	\$ 478,182,997	\$ 1,605,389,532	\$ 1,612,631,482
1. Total Normal Cost	Amount % of Pay	Amount % of Pay	Amount % of Pay	Amount % of Pay
a. Retirement Benefits	\$ 144,283,617 12.80%	\$ 30,212,558 6.32%	\$ 174,496,175 10.87%	\$ 175,023,537 10.85%
b. Withdrawal Benefits	13,780,514 1.22%	10,295,852 2.15%	24,076,366 1.50%	23,011,713 1.43%
c. Duty Disability Benefits	5,885 0.00%	- 0.00%	5,885 0.00%	14,540 0.00%
d. Ordinary Disability Benefits	4,536,495 0.40%	- 0.00%	4,536,495 0.28%	4,556,183 0.28%
e. Death Benefits	2,527,216 0.22%	856,572 0.18%	3,383,788 0.21%	3,371,388 0.21%
f. Retiree Health Insurance	13,454,038 1.19%	6,185,470 1.29%	19,639,508 1.22%	20,449,204 1.27%
g. Administrative Expenses	3,749,223 0.33%	1,590,494 0.33%	5,339,717 0.33%	5,443,293 0.34%
Total	\$ 182,336,988 16.18%	\$ 49,140,946 10.28%	\$ 231,477,934 14.42%	\$ 231,869,858 14.38%
2. Expected Member Contributions	\$ 96,026,552 8.52%	\$ 40,698,129 8.51%	\$ 136,724,682 8.52%	\$ 137,309,220 8.51%
3. Employer Normal Cost (1. - 2.)	\$ 86,310,436 7.66%	\$ 8,442,817 1.77%	\$ 94,753,253 5.90%	\$ 94,560,637 5.86%



SECTION I – VALUATION RESULTS

EXHIBIT 1.2

ACTUARIAL CONTRIBUTIONS

Valuation Date	December 31, 2019	December 31, 2018
1. Projected Payroll for Year Beginning	\$ 1,605,389,532	\$ 1,612,631,482
2. Total Actuarial Accrued Liability		
a. Active Members		
i. Retirement Benefits	\$ 6,284,209,993	\$ 6,295,012,243
ii. Withdrawal Benefits	154,963,388	155,592,010
iii. Death Benefits	65,682,620	65,750,575
iv. Retiree Health Insurance	466,254,907	490,588,403
v. Total	\$ 6,971,110,908	\$ 7,006,943,231
b. Retired Members and Beneficiaries Receiving Benefits	9,685,006,939	9,050,032,658
c. Retired Members' Retiree Health Insurance	504,240,588	457,700,286
d. Inactive Members with Deferred Benefits	751,344,628	748,001,561
e. Inactive Members' Retiree Health Insurance	37,960,743	41,096,097
f. Total (2a. + 2b. + 2c. + 2d. + 2e.)	\$ 17,949,663,806	\$ 17,303,773,833
3. Actuarial Value of Assets	10,983,364,279	10,512,756,514
4. Unfunded Actuarial Accrued Liability (UAAL) (2f. - 3.)	\$ 6,966,299,527	\$ 6,791,017,319
5. Funded Ratio (3. / 2f.)	61.19%	60.75%
6. UAAL as a Percent of Annual Payroll (4. / 1.)	433.93%	421.11%

Development of Employer Contribution*	Fiscal Year Ending December 31, 2021	Fiscal Year Ending December 31, 2020
7. Amortization Payment for UAAL (30 year amortization)		
a. Amount	\$ 555,759,226	\$ 541,775,517
b. As a % of pay (7a. / 1.)	34.62%	33.60%
8. Employer Normal Cost		
a. Amount	\$ 94,753,253	\$ 94,560,637
b. As a % of pay (8a. / 1.)	5.90%	5.86%
9. Employer Actuarial Required Contribution*		
a. Amount (8a. + 7a.)	\$ 650,512,479	\$ 636,336,154
b. As a % of pay (9a. / 1.)	40.52%	39.46%
10. Actual/Statutory Contribution**	\$ 200,406,970	\$ 513,593,554
11. Required tax multiple for Employer ARC	5.00	4.73

* These contribution rates are amounts needed to fund the CEABF in an actuarially responsible manner.

** The Actual/Statutory contribution for fiscal year ending December 31, 2020 includes an additional \$306.2M supplemental contribution from the employer.



SECTION I – VALUATION RESULTS

EXHIBIT 1.3

ACTUARIAL BALANCE SHEET

Financial Resources	December 31, 2019
1. Actuarial Value of Assets	\$ 10,983,364,279
2. Present Value of Future Contributions	
a. Expected Member Contributions	\$ 961,995,055
b. Employer Normal Cost	666,684,023
c. Total	\$ 1,628,679,078
3. Unfunded Actuarial Accrued Liability/(Reserve)	\$ 6,966,299,527
4. Total Assets (1. + 2.c. + 3.)	\$ 19,578,342,884

Benefit Obligations	December 31, 2019
1. Present Value of Future Benefits	
a. Active Members	\$ 8,599,789,986
b. Retirees and Beneficiaries	10,189,247,527
c. Inactive Members	789,305,371
d. Total	\$ 19,578,342,884



SECTION I – VALUATION RESULTS

EXHIBIT 1.4

SOLVENCY TEST

Year Ended	Aggregate Accrued Liability for:			(4) Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
	Active and Inactive Members	Members	Active and Inactive Members				
	Accumulated Contributions	Currently Receiving Benefits	Employer Portion		Min[(4)/(1),1]	Min[((4)-(1)) /(2),1]	Max[((4)-(1)-(2)) /(3),0]
December 31, 2010	\$ 1,824,472,753	\$ 5,826,424,289	\$ 5,491,240,133	\$ 7,982,368,659	100.00%	100.00%	6.04%
December 31, 2011	1,662,273,117	6,355,248,044	5,706,491,238	7,897,102,116	100.00%	98.11%	0.00%
December 31, 2012	1,821,792,594	6,995,185,945	5,813,272,416	7,833,882,926	100.00%	85.95%	0.00%
December 31, 2013	1,854,155,647	7,373,618,621	5,584,313,409	8,381,444,287	100.00%	88.52%	0.00%
December 31, 2014	1,897,951,260	7,849,157,912	6,091,016,420	8,810,509,070	100.00%	88.07%	0.00%
December 31, 2015	1,914,569,837	8,459,921,556	5,857,694,141	8,991,018,918	100.00%	83.65%	0.00%
December 31, 2016	1,967,965,799	8,905,256,403	5,853,234,906	9,488,223,349	100.00%	84.45%	0.00%
December 31, 2017	2,001,714,112	9,168,982,900	5,718,802,650	10,148,203,833	100.00%	88.85%	0.00%
December 31, 2018	2,020,570,657	9,507,732,944	5,775,470,232	10,512,756,514	100.00%	89.32%	0.00%
December 31, 2019	2,016,337,278	10,189,247,527	5,744,079,001	10,983,364,279	100.00%	88.00%	0.00%



SECTION I – VALUATION RESULTS

EXHIBIT 1.5

RECONCILIATION OF CHANGE IN UNFUNDED ACTUARIAL LIABILITY

Development of Unfunded Actuarial Liability	
1. Unfunded Actuarial Accrued Liability as of December 31, 2018	\$ 6,791,017,319
2. Normal Cost December 31, 2018	94,560,637
3. Interest on 1. and 2.	<u>499,204,402</u>
4. Employer Contribution Requirement of Normal Cost Plus Interest on Unfunded Liability for Period January 1, 2019 to December 31, 2019	\$ 593,765,039
5. Actual Employer Contribution for the Year*	526,240,864
6. Interest on 5.	<u>18,742,468</u>
7. Increase in Unfunded Liability Due to Employer Contribution Plus Interest Being Less Than Normal Cost Plus Interest on Unfunded Liability (4. - (5.+6.))	\$ 48,781,707
8. Increase/(Decrease) in Unfunded Liability Due to:	
a. Investment Return Lower/(Higher) Than Assumed	\$ 46,426,889
b. Salary Increases Higher/(Lower) Than Assumed	(21,547,203)
c. Assumption changes	10,343,906
d. Plan changes	(49,424,951)
e. Other Sources	<u>140,701,859</u>
9. Net Increase/(Decrease) in Unfunded Liability for the Year (7. + 8a. + 8b. + 8c. + 8d. + 8e.)	\$ 175,282,208
10. Unfunded Actuarial Accrued Liability as of December 31, 2019 (1. + 9.)	\$ 6,966,299,527

* Includes an additional \$320.3 Million supplemental contribution from the employer



SECTION I – VALUATION RESULTS

EXHIBIT 1.6

HISTORY OF UAAL AND FUNDED RATIO

Valuation Date	Actuarial Accrued Liability (AAL)	Actuarial Value of Assets (AVA)	Funded Ratio (AVA as a % of AAL)	Unfunded Actuarial Accrued Liability (UAAL)
December 31, 2010	\$ 13,142,137,175	\$ 7,982,368,659	60.74%	\$ 5,159,768,516
December 31, 2011	13,724,012,399	7,897,102,116	57.54%	5,826,910,283
December 31, 2012	14,630,250,955	7,833,882,926	53.55%	6,796,368,029
December 31, 2013	14,812,087,677	8,381,444,287	56.59%	6,430,643,390
December 31, 2014	15,318,790,688	8,810,509,070	57.51%	6,508,281,618
December 31, 2015	16,232,185,534	8,991,018,918	55.39%	7,241,166,616
December 31, 2016	16,726,457,108	9,488,223,349	56.73%	7,238,233,759
December 31, 2017	16,889,499,662	10,148,203,833	60.09%	6,741,295,829
December 31, 2018	17,303,773,833	10,512,756,514	60.75%	6,791,017,319
December 31, 2019	17,949,663,806	10,983,364,279	61.19%	6,966,299,527



SECTION II – PLAN ASSETS

EXHIBIT 2.1

SUMMARY OF FAIR VALUE OF ASSETS

Asset Category	Fair Value as of December 31, 2019		Fair Value as of December 31, 2018	
	Amount	%	Amount	%
1. Short-Term Investments	\$ 330,944,641	2.79%	\$ 218,141,022	2.06%
2. Investments at Fair Value				
a. U.S. and International Equities	\$ 6,282,967,633	52.98%	\$ 4,958,851,665	46.88%
b. U.S. Government and Government Agency Obligations	1,051,214,578	8.86%	1,170,334,505	11.06%
c. Corporate Bonds	1,106,718,809	9.33%	1,049,336,411	9.92%
d. Collective International Equity Fund	83,116,013	0.70%	70,371,275	0.67%
e. Commingled Fixed Income Fund	41,141,429	0.35%	28,081,553	0.27%
f. Exchange Traded Funds	8,691,798	0.07%	55,162,948	0.52%
g. Private Equities	937,775,477	7.91%	773,068,815	7.31%
h. Hedge Funds	730,203,620	6.16%	666,385,423	6.30%
i. Real Estate	<u>689,481,138</u>	5.81%	<u>644,564,162</u>	6.09%
j. Total	\$ 10,931,310,495	92.18%	\$ 9,416,156,758	89.02%
3. Collateral Held for Securities Lending	\$ 596,473,697	5.03%	\$ 942,725,617	8.91%
4. Total Assets (1. + 2.j + 3.)	\$ 11,858,728,833	100.00%	\$ 10,577,023,397	100.00%
5. Receivables				
a. Interest and Dividends	\$ 33,186,100		\$ 29,686,644	
b. Investments Sold	126,392,197		34,415,136	
c. Other Receivables	<u>223,938,014</u>		<u>245,119,037</u>	
d. Total	\$ 383,516,311		\$ 309,220,817	
6. Payables				
a. Investments Purchased	\$ 135,043,608		\$ 60,991,248	
b. Securities Lending Collateral	596,473,697		942,725,617	
c. Other Payables	<u>19,768,619</u>		<u>20,503,567</u>	
d. Total	\$ 751,285,924		\$ 1,024,220,432	
7. Net Position for Pension Benefits [4. + 5.d – 6.d.]	\$ 11,490,959,220		\$ 9,862,023,782	



SECTION II – PLAN ASSETS

EXHIBIT 2.2

CHANGES IN FAIR VALUE OF ASSETS

Transactions	December 31, 2019	December 31, 2018
Additions		
1. Contributions		
a. Contributions from Employers	\$ 526,240,864	\$ 587,748,221
b. Contributions from Plan Members	<u>134,837,512</u>	<u>134,159,171</u>
c. Total	\$ 661,078,376	\$ 721,907,392
2. Net Investment Income		
a. Interest and Dividends	\$ 217,929,216	\$ 201,843,915
b. Net Appreciation (Depreciation)	1,681,234,945	(595,032,962)
c. Net Securities Lending Income	<u>3,308,560</u>	<u>5,155,500</u>
d. Total	\$ 1,902,472,721	\$ (388,033,547)
e. Less Investment Expense	<u>36,827,682</u>	<u>36,754,398</u>
f. Net Investment Income (Loss)	\$ 1,865,645,039	\$ (424,787,945)
g. Miscellaneous	34,906,308	27,296,694
h. Employee Transfers	252,406	182,511
3. Total Additions (1c. + 2f. + 2g. + 2.h)	\$ 2,561,882,129	\$ 324,598,652
Deductions		
4. Benefits and Expenses		
a. Retirement Benefits	\$ 890,115,295	\$ 831,661,745
b. Refund of Contributions	37,745,951	33,662,521
c. Administrative Expenses	<u>5,085,445</u>	<u>5,134,047</u>
5. Total Deductions	\$ 932,946,691	\$ 870,458,313
6. Net Increase (Decrease) (3. - 5.)	\$ 1,628,935,438	\$ (545,859,661)
Net Position Held in Trust for Pension Benefits		
a. Beginning of Year	\$ 9,862,023,782	\$ 10,407,883,443
b. End of Year	\$ 11,490,959,220	\$ 9,862,023,782



SECTION II – PLAN ASSETS

EXHIBIT 2.3

DETERMINATION OF ACTUARIAL VALUE OF ASSETS

Development of Actuarial Value of Assets				Amount
1. Actuarial Value of Assets as of December 31, 2018				\$ 10,512,756,514
2. Unrecognized Return as of December 31, 2018				(650,732,732)
3. Fair Value of Assets as of December 31, 2018 (1. + 2.)				\$ 9,862,023,782
4. Contributions				
a. Member (includes purchased service)				\$ 134,837,512
b. Employer				526,240,864
c. Miscellaneous contributions				35,158,714
d. Total				\$ 696,237,090
5. Distributions				
a. Benefit payments				\$ 890,115,295
b. Refund of contributions				37,745,951
c. Administrative expenses				5,085,445
d. Total				\$ 932,946,691
6. Expected Return at 7.25% on				
a. Item 1.				\$ 762,174,847
b. Item 2.				(47,178,123)
c. Item 4.d.				24,797,012
d. Item 5.d.				33,227,604
e. Total (a. + b. + c. - d.)				\$ 706,566,132
7. Actual Return on Fair Value for Fiscal Year, net of Investment Expenses				\$ 1,865,645,039
8. Return to be Spread for Fiscal year (7. - 6e.)*				\$ 1,159,078,907
9. Total Fair Value of Assets as of December 31, 2019				\$ 11,490,959,220
10. Return to be Spread				
	Fiscal Year	Return to be Spread	Unrecognized Percent	Unrecognized Return
	2019	\$ 1,159,078,907	80.00%	\$ 927,263,125
	2018	(1,175,047,434)	60.00%	(705,028,460)
	2017	719,906,235	40.00%	287,962,494
	2016	(13,011,088)	20.00%	(2,602,218)
	2015	(687,170,453)	0.00%	-
				\$ 507,594,941
11. Actuarial Value of Assets (9. - 10.)				\$ 10,983,364,279
12. Recognized rate of return for the Year on Actuarial Value of Assets				6.8%
13. Rate of Return for the Year on Market Value of Assets (reported by Cook County - net of Inv. expenses)				19.1%

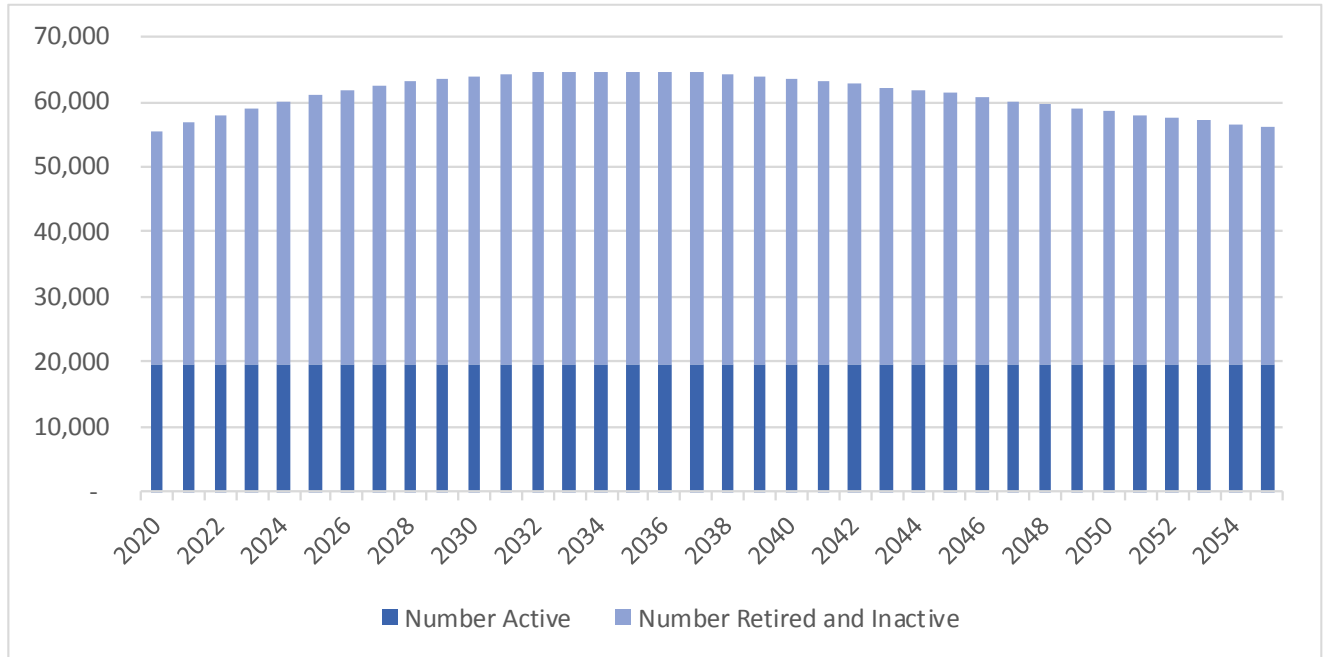
* Annual Return to be Spread calculation is based on assumed 7.25% investment return which includes an assumption that all expenses and revenues are paid mid-year on average



SECTION III – PROJECTIONS

EXHIBIT 3.1

MEMBERSHIP PROJECTION

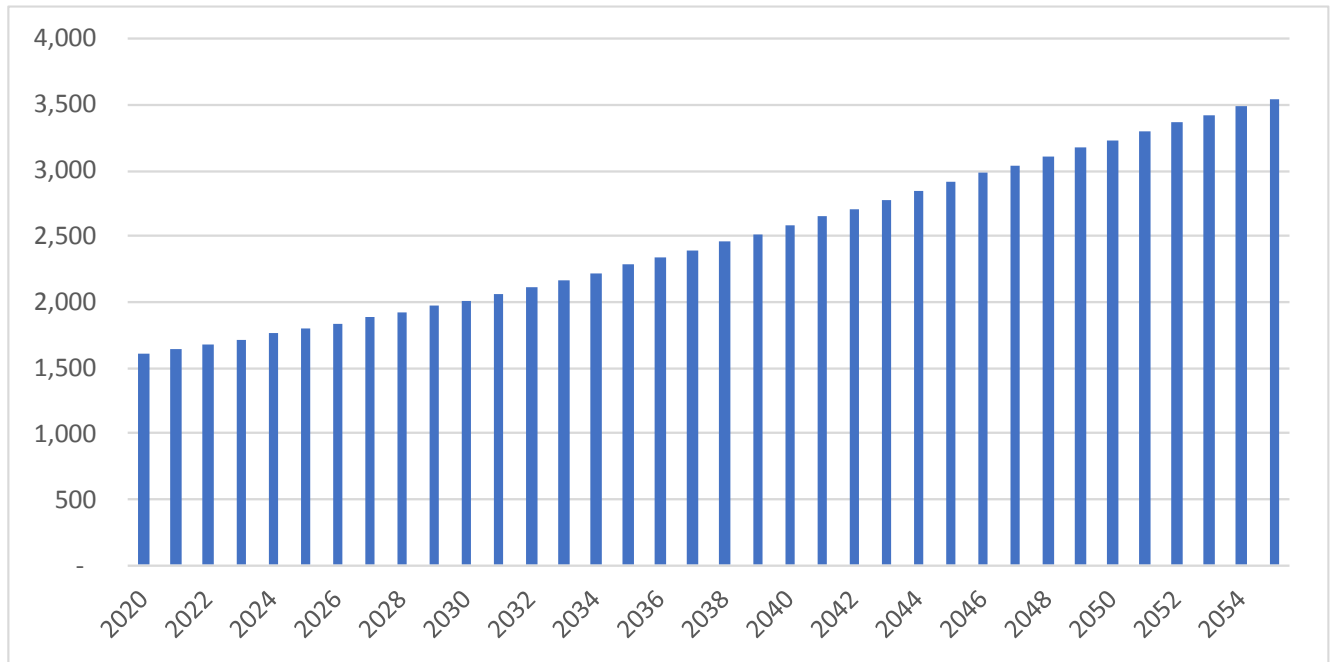




SECTION III – PROJECTIONS

EXHIBIT 3.2

PAYROLL PROJECTION (In Millions)

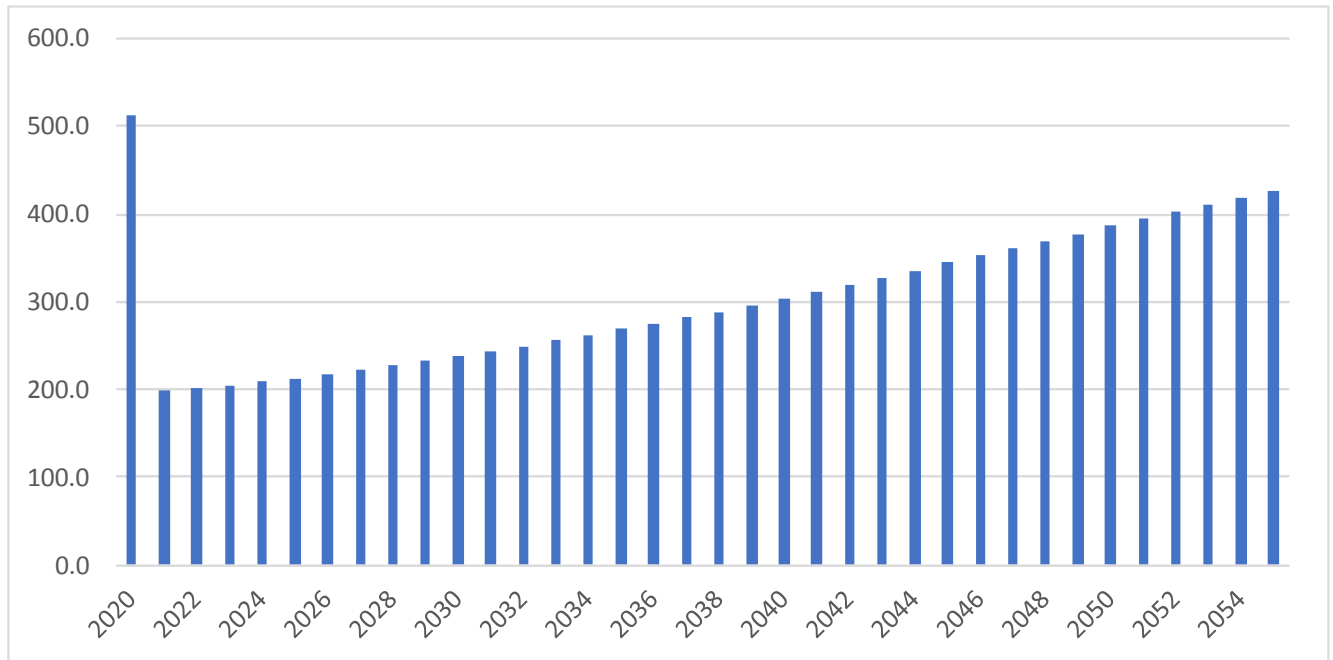




SECTION III – PROJECTIONS

EXHIBIT 3.3

PROJECTION OF EMPLOYER CONTRIBUTION AMOUNTS (In Millions)

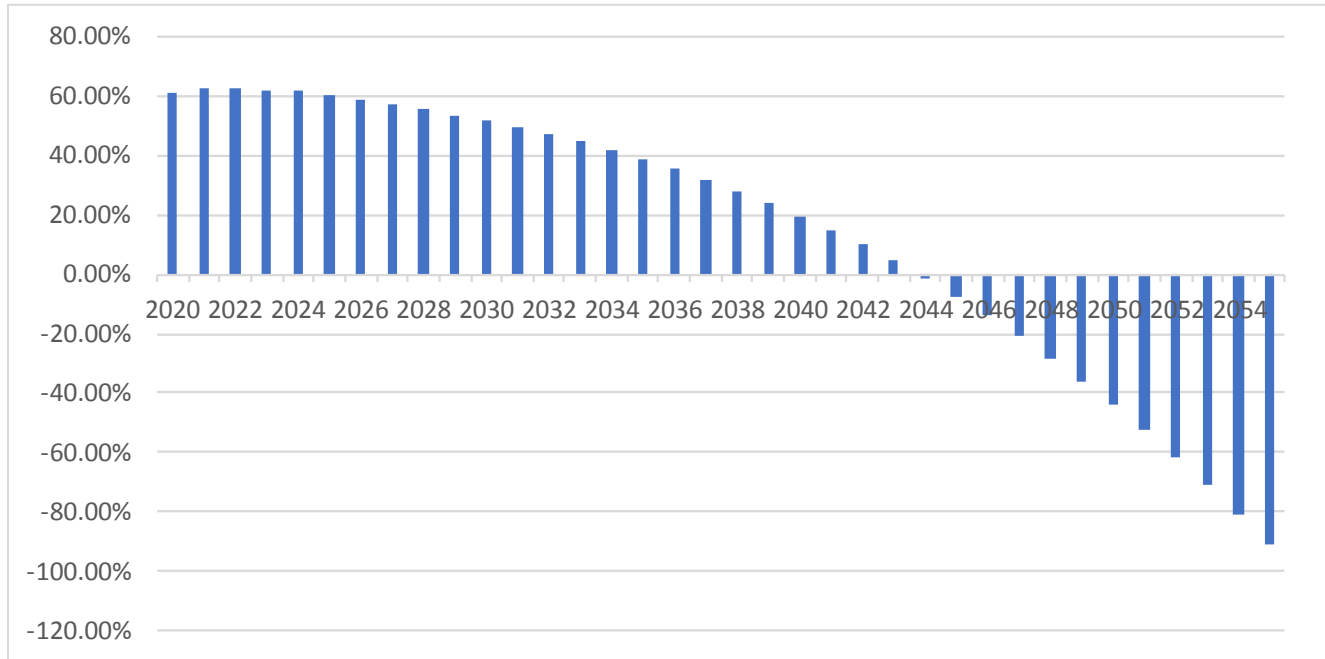




SECTION III – PROJECTIONS

EXHIBIT 3.4

PROJECTION OF FUNDED STATUS





SECTION III – PROJECTIONS

EXHIBIT 3.5

TABLE OF PROJECTED ACTUARIAL RESULTS

Calendar Year	Payroll	Beginning of Year				Cashflows during Calendar Year			
		Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio	Total Payout	Employee Contributions	County Contribution Based on Tax Levy*	Total as % of payroll
2020	1,605.4	17,950	10,983	6,966	61.2%	933.8	136.7	513.6	31.99%
2021	1,641.7	18,484	11,608	6,876	62.8%	972.2	139.5	200.4	12.21%
2022	1,678.7	19,004	11,905	7,099	62.6%	1,025.9	142.7	201.4	12.00%
2023	1,717.0	19,505	12,013	7,491	61.6%	1,079.6	145.9	204.2	11.89%
2024	1,755.7	19,985	12,311	7,674	61.6%	1,134.1	149.2	208.5	11.87%
2025	1,795.1	20,441	12,328	8,113	60.3%	1,190.4	152.6	213.1	11.87%
2026	1,835.7	20,871	12,291	8,579	58.9%	1,247.0	156.0	218.0	11.88%
2027	1,878.3	21,271	12,197	9,074	57.3%	1,300.9	159.7	222.9	11.87%
2028	1,922.8	21,644	12,044	9,600	55.6%	1,352.6	163.4	227.9	11.85%
2029	1,968.3	21,989	11,830	10,158	53.8%	1,403.1	167.3	233.1	11.84%
2030	2,015.8	22,306	11,554	10,752	51.8%	1,453.6	171.3	238.5	11.83%
2031	2,064.5	22,595	11,210	11,384	49.6%	1,501.5	175.5	244.1	11.83%
2032	2,115.3	22,854	10,797	12,057	47.2%	1,547.1	179.8	249.9	11.82%
2033	2,167.9	23,086	10,313	12,773	44.7%	1,590.0	184.3	256.0	11.81%
2034	2,222.0	23,292	9,756	13,536	41.9%	1,630.7	188.9	262.1	11.80%
2035	2,277.7	23,473	9,124	14,349	38.9%	1,669.5	193.6	268.6	11.79%
2036	2,335.2	23,629	8,414	15,215	35.6%	1,705.0	198.5	275.3	11.79%
2037	2,394.6	23,762	7,624	16,139	32.1%	1,737.7	203.5	282.1	11.78%
2038	2,455.8	23,875	6,752	17,123	28.3%	1,766.6	208.7	289.2	11.78%
2039	2,518.5	23,970	5,796	18,174	24.2%	1,791.3	214.1	296.5	11.77%
2040	2,582.4	24,050	4,755	19,295	19.8%	1,812.4	219.5	304.0	11.77%
2041	2,646.8	24,118	3,626	20,492	15.0%	1,830.3	225.0	311.8	11.78%
2042	2,712.8	24,177	2,407	21,769	10.0%	1,843.4	230.6	319.8	11.79%
2043	2,779.1	24,231	1,096	23,134	4.5%	1,852.6	236.2	327.9	11.80%
2044	2,845.4	24,284	(308)	24,592	-1.3%	1,858.1	241.9	336.1	11.81%
2045	2,911.5	24,341	(1,809)	26,150	-7.4%	1,859.7	247.5	344.5	11.83%
2046	2,977.2	24,406	(3,410)	27,816	-14.0%	1,858.4	253.1	352.9	11.85%
2047	3,041.8	24,484	(5,114)	29,598	-20.9%	1,855.5	258.6	361.3	11.88%
2048	3,105.7	24,575	(6,929)	31,504	-28.2%	1,851.4	264.0	369.7	11.90%
2049	3,169.4	24,683	(8,861)	33,544	-35.9%	1,846.6	269.4	378.0	11.93%
2050	3,232.7	24,807	(10,921)	35,728	-44.0%	1,840.5	274.8	386.2	11.95%
2051	3,295.9	24,952	(13,114)	38,066	-52.6%	1,833.4	280.2	394.3	11.96%
2052	3,358.5	25,119	(15,452)	40,571	-61.5%	1,829.6	285.5	402.4	11.98%
2053	3,420.7	25,306	(17,949)	43,255	-70.9%	1,827.2	290.8	410.5	12.00%
2054	3,483.1	25,512	(20,618)	46,130	-80.8%	1,824.9	296.1	418.5	12.01%
2055	3,545.7	25,738	(23,474)	49,213	-91.2%	1,822.9	301.4	426.4	12.03%

* 2020 County Contribution also includes a \$306.2M Supplemental contribution of which \$25M was paid in 2019.

The estimates above are based upon assumptions regarding future events, which may or may not materialize.

The basis for this projection is the December 31, 2019 Actuarial Valuation performed by Cavanaugh Macdonald.



SECTION IV

RISK CONSIDERATIONS

Actuarial Standards of Practice are issued by the Actuarial Standards Board and are binding on credentialed actuaries practicing in the United States. These standards generally identify what the actuary should consider, document and disclose when performing an actuarial assignment. In November, 2018, Actuarial Standard of Practice Number 51, *Assessment and Disclosure of Risk in Measuring Pension Obligations*, (ASOP 51) was issued as final with application to measurement dates on or after November 1, 2018. This ASOP, which applies to funding valuations, actuarial projections, and actuarial cost studies of proposed plan changes, was first applicable for the December 31, 2018 actuarial valuation for CEABF.

A typical retirement fund faces many different risks, but the greatest risk is the inability to make benefit payments when due. If fund assets are depleted, benefits may not be paid which could create legal and litigation risk or the fund could become “pay as you go”. The term “risk” is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk is translated into uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

The various risk factors for a given fund can have a significant impact – good or bad – on the actuarial projection of liability and contribution rates.

There are a number of risks inherent in the funding of a defined benefit plan. These include:

- economic risks, such as investment return and inflation;
- demographic risks such as mortality, payroll growth, aging population including impact of baby boomers, and retirement ages;
- contribution risk, i.e., the potential for contribution rates to be too high for the plan sponsor/employer to pay and
- external risks such as the regulatory and political environment.

There is a direct correlation between healthy, well-funded retirement plans and consistent contributions equal to the full actuarial contribution rate each year. As noted earlier in this report, the current funding mechanism is insufficient to meet the needs of the CEABF. We project that the CEABF will become insolvent in 2043.



SECTION IV– RISK CONSIDERATIONS

SECTION IV

RISK CONSIDERATIONS

In an actuarially funded plan, the most significant risk factor is investment return because of the volatility of returns and the size of fund assets compared to payroll (see Exhibit 4.1). A perusal of historical returns over 10-20 years reveals that the actual return each year is rarely close to the average return for the same period. This is an expected result given the underlying capital market assumptions and the fund's asset allocation.

A key demographic risk for all retirement systems is improvements in mortality (longevity) greater than anticipated. While the actuarial assumptions reflect small, continuous improvements in mortality experience and these assumptions are refined every experience study, the risk arises because there is a possibility of some sudden shift, perhaps from a significant medical breakthrough that could quickly increase liabilities. Likewise, there is some possibility of a significant public health crisis that could result in a significant number of additional deaths in a short time period, which would also be significant, although more easily absorbed. While these events could happen, it represents a small probability and thus represents much less risk than the volatility associated with investment returns.

The following exhibits summarize some historical information that helps indicate how certain key risk metrics have changed over time.



SECTION IV– RISK CONSIDERATIONS

EXHIBIT 4.1

HISTORICAL ASSET VOLATILITY RATIOS

As a retirement system matures, the size of the market value of assets increases relative to the covered payroll of active members, on which the Fund is funded. The size of the fund assets relative to covered payroll, sometimes referred to as the asset volatility ratio, is an important indicator of the contribution risk for the Fund. The higher this ratio, the more sensitive a fund's contribution rate is to investment return volatility. In other words, it will be harder to recover from investment losses with increased contributions.

Valuation Date	Market Value of Assets	Covered Payroll	Asset Volatility Ratio
12/31/2010	\$ 7,574,653,612	\$1,494,093,569	5.07
12/31/2011	7,441,243,250	1,456,444,123	5.11
12/31/2012	8,059,935,628	1,478,253,368	5.45
12/31/2013	8,927,366,656	1,484,269,715	6.01
12/31/2014	9,068,398,780	1,514,550,023	5.99
12/31/2015	8,643,044,275	1,572,417,298	5.50
12/31/2016	9,115,657,870	1,580,251,254	5.77
12/31/2017	10,407,883,443	1,567,480,401	6.64
12/31/2018	9,862,023,782	1,533,721,507	6.43
12/31/2019	11,490,959,220	1,553,498,503	7.40

The assets at December 31, 2019 are 740% of payroll so underperforming the investment return assumption by 1% (i.e., earn 6.25% for one year) is equivalent to 7.40% of payroll. While the actual impact in the first year is mitigated by the asset smoothing method and amortization of the UAL, this illustrates the risk associated with volatile investment returns.



SECTION IV– RISK CONSIDERATIONS

EXHIBIT 4.2

HISTORICAL CASH FLOWS

Funds with negative cash flows will experience increased sensitivity to investment return volatility. Cash flows, for this purpose, are measured as contributions less benefit payments. If the Fund has negative cash flows and then experiences returns below the assumed rate, there are fewer assets to be reinvested to earn the higher returns that typically follow. While any negative cash flow will produce such a result, it is typically a negative cash flow of more than 5% of MVA that causes significant concerns.

Year Ended	Market Value of Assets	Contributions	Benefit Payments	Net Cash Flow	Net Cash Flow as a Percent of MVA
12/31/2010	\$ 7,574,653,612	\$ 345,785,817	\$ 537,674,110	\$(191,888,293)	-2.53%
12/31/2011	7,441,243,250	370,385,255	585,798,244	(215,412,989)	-2.89%
12/31/2012	8,059,935,628	359,517,492	628,421,489	(268,903,997)	-3.34%
12/31/2013	8,927,366,656	355,844,654	667,570,256	(311,725,602)	-3.49%
12/31/2014	9,068,398,780	362,704,794	709,307,321	(346,602,527)	-3.82%
12/31/2015	8,643,044,275	369,252,939	771,939,931	(402,686,992)	-4.66%
12/31/2016	9,115,657,870	655,247,511	810,748,989	(155,501,478)	-1.71%
12/31/2017	10,407,883,443	715,994,205	823,347,890	(107,353,685)	-1.03%
12/31/2018	9,862,023,782	743,525,984	865,324,266	(121,798,282)	-1.24%
12/31/2019	11,490,959,220	689,961,286	927,861,246	(237,899,960)	-2.07%



SECTION IV– RISK CONSIDERATIONS

EXHIBIT 4.3

LIABILITY MATURITY MEASUREMENTS

Most public sector retirement systems have been in operation for many years. As a result, they have aging fund populations indicated by an increasing ratio of retirees to active members and a growing percentage of retiree liability. The retirement of the remaining baby boomers over the next decade is expected to further exacerbate the aging of the retirement system population. With more of the total liability residing with retirees, investment volatility has a greater impact on the funding of the Fund since it is more difficult to restore the system financially after losses occur when there is comparatively less payroll over which to spread costs.

Projections provide the most effective way of analyzing the impact of these changes on future funding measures, but studying several key metrics from the valuation can also provide some valuable insight.

Valuation Date	Retiree Liability	Total Actuarial Liability	Retiree Percentage	Covered Payroll	Ratio
12/31/2010	\$5,826,424,289	\$ 13,142,137,175	44.3%	\$ 1,494,093,569	8.80
12/31/2011	6,355,248,044	13,724,012,399	46.3%	1,456,444,123	9.42
12/31/2012	6,995,185,945	14,630,250,955	47.8%	1,478,253,368	9.90
12/31/2013	7,373,618,621	14,812,087,677	49.8%	1,484,269,715	9.98
12/31/2014	7,849,157,912	15,318,790,688	51.2%	1,514,550,023	10.11
12/31/2015	8,459,921,556	16,232,185,534	52.1%	1,572,417,298	10.32
12/31/2016	8,905,256,403	16,726,457,108	53.2%	1,580,251,254	10.58
12/31/2017	9,168,982,900	16,889,499,662	54.3%	1,567,480,401	10.77
12/31/2018	9,507,732,944	17,303,773,833	54.9%	1,533,721,507	11.28
12/31/2019	10,189,247,527	17,949,663,806	56.8%	1,553,498,503	11.55

**SECTION V— MEMBER DATA****EXHIBIT 5.1****SUMMARY OF MEMBERS INCLUDED IN THE VALUATION**

	December 31, 2019	December 31, 2018
Active Members (includes 159 disabled in 2019 and 160 in 2018)		
(1) Number	19,551	19,671
(2) Average Age	47.8	47.9
(3) Average Credited Service	13.9	14.1
(4) Average Annual Earnings (limited for Pension purposes)	\$79,459	\$77,969
Retirees and Beneficiaries		
(1) Number	19,143	18,602
(2) Average Age	72.3	72.2
(3) Average Monthly Pension Benefit	\$3,658	\$3,506
Inactive Members (not refunded contributions or commenced benefits)		
(1) Number	15,422	14,898
(2) Average Age	49.1	48.5
Total Number of Members	54,116	53,171



SECTION V—MEMBER DATA

EXHIBIT 5.2

**AGE AND SERVICE DISTRIBUTION OF ACTIVE MEMBERS
(as of December 31, 2019)**

Total		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	Total
24 & Under	Number	137	2	-	-	-	-	-	-	-	139
	Average Salary	\$46,315	\$44,559	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$46,289
25-29	Number	1,031	110	-	-	-	-	-	-	-	1,141
	Average Salary	\$55,725	\$64,039	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$56,527
30-34	Number	1,226	559	64	7	-	-	-	-	-	1,856
	Average Salary	\$62,334	\$71,892	\$67,449	\$64,703	\$0	\$0	\$0	\$0	\$0	\$65,398
35-39	Number	806	635	465	178	16	-	-	-	-	2,100
	Average Salary	\$69,691	\$79,731	\$78,902	\$70,744	\$60,194	\$0	\$0	\$0	\$0	\$74,784
40-44	Number	555	471	513	663	214	12	-	-	-	2,428
	Average Salary	\$77,513	\$85,859	\$88,122	\$81,323	\$74,623	\$69,765	\$0	\$0	\$0	\$82,121
45-49	Number	475	383	456	689	801	349	11	-	-	3,164
	Average Salary	\$79,017	\$78,476	\$90,325	\$89,547	\$85,342	\$78,921	\$70,479	\$0	\$0	\$84,435
50-54	Number	364	291	316	459	715	883	157	1	-	3,186
	Average Salary	\$74,900	\$85,675	\$82,799	\$88,122	\$89,103	\$87,127	\$74,391	\$53,015	\$0	\$85,117
55-59	Number	301	248	247	422	480	732	237	40	1	2,708
	Average Salary	\$78,127	\$79,752	\$78,874	\$88,066	\$90,770	\$91,645	\$80,707	\$75,479	\$42,948	\$85,962
60-64	Number	156	170	186	290	334	375	152	51	9	1,723
	Average Salary	\$81,755	\$81,770	\$78,144	\$82,500	\$83,339	\$83,588	\$87,380	\$87,482	\$68,528	\$82,795
65-69	Number	69	73	91	135	143	132	52	29	13	737
	Average Salary	\$84,632	\$84,868	\$76,709	\$79,878	\$83,288	\$83,144	\$85,197	\$98,493	\$84,608	\$82,864
70 & Up	Number	27	26	39	85	52	77	36	15	12	369
	Average Salary	\$93,341	\$92,117	\$83,439	\$79,108	\$76,924	\$77,425	\$74,225	\$67,891	\$113,573	\$81,053
TOTAL	Number	5,147	2,968	2,377	2,928	2,755	2,560	645	136	35	19,551
	Average Salary	\$67,775	\$79,396	\$83,221	\$84,599	\$85,777	\$86,203	\$80,568	\$83,886	\$89,214	\$79,459

Salaries are limited to the dollar amount defined under Internal Revenue Code Section 401(a)(17) for affected Tier 1 members and to the paycap legislated for Tier 2 members. For fiscal year 2020, these amounts are \$285,000 and \$115,929, respectively.



SECTION V—MEMBER DATA

EXHIBIT 5.3

AGE AND SALARY DISTRIBUTION OF ACTIVE MEMBERS (as of December 31, 2019)

Age	Number	Annual Salaries	Average Annual Salary
Male			
Under 20	-	\$ -	\$ -
20-24	60	2,894,709	48,245
25-29	535	30,187,265	56,425
30-34	862	56,533,126	65,584
35-39	985	75,863,115	77,018
40-44	1,100	93,649,507	85,136
45-49	1,455	127,508,922	87,635
50-54	1,442	129,302,601	89,669
55-59	1,139	103,744,510	91,084
60-64	671	60,377,540	89,981
65-69	308	27,394,587	88,943
70 and over	158	14,914,172	94,393
Total Male	8,715	\$ 722,370,054	\$ 82,888
Female			
Under 20	2	\$ 83,874	\$ 41,937
20-24	77	3,455,641	44,878
25-29	606	34,309,883	56,617
30-34	994	64,846,093	65,238
35-39	1,115	81,182,398	72,809
40-44	1,328	105,740,213	79,624
45-49	1,709	139,644,143	81,711
50-54	1,744	141,878,609	81,352
55-59	1,569	129,039,284	82,243
60-64	1,052	82,277,623	78,211
65-69	429	33,676,131	78,499
70 and over	211	14,994,558	71,064
Total Female	10,836	\$ 831,128,449	\$ 76,701
Male and Female	19,551	\$ 1,553,498,503	\$ 79,459

**SECTION V— MEMBER DATA**

EXHIBIT 5.4**SCHEDULE OF ACTIVE MEMBER DATA**

Valuation Date	Number	Annual Earnings	Average Annual Earnings	Percent Increase/(Decrease) in Average Earnings
December 31, 2010	23,165	\$ 1,494,093,569	\$ 64,498	1.50%
December 31, 2011	22,037	1,456,444,123	66,091	2.50%
December 31, 2012	21,447	1,478,253,368	68,926	4.30%
December 31, 2013	21,287	1,484,269,715	69,727	1.20%
December 31, 2014	21,656	1,514,550,023	69,937	0.30%
December 31, 2015	21,596	1,572,417,298	72,811	4.10%
December 31, 2016	20,969	1,580,251,254	75,361	3.50%
December 31, 2017	20,349	1,567,480,401	77,030	2.20%
December 31, 2018	19,671	1,533,721,507	77,969	1.20%
December 31, 2019	19,551	1,553,498,503	79,459	1.90%



SECTION V— MEMBER DATA

EXHIBIT 5.5

MEMBER DATA RECONCILIATION

	Active Members	Inactive Members	Retired Members	Beneficiaries	Total
As of December 31, 2018	19,671	14,898	15,820	2,782	53,171
Changes in Status					
a) Retirement	(631)	(353)	984	-	-
b) Death With Beneficiary	(18)	(13)	(136)	167	-
c) Death Without Beneficiary	(8)	(15)	(369)	(175)	(567)
d) Non-Vested Termination	(350)	-	-	-	(350)
e) Vested Termination	(1,051)	1,053	(2)	-	-
f) Rehire	365	(365)	-	-	-
g) Miscellaneous/Child Beneficiaries	-	217	8	64	289
Total Changes in Status	(1,693)	524	485	56	(628)
New Entrants During the Year	1,573	-	-	-	1,573
Net Change	(120)	524	485	56	945
As of December 31, 2019	19,551	15,422	16,305	2,838	54,116



SECTION V—MEMBER DATA

EXHIBIT 5.6

RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS

Year Ended	<u>Added to Rolls</u>		<u>Removed from Rolls</u>		<u>Rolls – End of Year</u>		Average Annual Benefits	% Increase in Average Annual Benefits
	Number	Annual Benefits	Number	Annual Benefits	Number	Annual Benefits		
December 31, 2010	917	\$ 40,259,064	538	\$ 10,616,859	14,854	\$ 437,140,622	\$ 29,429	4.50%
December 31, 2011	1,158	55,308,088	580	12,124,191	15,432	480,324,519	31,125	5.80%
December 31, 2012	1,374	58,601,319	632	14,697,753	16,174	524,228,085	32,412	4.10%
December 31, 2013	992	52,564,737	489	10,006,848	16,677	566,785,974	33,986	4.90%
December 31, 2014	929	52,208,075	530	11,628,617	17,076	607,365,432	35,568	4.70%
December 31, 2015	1,323	69,890,199	802	22,262,895	17,597	654,992,736	37,222	4.60%
December 31, 2016	968	58,252,392	656	18,067,979	17,909	695,177,149	38,817	4.30%
December 31, 2017	902	57,971,733	594	16,538,820	18,217	736,610,062	40,435	4.20%
December 31, 2018	1,109	68,372,858	724	22,268,886	18,602	782,714,034	42,077	4.10%
December 31, 2019	1,223	78,654,100	682	20,981,568	19,143	840,386,566	43,900	4.30%



SECTION V— MEMBER DATA

EXHIBIT 5.7

SCHEDULE OF RETIRED MEMBER DATA

Valuation Date	Number	Annual Benefit Payments	Average Annual Benefit Payments
December 31, 2010	15,333	\$ 445,909,273	\$ 29,082
December 31, 2011	15,555	480,953,987	30,920
December 31, 2012	16,174	524,228,085	32,412
December 31, 2013	16,677	566,785,974	33,986
December 31, 2014	17,076	607,365,432	35,568
December 31, 2015	17,597	654,992,736	37,222
December 31, 2016	17,909	695,177,149	38,817
December 31, 2017	18,217	736,610,062	40,435
December 31, 2018	18,602	782,714,034	42,077
December 31, 2019	19,143	840,386,566	43,900



SECTION V—MEMBER DATA

EXHIBIT 5.8

SCHEDULE OF RETIRED MEMBERS BY TYPE OF BENEFIT AND OPTION ELECTED

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit		Benefit Payment Form		
		1	2	1	2	3
\$ 1 — 500	1,662	1,169	493	1,037	569	56
501 — 1,000	1,743	1,125	618	1,145	547	51
1,001 — 1,500	1,482	1,071	411	969	513	0
1,501 — 2,000	1,332	1,034	298	848	483	1
2,001 — 2,500	1,304	1,056	248	797	507	0
2,501 — 3,000	1,430	1,239	191	885	545	0
3,001 — 3,500	1,298	1,094	204	786	512	0
3,501 — 4,000	1,329	1,198	131	774	555	0
4,001 — 4,500	1,222	1,114	108	692	530	0
4,501 — 5,000	1,040	996	44	520	520	0
5,001 — 5,500	1,050	1,013	37	471	579	0
5,501 — 6,000	933	920	13	388	545	0
6,001 — 6,500	668	658	10	265	403	0
6,501 — 7,000	784	778	6	290	494	0
7,001 — 7,500	530	525	5	206	324	0
7,501 — 8,000	328	326	2	133	195	0
8,001 — 8,500	262	260	2	99	163	0
8,501 — 9,000	195	192	3	66	129	0
9,001 — 9,500	117	117	0	39	78	0
9,501 — 10,000	66	63	3	23	43	0
10,001 — 10,500	31	28	3	10	21	0
10,501 — 11,000	39	36	3	14	25	0
11,001 — 11,500	22	22	0	3	19	0
11,501 — 12,000	15	14	1	4	11	0
12,001 — 12,500	19	19	0	3	16	0
12,501 — 13,000	26	24	2	6	20	0
13,001 — 13,500	19	19	0	7	12	0
13,501 — 14,000	15	15	0	4	11	0
14,001 — 14,500	17	17	0	6	11	0
14,501 — 15,000	14	14	0	2	12	0
Over \$15,000	151	149	2	37	114	0
Totals	19,143	16,305	2,838	10,529	8,506	108

Type of Pension Benefit

1. Regular Retirement
2. Survivor Payment

Form of Benefit

1. Whole Life Annuity
2. Joint and Contingent Annuity
3. Temporary Annuity

**EXHIBIT 5.9****SCHEDULE OF RETIRED MEMBERS AND BENEFICIARIES**

	December 31, 2019	December 31, 2018
Retired		
(1) Number, Fiscal Year Start	15,820	15,488
(2) Net Change	<u>485</u>	<u>332</u>
(3) Number, Fiscal Year End	16,305	15,820
(4) Average Current Age	72.1	72.0
(5) Average Monthly Pension Benefit	\$3,978	\$3,820
Beneficiaries		
(1) Number, Fiscal Year Start	2,782	2,729
(2) Net Change	<u>56</u>	<u>53</u>
(3) Number, Fiscal Year End	2,838	2,782
(4) Average Current Age	73.7	73.4
(5) Average Monthly Pension Benefit	\$1,823	\$1,721
Total		
(1) Number, Fiscal Year Start	18,602	18,217
(2) Net Change	<u>541</u>	<u>385</u>
(3) Number, Fiscal Year End	19,143	18,602
(4) Average Current Age	72.3	72.2
(5) Average Monthly Pension Benefit	\$3,658	\$3,506

**EXHIBIT 5.10****SCHEDULE OF BENEFIT PAYMENTS**

Attained Age	Number	Annual Payments
< 30	94	\$ 611,261
30-34	-	-
35-39	5	26,242
40-44	15	134,715
45-49	30	299,974
50-54	269	12,039,635
55-59	1,155	57,704,326
60-64	2,468	129,263,123
65-69	3,562	172,782,713
70-74	3,869	176,669,430
75	665	30,717,698
76	708	30,621,658
77	669	28,730,187
78	616	24,960,084
79	566	22,945,391
80	509	19,678,280
81	498	19,299,039
82	448	15,833,499
83	397	14,825,902
84	387	13,707,421
85	337	11,733,945
86	308	10,205,776
87	260	9,539,270
88	220	7,532,139
89	207	6,440,160
90	186	6,087,736
91	174	5,097,781
92	116	3,049,965
93	99	2,519,407
94	73	1,856,914
95	71	1,834,538
96	55	1,273,912
97	25	612,092
98	32	793,209
99	16	313,278
100	15	316,699
101	4	98,577
102	7	114,536
103	3	61,801
104	2	12,194
105	2	28,817
112	1	13,243
Total	19,143	\$ 840,386,566



**APPENDIX A
SUMMARY OF BENEFIT PROVISIONS**

Participant. A person employed by Cook County whose salary or wages is paid in whole or in part by the County. An employee in service on or after January 1, 1984 shall be deemed as a participant regardless of when he or she became an employee.

Service. For all purposes except the minimum retirement annuity and ordinary disability benefit, service during four months in any calendar year constitutes one year of service. For the minimum retirement annuity, all service is computed in whole calendar months. Service for any 15 days in a calendar month shall constitute a month of service.

For purposes of the minimum retirement annuity, service shall include:

- a. Any time during which the employee performed the duties of his or her position and contributed to the Fund.
- b. Vacations and leaves of absence with whole or part pay.
- c. Periods during which the employee receives a disability benefit from the Fund, and
- d. Certain periods of accumulated sick leave.

Retirement Annuity - Eligibility. An employee who withdraws from service with 10 or more years of service is entitled to a retirement annuity upon attainment of age 50.

Retirement Annuity – Amount.

Money Purchase Annuity. The amount of annuity based on the sum accumulated from the employee's salary deductions for age and service annuity plus 1/10 of the sum accumulated from the contributions by the County for age and service annuity for each completed year of service after the first 10. Except that when the employee retires after age 60, the full amount of contributions by the Employer are used.

Minimum Formula Annuity. The amount of annuity provided is equal to 2.4% of final average salary for each year of service. Final average salary is the highest average monthly salary for any 48 consecutive months within the last 10 years of service. Salary for pension purposes is actual salary earned exclusive of overtime or extra salary. The maximum amount of annuity is 80% of final average salary.

If an employee retires before age 60, the annuity is reduced by .5% for each full month or fraction thereof that the employee is under age 60 when the annuity begins, unless the employee has 30 or more years of service, in which case there is no reduction for retirement before age 60.

If the Minimum Formula Annuity is greater than the Money Purchase Annuity, the employee is entitled to receive the Minimum Formula Annuity.



APPENDIX A
SUMMARY OF BENEFIT PROVISIONS
(continued)

Automatic Increase in Retirement Annuity. Employees who retire from service having attained age 60 or more, or, if retirement occurs on or after January 1, 1991, with at least 30 years of service, 3% of the annuity beginning January of the year following the year in which the first anniversary of retirement occurs. If retirement is before age 60 with less than 30 years of service, increases begin in January of the year immediately following the year in which age 60 is attained. Beginning January 1, 1998, increases are calculated as 3% of the monthly annuity payable at the time of the increase.

Optional Plan of Contributions and Benefits. During the period through June 30, 2005, an employee may establish optional credit for additional benefits by making additional contributions of 3% of salary. The additional benefit is equal to 1% of final average salary for each year of service for which optional contributions have been paid. The additional benefit shall be included in the calculation of the automatic annual increase and the calculation of the survivor's annuity.

Alternate Annuity for County Officers. An alternate annuity is available for county officers elected on or before January 1, 2008. The amount of this alternate annuity is equal to 3% of final salary for the first 8 years of service, 4% for the next 4 years of service, and 5% thereafter, subject to a maximum of 80% of final salary. The elected county officer is required to contribute an additional 3% of salary to be eligible for the alternate annuity. The alternate survivor's annuity for survivors of elected county officers is 66-2/3% of the amount of the elected county officer's earned retirement annuity on the date of death, subject to a minimum payment of 10% of salary.

Annuities for Members of the Cook County Police Department. In lieu of the regular minimum retirement annuity, a deputy sheriff who is a member of the County Police Department may be entitled to the following annuity:

Upon withdrawal from service after having attained age 50 in service with 20 or more years of service credit as a police officer, the officer shall be entitled to an annuity computed as follows: 50% of final average salary, plus 2% of final average salary for each year of service in excess of 20 years, subject to a maximum of 80% of final average salary.

Surviving Spouse's Annuity - Death in Service.

Money Purchase Annuity. The amount of annuity based on the accumulated salary deductions and County contributions for both the employee and the spouse.

Minimum Formula Annuity. A minimum annuity is provided for the eligible surviving spouse of an employee who dies in service with any number of years of service. The amount of such minimum spouse's annuity is equal to 65% of the annuity the employee would have been entitled to as of the date of death, provided the spouse on such date is age 55 or older, or that the employee had 30 or more years of service.

If the spouse is under age 55 and the employee had less than 30 years of service, the amount of the spouse's annuity shall be discounted by .5% for each month that the spouse is less than age 55 on the date of the employee's death. The amount of the surviving spouse's annuity shall not be less than 10% of the employee's final average salary as of the date of death.



APPENDIX A
SUMMARY OF BENEFIT PROVISIONS
(continued)

If the Minimum Formula Annuity is greater than the Money Purchase Annuity, the surviving spouse shall be entitled to receive the Minimum Formula Annuity.

Surviving Spouse's Annuity - Death after Retirement. The amount of the annuity is the greater of the money purchase annuity or the minimum formula annuity. The surviving spouse of an annuitant who dies on or after July 1, 2002 shall be entitled to an annuity of 65% of the employee's annuity at the time of death if the employee had at least 10 years of service, reduced by .5% per month that the spouse is under age 55 at the time of the employee's death. There is no reduction for age if the employee had at least 30 years of service.

Automatic Annual Increase in Surviving Spouse's Annuity. On the January 1 occurring on or immediately after the first anniversary of the deceased employee's death, the surviving spouse's annuity shall be increased by 3% of the amount of annuity payable at the time of the increase. On each January 1, thereafter, the annuity shall be increased by an additional 3% of the amount of annuity payable at the time of the increase.

Child's Annuity. Annuities are provided for unmarried children of a deceased employee who are under age 18. An adopted child is entitled to the child's annuity if such child was legally adopted at least one year before the child's annuity becomes payable. The child's annuity is payable under the following conditions:

(a) the death of the employee was a duty related death; or (b) if the death is not a duty related death, the employee died while in service and had completed at least four years of service from the date of his or her original entrance in service and at least two years from the latest re-entrance; or (c) if the employee died while in receipt of an annuity, her or she must have withdrawn from service after attainment of age 50.

The amount of the annuity is the greater of 10% of the employee's final salary at the date of death or \$140 per month for each child.

Duty Disability Benefits. Duty disability benefits are payable to an employee who becomes disabled as a result of an accidental injury incurred while in the performance of an act of duty. Benefits begin on the first regular and normal work date for which the employee does not receive a salary. The amount of the duty disability benefit is equal to 75% of the employee's salary at the date of injury, reduced by the amount the employee receives from Workers' Compensation. However, if the disability, in any measure has resulted from any physical defect or disease that existed at the time such injury was sustained, the duty disability benefit shall be 50% of salary. The 8.5% (9% for County Police) of salary normally contributed by the employee for pension purposes is contributed on their behalf during the period of approved disability.

If the disability commences prior to age 60, duty disability benefits are payable during disability until the employee attains age 65. If the disability begins after age 60, the benefit is payable during disability for a period of 5 years.

Recipients of duty disability benefits also have a right to receive child's disability benefits of \$10 per month on account of each unmarried child less than age 18. Total children's disability benefits shall not exceed 15% of the employee's salary.



APPENDIX A
SUMMARY OF BENEFIT PROVISIONS
(continued)

Ordinary Disability Benefits. Ordinary disability benefits are provided for employees who become disabled as the result of any cause other than injury incurred in the performance of an act of duty. The amount of the benefit is 50% of the employee's annual salary at the time of disability. The 8.5% (9% for County Police) of salary normally contributed by the employee for pension purposes is contributed on their behalf during the period of approved disability.

Ordinary disability benefits are payable after the first 30 days of disability provided the employee is not then in receipt of salary. Ordinary disability benefits are payable until the first of the following shall occur:

- a. the disability ceases; or
- b. the date that total payments equal the lesser of (1) 1/4 of the total service rendered prior to disability, and (2) five years.

An employee unable to return to work at the expiration of ordinary disability benefit is entitled to an annuity beginning on the date of the employee's withdrawal from service regardless of age on such date.

Death Benefit. Upon the death of an active or retired employee, a death benefit of \$1,000 is payable to the employee's designated beneficiary or to the employee's estate if no beneficiary has been designated.

Group Health Benefits. The CEABF may pay all or any portion of the premium for health insurance on behalf of each annuitant who participates in any of the CEABF's health care Plans. As of January 1, 2020, CEABF pays 38% of the total premium for all post-Medicare retiree annuitants and 48% of the total premium for all pre-Medicare retiree annuitants on the Choice plan, including the cost of family coverage, and 48% of the total premium for all post-Medicare survivor annuitants and 58% of the total premium for all pre-Medicare survivor annuitants on the Choice plan, including the cost of family coverage.

CEABF pays 34% of the total premium for all post-Medicare retiree annuitants and 43% of the total premium for all pre-Medicare retiree annuitants on the Choice Plus plan, including the cost of family coverage, and 44% of the total premium for all post-Medicare survivor annuitants and 53% of the total premium for all pre-Medicare survivor annuitants on the Choice Plus plan, including the cost of family coverage.

Refund to Employee Upon Withdrawal From Service. Upon withdrawal from service, an employee under the age of 55, or anyone with less than 10 years of service is eligible for a refund. The employee is entitled to a refund of the amount accumulated to his or her credit for age and service annuity and the survivor's annuity together with the total amount contributed for the automatic annual increase, without interest. Upon receipt of such refund, the employee forfeits all rights to benefits from the Fund.

Election of Refund in Lieu of Annuity. If an employee's annuity or spouse's annuity is less than \$150.00 per month, such employee or spouse annuitant may elect a refund of the employee's accumulated contributions in lieu of a monthly annuity.

Refund For Surviving Spouse's Annuity. If an employee is unmarried at the time of retirement, all contributions for surviving spouse's annuity will be refunded with interest at the rate of 3% per year, compounded annually.



APPENDIX A
SUMMARY OF BENEFIT PROVISIONS
(continued)

Refund of Remaining Amounts. In the event that the total amount accumulated to the account of an employee from employee contributions for annuity purposes has not been paid to the employee and surviving spouse as a retirement or surviving spouse's annuity before the death of the survivor(s) of the employee, a refund of any excess amount shall be paid to the children of the employee, in equal parts, or if there are no children, to the beneficiaries of the employee or the administrator of the estate.

Employee Contributions. Employees contribute through salary deductions 8.5% (9% for County Police) of salary to the Fund, 6.5% (7% for County Police) being for the retirement annuity. 1.5% being for the surviving spouse's annuity, and .5% being for the automatic increase in retirement annuity.

Employer Contributions. The County levies a tax annually equal to the total amount of contributions made by employees in the calendar year 2 years prior to the year of the levy, multiplied by 1.54.

Employer Pick-up of Employee Contributions. Since April 15, 1982, regular employee contributions have been designated for federal income tax purposes as being made by the employer. The employee's W-2 salary is therefore reduced by the amount of contribution. For pension purposes, the salary remains unchanged. For purposes of benefits, refunds, and financing, these contributions are treated as employee contributions.

Persons Who First Become Participants On or After January 1, 2011. The following changes to the aforementioned provisions apply to persons who first become participants on or after January 1, 2011:

1. The highest salary for annuity purposes is equal to the average monthly salary obtained by dividing the participant's total salary during the 96 consecutive months of service within the last 120 months of service in which the total compensation was the highest by the number of months in that period.
2. For 2011, the annual salary is limited to the Social Security wage base of \$106,800. Limitations for future years shall automatically be increased by the lesser of 3% or one-half of percentage change in the Consumer Price Index-U for the 12 months ending in September.
3. A participant is eligible to retire with unreduced benefits at age 67 with at least 10 years of service credit. However, a participant may elect to retire at age 62 with at least 10 years of service credit and receive a retirement annuity reduced by one-half of 1% for each month that his or her age is under 67.
4. The initial survivor's annuity is equal to 66-2/3% of the participant's earned retirement annuity at the date of death, subject to automatic annual increases of the lesser of 3% or one-half of the increase in the Consumer Price Index-U for the 12 months ending in September, based on the originally granted survivor's annuity.
5. Automatic annual increases in the retirement annuity then being paid are equal to the lesser of 3% or one-half the annual change in the Consumer Price Index-U, whichever is less, based on the originally granted retirement annuity.
6. Refund upon withdrawal from service. Upon withdrawal from service, an employee who withdraws from service before age 62 regardless of length of service or withdraws with less than 10 years of service regardless of age is entitled to a refund of total contributions made by the employee without interest.



APPENDIX B
SUMMARY OF SUBSTANTIVE PLAN PROVISIONS FOR RETIREE HEALTH CARE

Eligibility.

Tier 1 retirement (hired before January 1, 2011)

- Age 50 and 10 years of service

Tier 2 retirement (hired on or after January 1, 2011)

- Age 62 and 10 years of service

All active employee members who separate with 10 or more years of service can receive postretirement health benefits under the Plan upon receipt of annuity benefits, provided that if they elect to retire under the Illinois Reciprocal Act, CEABF is their final retirement system. In some cases employees that retire with less than 10 years of service with Cook County may be eligible for Health Benefits due to reciprocity or if they are Tier 1 and qualify for Money Purchase annuity benefits.

Surviving dependents of actively employed members and surviving dependents of covered annuitants are eligible for postretirement health benefits under the Plan upon receipt of annuity benefits.

Eligible annuitants may cover their spouses and dependent children under the age of 26 and all disabled children (no age limitation).

Effective January 1, 2019, all future plan participants who are ineligible for free Medicare Part A must purchase Medicare Part A and Part B in order to receive coverage under the CEABF health plan. CEABF will provide a reduced monthly premium for annuitants and spouses who are ineligible for premium free Medicare Part A.

Medical Plans.

Non-Medicare retirees can choose from:

- United Healthcare Choice PPO
- United Healthcare Choice Plus PPO

Medicare eligible retirees can choose from:

- United Healthcare Choice PPO
- United Healthcare Choice Plus PPO

When Medicare is primary, the medical benefits coordinate by reducing the plan allowed charge amount by Medicare's payment, and then subsequently applying any applicable plan copays, coinsurances or deductibles to the remainder. A retail and mail pharmacy benefit through CVS/Caremark is included with the election of any medical plan. For Medicare primary participants, prescriptions are provided via an Employer Group Waiver Plan (EGWP), with the same copays as the commercial prescription plan.



SECTION VI – APPENDICES

APPENDIX B SUMMARY OF SUBSTANTIVE PLAN PROVISIONS FOR RETIREE HEALTH CARE (continued)

PLAN FEATURES	UNITED HEALTHCARE		
	CHOICE PPO	CHOICE PLUS PPO IN-NETWORK	CHOICE PLUS PPO OUT-OF-NETWORK
Annual Deductible	\$0	\$300 Individual/\$600 Family	\$600 Individual/\$1200 Family
Out-of-Pocket Maximum	\$1,500 Individual/ \$3,000 Family	\$1,500 Individual/ \$3,000 Family	\$5,000 Individual/ \$10,000 Family
Annual Maximum	None	\$1,250,000	\$1,250,000
Doctors and Specialists			
Primary Care Visit	\$15 Copay	15% after deductible	40% after deductible
Specialist Visit	\$25 Copay	15% after deductible	40% after deductible
Physician Services			
Immunizations	Covered in full	100%	40% after deductible
Preventive Care	Covered in full	100%	40% after deductible
Hospital Services			
Inpatient Care	Covered in full	15% after deductible	40% after deductible
Room & Board	\$100 Copay (per admission)	15% after deductible	40% after deductible
Outpatient Services			
Outpatient Surgery	Covered in full	15% after deductible	40% after deductible
Diagnostic Tests and X-rays	Covered in full	15% after deductible	40% after deductible
Chemotherapy / Radiation Therapy	Covered in full	15% after deductible	40% after deductible
Speech, Physical & Occupational Therapy	\$15 Copay (60 visit combined limit/calendar year)	15% after deductible (60 visit combined limit/calendar year)	40% after deductible (60 visit combined limit/calendar year)
Chiropractor	\$15 Copay (30 visit limit)	15% after deductible (30 visit limit)	40% after deductible (30 visit limit)
Behavioral Health Services			
Mental Health – Outpatient	\$15 Copay	15% after deductible	40% after deductible



SECTION VI – APPENDICES

UNITED HEALTHCARE			
PLAN FEATURES	CHOICE PPO	CHOICE PLUS PPO IN-NETWORK	CHOICE PLUS PPO OUT-OF-NETWORK
Mental Health – Inpatient	\$100 Copay	15% after deductible	40% after deductible
Substance Abuse – Outpatient	\$15 Copay	15% after deductible	40% after deductible
Substance Abuse – Inpatient	\$100 Copay	15% after deductible	40% after deductible
UNITED HEALTHCARE			
PLAN FEATURES	CHOICE PPO	CHOICE PLUS PPO IN-NETWORK	CHOICE PLUS PPO OUT-OF-NETWORK
Emergency Services			
Emergency Room	\$100 Copay (waived if admitted)	\$100 Copay (waived if admitted) plus 15% after deductible	\$100 Copay (waived if admitted) plus 15% after deductible
Ambulance	Covered in full	15% after deductible	40% after deductible
Urgent Care Facility	\$40 Copay (in-network only)	15% after deductible	15% after deductible
Hospital Alternatives			
Skilled Nursing Facility	\$100 Copay (90 day limit per calendar year)	40% after deductible (90 days per calendar year)	15% (90 days per calendar year) ¹
Home Health Care	Covered in full	15% after deductible	15% after deductible
Prescription Plan (same for all):	30 Day Supply at Retail: \$10 Generic/\$35 Preferred Brand/\$50 Non-Preferred Brand – 90 Day Supply at CVS or Caremark Mail: \$20 Generic / \$65 Preferred Brand / \$100 Non-Preferred Brand		
¹ 50% coverage with Medicare supplement (90 days per calendar year).			
Coverage is identical between non-Medicare and Medicare supplement plans except where noted.			



SECTION VI – APPENDICES

APPENDIX B SUMMARY OF SUBSTANTIVE PLAN PROVISIONS FOR RETIREE HEALTH CARE (continued)

Contributions.

CEABF pays the following percentage subsidies of the total premium, including the cost of family coverage:

	Participant		Fund	
	Choice PPO	Choice Plus PPO	Choice PPO	Choice Plus PPO
Retiree Annuitant w/o Medicare	52%	57%	48%	43%
Retiree Annuitant with Medicare	62%	66%	38%	34%
Survivor Annuitant w/o Medicare	42%	47%	58%	53%
Survivor Annuitant with Medicare	52%	56%	48%	44%

The following are the annual working rates effective January 1, 2020. These rates represent an estimated cost of self-insured coverage and include administrative expenses.

	Choice PPO	Choice Plus PPO
Single w/o Medicare	\$16,015	\$21,516
Two w/o Medicare	\$32,031	\$43,032
Single with Medicare	\$4,645	\$4,236
Two with Medicare	\$9,290	\$8,473



APPENDIX C
DESCRIPTION OF ACTUARIAL METHODS AND VALUATION PROCEDURES

Actuarial Cost Method.

Liabilities and contributions shown in this report are computed using the **Entry Age Actuarial Cost Method** of funding.

Sometimes called a “funding method,” this is a particular technique used by actuaries for establishing the amount and incidence of the annual actuarial cost of pension Fund benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily the annual contribution to the Fund is comprised of (1) the normal cost and (2) an amortization payment on the unfunded actuarial accrued liability.

Under the Entry Age Actuarial Cost Method, the **Normal Cost** is computed as the level percentage of pay which, if paid from the earliest time each Member would have been eligible to join the Fund if it then existed (thus, entry age) until his retirement or termination, would accumulate with interest at the rate assumed in the valuation to a fund sufficient to pay all benefits under the Fund.

The Normal Cost for the Fund is determined by summing individual results for each active Member and determining an average normal cost rate by dividing the summed individual normal costs by the total payroll of Members before assumed retirement age.

The **Actuarial Accrued Liability** under this method at any point in time is the theoretical amount of the fund that would have accumulated had annual contributions equal to the Normal Cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date.)

The **Unfunded Actuarial Accrued Liability** is the excess of the Actuarial Accrued Liability over the Actuarial Value of Fund Assets actually on hand on the valuation date. The Unfunded Actuarial Accrued Liability is amortized as a level percent of payroll over an open 30-year period.

Under this method experience gains or losses, i.e. decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the Unfunded Actuarial Accrued Liability.



APPENDIX C
DESCRIPTION OF ACTUARIAL METHODS AND VALUATION PROCEDURES
(continued)

Asset Valuation Method.

The actuarial value of assets is based on a five-year smoothing method and is determined by spreading the effect of each year's investment return in excess of or below the expected return. The Fair Value of assets at the valuation date is reduced by the sum of the following:

- (i) 80% of the return to be spread during the first year preceding the valuation date,
- (ii) 60% of the return to be spread during the second year preceding the valuation date,
- (iii) 40% of the return to be spread during the third year preceding the valuation date, and
- (iv) 20% of the return to be spread during the fourth year preceding the valuation date.

The return to be spread is the difference between (1) the actual investment return on Fair Value and (2) the expected return on Fair Value.

Valuation Procedures.

No actuarial liability is included for members who terminated non-vested prior to the valuation date, except those due a refund of contributions.

No termination or retirement benefits were projected to be greater than the dollar limitation required by the Internal Revenue Code Section 415 for governmental Plans.

Annual increases in salary were limited to the dollar amount defined under Internal Revenue Code Section 401(a)(17) for affected members.



APPENDIX D SUMMARY OF ACTUARIAL ASSUMPTIONS FOR PENSION FUND

The actuarial assumptions used for the December 31, 2019 actuarial valuation are summarized below. The mortality rate, termination rate, retirement rate, and salary assumptions are based on an experience analysis of the Fund over the period 2013 through 2016. These assumptions were adopted by the Board as of December 31, 2017, based on the recommendation from the actuary.

Mortality Rates. The RP-2014 Blue Collar table with the following adjustments:

Pre-commencement: adjust all rates by 75%

Post-commencement: adjust rates as follows:

Age	Adjustment Factor
Less than 50	No adjustment
50 - 64	150%
65-69	130%
70-79	110%
80 and over	No adjustment

Fully generational mortality improvement projection assumptions are applied to the above table from base year 2006 using the Buck Modified MP-2017 projection scale. The substantive difference between the Buck scale and that published by the SOA is that the Buck scale reaches an ultimate improvement rate of 0.75% versus the SOA's scale which reaches an ultimate improvement rate of 1.0%.

Termination Rates. Termination rates based on the recent experience of the Fund were used. The following is a sample of the termination rates used:

Attained Age	Age at Entry							
	Male				Female			
	22	27	32	37	22	27	32	37
22	.330				.321			
27	.075	.174			.122	.161		
32	.028	.117	.140		.030	.128	.158	
37	.028	.037	.093	.200	.030	.033	.096	.200
42	.028	.037	.034	.070	.030	.033	.034	.056
47	.028	.037	.034	.025	.030	.033	.034	.026



APPENDIX D
SUMMARY OF ACTUARIAL ASSUMPTIONS FOR PENSION FUND
(continued)

Retirement Rates. For persons who became participants prior to January 1, 2011, rates of retirement for each age from 50 to 80 based on the recent experience of the Fund. The following are samples of the rates of retirement used:

Age	Male		Female	
	Less than 30 years of service	30 or more years of service	Less than 30 years of service	30 or more years of service
<50	0.0%	0.0%	0.0%	0.0%
50	2.5%	40.0%	2.0%	38.0%
51	2.5%	40.0%	2.0%	30.0%
52-53	2.5%	35.0%	2.0%	30.0%
54	4.0%	30.0%	3.0%	30.0%
55-56	4.0%	30.0%	4.5%	30.0%
57	6.0%	30.0%	4.5%	30.0%
58	7.0%	30.0%	5.0%	30.0%
59	12.5%	32.0%	10.0%	35.0%
60	15.0%	25.0%	15.0%	35.0%
61	12.5%	18.0%	12.0%	30.0%
62	12.5%	24.0%	12.0%	30.0%
63	12.5%	30.0%	13.0%	30.0%
64	15.0%	22.5%	16.0%	30.0%
65	20.0%	24.0%	22.0%	35.0%
66	20.0%	30.0%	20.0%	30.0%
67-68	20.0%	24.0%	20.0%	30.0%
69	20.0%	24.0%	20.0%	30.0%
70	25.0%	35.0%	24.0%	35.0%
71	28.0%	35.0%	20.0%	24.0%
72	25.0%	35.0%	28.0%	28.0%
73	30.0%	60.0%	24.0%	25.0%
74-75	30.0%	75.0%	25.0%	30.0%
76-77	40.0%	75.0%	40.0%	40.0%
78-79	50.0%	75.0%	50.0%	50.0%
80+	100.0%	100.0%	100.0%	100.0%



APPENDIX D
SUMMARY OF ACTUARIAL ASSUMPTIONS FOR PENSION FUND
(continued)

Retirement Rates. For Deputy Sheriffs Who Are Members of the Cook County Police Department with 20 or More Years of Service at Retirement

Age	Rate	Age	Rate
50	10.0%	58	10.0%
51	10.0%	59	10.0%
52	10.0%	60	35.0%
53	10.0%	61	35.0%
54	10.0%	62	35.0%
55	10.0%	63	35.0%
56	15.0%	64	35.0%
57	25.0%	65	100.0%

Retirement Rates. For persons who became or will become participants on or after January 1, 2011, rates of retirement for each age from 62 to 75 were used. The following are samples of the rates of retirement that were used:

Age	Rates of Retirement	
	Males	Females
62	.400	.350
64	.225	.150
67	.400	.350
70	.450	.200
75	1.000	1.000

Interest Rate. 7.25% per year, compounded annually.

Inflation Rate. 2.75% per year, compounded annually.



APPENDIX D
SUMMARY OF ACTUARIAL ASSUMPTIONS FOR PENSION
(continued)

Salary Rate (net of inflation):

Age	Rate
20	5.25%
25	4.85%
30	4.25%
35	2.75%
40	1.50%
45+	0.75%

Projected Salary Increase Rate for New Entrants. 2.75% per year (for projection in Section III)

Loading for Reciprocal Benefits. Costs and liabilities of active employees were loaded by 1% for reciprocal annuities where the County is the last employer. It was assumed that 50% of inactive members with one or more year of service would receive a reciprocal annuity where the County is not the last employer. These reciprocal annuities were valued as of the member's retirement date as 10 times an inactive member's accumulated contributions.

Marital Status. 70% of participants were assumed to be married.

Spouse's Age. The spouse of a male employee was assumed to be four years younger than the employee. The spouse of a female employee was assumed to be four years older than the age of the employee.

Inactives. For inactives with 10 or more years of service benefits were estimated based on service and pay and valued as deferred to 55 annuities.



APPENDIX E
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS FOR
RETIREE HEALTH CARE

The actuarial assumptions used for the December 31, 2019 actuarial valuation are summarized below. The mortality rates, termination rates, retirement rates, salary, inflation, participation, and Medicare primary assumptions are based on an experience analysis of CEABF, over the period 2013 through 2016. These assumptions were adopted by the Board on April 5, 2018. Per capita cost and medical trend rate assumptions are revisited annually.

Valuation Date. December 31, 2019

Discount Rate. 7.25%

Mortality Rates. The RP-2014 Blue Collar table with the following adjustments:

Pre-commencement: adjust all rates by 75%

Post-commencement: adjust rates as follows:

Age	Adjustment Factor
Less than 50	No adjustment
50 - 64	150%
65-69	130%
70-79	110%
80 and over	No adjustment

Fully generational mortality improvement projection assumptions are applied to the above table from base year 2006 using the Buck Modified MP-2017 projection scale. The substantive difference between the Buck scale and that published by the SOA is that the Buck scale reaches an ultimate improvement rate of 0.75% versus the SOA's scale which reaches an ultimate improvement rate of 1.0%.

Termination Rates. Termination rates based on the recent experience of the Fund were used. The following is a sample of the termination rates used:

Attained Age	Age at Entry							
	Male				Female			
	22	27	32	37	22	27	32	37
22	.330				.321			
27	.075	.174			.122	.161		
32	.028	.117	.140		.030	.128	.158	
37	.028	.037	.093	.200	.030	.033	.096	.200
42	.028	.037	.034	.070	.030	.033	.034	.056
47	.028	.037	.034	.025	.030	.033	.034	.026



APPENDIX E
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS FOR
RETIREE HEALTH CARE
(continued)

Retirement Rates. For persons who became participants prior to January 1, 2011, rates of retirement for each age from 50 to 80 based on the recent experience of the Fund. The following are samples of the rates of retirement used:

<u>Age</u>	<u>Male</u>		<u>Female</u>	
	<u>Less than 30 years of service</u>	<u>30 or more years of service</u>	<u>Less than 30 years of service</u>	<u>30 or more years of service</u>
<50	0.0%	0.0%	0.0%	0.0%
50	2.5%	40.0%	2.0%	38.0%
51	2.5%	40.0%	2.0%	30.0%
52-53	2.5%	35.0%	2.0%	30.0%
54	4.0%	30.0%	3.0%	30.0%
55-56	4.0%	30.0%	4.5%	30.0%
57	6.0%	30.0%	4.5%	30.0%
58	7.0%	30.0%	5.0%	30.0%
59	12.5%	32.0%	10.0%	35.0%
60	15.0%	25.0%	15.0%	35.0%
61	12.5%	18.0%	12.0%	30.0%
62	12.5%	24.0%	12.0%	30.0%
63	12.5%	30.0%	13.0%	30.0%
64	15.0%	22.5%	16.0%	30.0%
65	20.0%	24.0%	22.0%	35.0%
66	20.0%	30.0%	20.0%	30.0%
67-68	20.0%	24.0%	20.0%	30.0%
69	20.0%	24.0%	20.0%	30.0%
70	25.0%	35.0%	24.0%	35.0%
71	28.0%	35.0%	20.0%	24.0%
72	25.0%	35.0%	28.0%	28.0%
73	30.0%	60.0%	24.0%	25.0%
74-75	30.0%	75.0%	25.0%	30.0%
76-77	40.0%	75.0%	40.0%	40.0%
78-79	50.0%	75.0%	50.0%	50.0%
80+	100.0%	100.0%	100.0%	100.0%



APPENDIX E
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS FOR
RETIREE HEALTH CARE
(continued)

Retirement Rates. For persons who became or will become participants on or after January 1, 2011, rates of retirement for each age from 62 to 75 were used. The following are samples of the rates of retirement that were used:

Age	Rates of Retirement	
	Males	Females
62	.400	.350
64	.225	.150
67	.400	.350
70	.450	.200
75	1.000	1.000

Inflation Rate. 2.75% per year, compounded annually.

Salary Rate (net of inflation):

Age	Rate
20	5.25%
25	4.85%
30	4.25%
35	2.75%
40	1.50%
45+	0.75%

Disability Rates. Included in termination and retirement rates.



APPENDIX E
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS FOR
RETIREE HEALTH CARE
(continued)

Anticipated Plan Participation.

65% of eligible employees are assumed to elect retiree medical benefits. Of those who elect retiree medical benefits, 94% are assumed to be eligible for free Medicare Part A. For those assumed to be ineligible for free Medicare Part A, a reduced premium will be provided by CEABF.

40% of vested terminated employees are assumed to elect retiree medical benefits upon retirement, and are assumed to retire at age 61.

Based on recent experience, future annuitants are assumed to elect from among the available plans as follows:

% Who Elect	Choice PPO	Choice Plus PPO
Pre-Medicare	95%	5%
Post-Medicare	77%	23%

Current annuitants who elect coverage are assumed to remain in coverage. Current annuitants who have waived or deferred coverage are not assumed to participate in the future.

Dependent Coverage.

35% of future annuitants are assumed to cover a dependent. 35% of surviving dependents are assumed to elect coverage upon the death of an actively employed member and are assumed to commence benefits when the actively employed member would have reached age 61. Males are assumed to be 4 years older than females. Actual ages were used for dependents of current annuitants.

Medicare Coordination.

Medicare is assumed to remain the primary payer for current and future retirees and spouses who are at least age 65 and who are currently on Medicare. Medicare is assumed to become primary for 100% of retirees and spouses who retired before January 1, 2019 and who are not yet age 65, when they attain that age. However, 5% of this group is assumed to be ineligible for free Medicare Part A and a reduced premium will be provided by CEABF. For all other retirees and spouses, Medicare is assumed to be the primary payer at the time they reach age 65.

Per Capita Health Plan Costs.

Estimated net annual per capita incurred claim costs per covered adult for fiscal year 2020 at age 65, reflecting administrative expenses, drug rebates and EGWP subsidies.



APPENDIX E
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS FOR
RETIREE HEALTH CARE
(continued)

	Choice PPO	Choice Plus PPO
Not Medicare Eligible	\$18,548	\$27,008
Medicare Eligible	\$4,375	\$3,853

Per capita medical costs were developed using claims, enrollment, drug rebates and EGWP subsidies for the period from January 1, 2019 through December 31, 2019 provided by the Fund. The resulting costs were adjusted for age morbidity.

The valuation relies on the accuracy of the rate calculations. We understand that the rates represent medical and prescription drug benefit costs only for annuitants under the Fund.

Age-based Morbidity.

Per capita costs are adjusted to reflect expected cost differences due to age and gender. The morbidity factors for pre-Medicare morbidity were developed from "Health Care Costs—From Birth to Death" sponsored by the Society of Actuaries and prepared by Dale H. Yamamoto (May 2013). Table 4 from Mr. Yamamoto's study formed the basis of Medicare morbidity factors that are gender distinct and assumed a cost allocation of 60% for pharmacy, 20% for inpatient, 10% for outpatient, and 10% for professional services. Adjustments were made to Table 4 factors for inpatient costs at age 70 and below to smooth out what appears to be a spike in utilization for Medicare retirees gaining healthcare for the first time through Medicare. While such retirees were included in the study, their specific experience is not applicable for a valuation of an employer retiree medical plan where participants had group active coverage before retirement. Morbidity factors at sample ages are shown below

Age	Male	Female
50	0.4612	0.5736
55	0.6085	0.6667
60	0.7829	0.7791
65	1.0000	0.9438
70	1.1873	1.1094
75	1.2752	1.2009
80	1.3381	1.2697
85	1.3479	1.3171
90	1.3235	1.3303



APPENDIX E
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS FOR
RETIREE HEALTH CARE
(continued)

Health Care Cost Trend Rates.

Health care cost trend rates apply to expected claims, premiums and retiree contributions:

Year	Pre-Medicare	Post-Medicare
2020	7.25%	5.75%
2021	7.00%	5.50%
2022	6.75%	5.25%
2023	6.50%	5.00%
2024	6.25%	4.75%
2025	6.00%	4.75%
2026	5.75%	4.75%
2027	5.50%	4.75%
2028	5.25%	4.75%
2029	5.00%	4.75%
2030+	4.75%	4.75%



APPENDIX E
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS FOR
RETIREE HEALTH CARE
(continued)

Census Data.

The active, deferred vested and retiree census were provided by the Fund.

Actuarial Cost Method.

The entry age actuarial cost as a percentage of earnings was used.

Amortization Method.

30 years open, level dollar.

Assets.

The valuation assumes CEABF or the County has not set aside any assets to prefund its retiree medical liabilities.

IBNR.

The calculations do not include any explicit amount for incurred but not reported claims (IBNR).

Retiree Drug Subsidy and Employer Group Waiver Plan.

CEABF will no longer be receiving the Retiree Drug Subsidy due to their switch to an EGWP plan effective January 1, 2017. Per capita claims costs for fiscal year 2020 include approximately 24% savings due to drug rebates and EGWP subsidies.

Miscellaneous.

The valuation was prepared on an on-going plan basis. This assumption does not imply that an obligation to continue the plan actually exists.



APPENDIX E
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS FOR
RETIREE HEALTH CARE
(continued)

Considerations of the Patient Protection and Affordable Care Act (PPACA)

Summary of Effects of Selected Provisions:

Expansion of Child Coverage to Age 26. The impact of covering retiree children to age 26 is assumed to be reflected in the working rates provided and in the claims experience.

Medicare Part D Retiree Drug Subsidy. CEABF will no longer be receiving the Retiree Drug Subsidy due to their switch to an EGWP plan effective January 1, 2017. Per capita claims costs for fiscal year 2020 include approximately 24% savings due to drug rebates and EGWP subsidies.

Affordable Care Act. The impact of the Affordable Care Act (ACA) was addressed in this valuation. Review of the information currently available did not identify any specific provisions of the ACA that are anticipated to significantly impact results. While the impact of certain provisions such as the future implementation of the excise tax on high-value health insurance plans (if applicable), mandated benefits and participation changes due to the individual mandate should be recognized in the determination of liabilities, overall future plan costs and the resulting liabilities are driven by amounts employers and retirees can afford (i.e., trend). The trend assumption forecasts the anticipated increase to initial per capita costs, taking into account health care cost inflation, increases in benefit utilization, plan changes, government-mandated benefits, and technological advances. Given the uncertainty regarding the ACA's implementation (e.g., the impact of excise tax on high-value health insurance plans, changes in participation resulting from the implementation of state-based health insurance exchanges), continued monitoring of the ACA's impact on the Plan's liability will be required.

Benefits Not Valued. Just before these results were published, on May 21, 2020, the Levin case was decided in the plaintiff's favor. As of the date of the report, CCPF is not yet able to reasonably ascertain which individuals might be granted benefits, nor do they know what those benefits might be. Consequently, we cannot provide any reasonable range of the impact of this court decision at this time and the cost impact of the Levin case is not included in the results of this valuation report.



**APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES**

1982 Session

SB 1147

- Actuarial reporting to Insurance Department and Pension Laws Commission. Actuarial statements prepared by a qualified actuary for plan years ending after December 31, 1984 including actuarial present value of credited projected benefits.

SB 1452

- Allows a participant who served as Village Trustee and was not then eligible to participate in the IMRF for such service, to obtain credit in this fund by making the required contributions. Four-year maximum credit.

SB 1579

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

HB 2286

- Deputy Sheriff may elect between January 1, 1983 and January 15, 1983 to transfer credit to this Fund from the State Employees' Retirement System.

1983 Session

SB 22

- Delegation of investment authority restrictions.

HB 514

- 10% prudent person investment category.
- 10% increase in spouse benefits to spouses receiving benefits as of January 1, 1984.
- Immediate participation rather than after 1 year of service.
- Refunds if off the payroll at least 30 days.
- Money purchase annuity for County Sheriffs service not counted for Sheriff Formula.
- Elected sheriff may be covered by Sheriff Formula with contributions.



**APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)**

HB 637

- Allows an active member of the General Assembly to establish credit in this fund for time for which he or she could have elected to participate with interest at 6% and to transfer credits to the Park Fund.

1984 Session

- No legislative changes.

1985 Session

HB 17

- For withdrawals on or after July 1, 1985, 10 year vesting formula (for employee minimum and spouse minimum annuity) providing the employee 2% of final average earnings for each year of service reduced 0.5% (for ages 55-60) for each month under age 60 (but no reduction with at least 30 years of service). Spouse minimum amount is 50% of the employee's amount at retirement (reduced 0.5% for each month the spouse is under age 60) but not less than 10% of the final average earnings.
- Unisex money purchase factors for widows/widowers.
- Disability provisions extended to 70 in certain cases.
- Sheriff formula for withdrawals after December 31, 1985 after having attained age 50 in service with 20 or more years of service of 50% of 4 year average earnings plus 2% for each year or fraction of service over 20.
- Changes in the reversionary annuity provisions.
- Optional plan of 3% contributions for 1% optional benefit per year of service. Provisions for payment of past service with interest. Provisions expire July 1, 1990. Such plan, if elected by a member, would require a 3% of salary contribution (with interest for past service) and would produce an additional 1% per year of service benefit and would increase the employee annuity, post-retirement increase and spouse annuity. Membership in this plan is optional and as such, it is possible to delay election to just prior to retirement.

1986 Session

HB 2630

- Allows for a member of a County police department to establish service credit for approved leaves of absence without pay, during which the employee served as head of an employee association consisting of other police officers by making the required contributions.
- Allows for the use of service of less than one year for calculating reciprocal annuities in the case of employees who transfer or are transferred as a class from one participating system to another.



APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)

HB 2715

- For withdrawals after January 1, 1988, and for employees with at least 10 years of service and age 50, the minimum formula annuity is increased to 2.2% of the Final Average Salary for each of the first 20 years of service and 2.4% for each year thereafter, not to exceed the maximum of 80% of Final Average Salary. For retirement between age 50 (new minimum retirement age) and age 60, the annuity thus computed will be reduced 0.5% for each month the employee is under age 60 unless the employee has 30 or more years of service in which case no reduction will apply.
- The surviving spouse of an employee who retires on or after January 1, 1988, with at least 10 years of service is entitled to 50% of the annuity including increases that the deceased annuitant was receiving as of his or her date of death. Such annuity to be reduced 0.5% for each month the surviving spouse is under age 60 at the date of the annuitant's death.
- Effective January 1, 1988, any child's annuity being paid shall be increased from \$140 per month to 10% of the employee's salary at the date of death provided that the increased annuity would be greater than \$140 per month, subject to Statutory maximums.
- Effective January 1, 1987, the maximum age conditions for any disability are removed for employees whose disability continued past that date.
- A Deputy Sheriff with at least 15 years of service as a Deputy Sheriff can receive credit under the Police formula for other Cook County service by electing to pay an additional contribution prior to retirement. In addition, any Police Officer who has rendered at least 20 years of service and who separates from service prior to age 50 and does not withdraw his or her contributions can apply for pension benefits at age 50 without returning to duty.
- Effective July 1, 1988, all employee and surviving spouse annuitants will receive a one-time increase. Such increase to be an additional 1% for each full year that the annuitant has received benefits as of July 1, 1988.
- An alternative plan for elected officials of 3% of the Final Average Salary for the first 8 years, 4% for the next 4 years and 5% thereafter, subject to the maximum of 80%, is available. The elected official must contribute an additional 3% of salary to receive these benefits.
- Effective December 1, 1988, the Retirement Board will be increased from 5 to 7 Trustees. One annuitant Trustee to be elected for a 3 year term by those persons receiving annuity or disability benefits and 1 County Trustee to be elected by the County contributors for a term of 3 years beginning December 1, 1988.

1988 Session

- No legislative changes

1989 Session**SB 95**

- Allows active members of the General Assembly to transfer credits and creditable service established in the Fund to a Fund established under Article 5 of the Pension Code.



APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)

- For withdrawals on or after July 1, 1985, provides that for employees with at least 30 years of service, no reduction for age less than 60 will apply for the spouse annuity.

SB 1096

- Extends the Optional Plan of benefits from the original expiration date of July 1, 1990 to July 1, 1992.

HB 332

- Signed August 23, 1989.
- Eliminated age-related discriminatory provisions as required by Federal law or regulations.
- Provided for age discrimination changes effective January 1, 1988 to eliminate age 65 requirements for marriage in service and children's benefits, provided contributions after age 65 for spouse benefits, provided employee accumulation annuities be computed after age 70, provided employee and spouse accumulation annuities not be "fixed" at age 65, provided no age 70 restriction on disability benefits, provided for active members over age 65 that their accounts be "unfixed" and accumulate interest until the date of withdrawal, and provided that there be no age 70 membership limitation and removed the permitted "no spouse" refund at age 65.
- Provides that for employees retiring after January 1, 1988, but before age 55, Section 20-131 shall not apply; therefore, they are not entitled to the alternative formula set forth in Section 20-122 repealed in 1975.

HB 158

- Provides for payment by the Fund of 50% of the health care premiums for annuitants who participate in any of the County's health care programs beginning January 1, 1990 and ending December 31, 1993, subject to the following maximums:

Single coverage, no Medicare	\$130.00 per month
Single coverage, with Medicare	39.00 per month
Annuitant + 1 family member, no Medicare	212.00 per month
Annuitant + 1 family member. 1 with Medicare	168.00 per month
Annuitant + 1 family member, both with Medicare	78.00 per month
Annuitant + 2 or more family members, no Medicare	280.00 per month



**APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)**

1990 Session

SB 1951

- Signed January 14, 1991.
- Raises the maximum annuity for a Deputy Sheriff from 75% of final average salary to 80% of final average salary.
- Provides for a revised table to be used for reversionary annuities to allow for the younger age 50 retirement approved in previous legislation.
- Allows for the refund of the additional 0.5% contributions that are paid by a Deputy Sheriff for the special Sheriff's formula to be refunded if the regular formula is used to calculate the employee annuity at the time of retirement. The refund, if given, is to include the interest as well as the 0.5% contributions.
- In the case where an employee who is disabled and cannot return to work after all his/her disability credit has expired, and chooses the option to pay for up to one additional year of service under Section 9-174, this additional service will not affect the resignation date for annuity purposes, but the salary and service will be used for such purposes.
- Provides for employees who retire on or after November 1, 1990, any accumulated vacation paid out in a lump-sum at the time of retirement will not affect the employees' withdrawal date for purposes of annuity. Any service will be granted and used for annuity purposes, but the final average salary will not include the salary for any vacation paid out.



APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)

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.

1991 Session

HB 971

- Signed November 19, 1991.
- Early Retirement Window for employees attaining age 55 prior to withdrawal and withdrawing on or after January 1, 1992, but before December 31, 1992, the service requirement for minimum formula annuity is reduced to 5 years. In addition, for the same period above, the age discount for retirement prior to age 60 is reduced to 0.25% per month under age 60 at retirement. The widow(er)'s annuity for the above early retirement window is 50% of the employee's annuity reduced by 0.5% for each month the widow(er) is under the age 60 at the time of the employee's death.
- Provides that the 3% annuity increase will begin on January 1st following the first anniversary of retirement for employees who retired with 30 or more years of service and were under age 60 at retirement.
- Extends the Optional Plan of Benefits for an additional 5 years to July 1, 1997.
- Allows for an employee to make contributions and receive service credit for any unused accumulated sick leave up to 180 days, at retirement.
- Employees may now discontinue making contributions to the Pension Fund after 35 (previously 42) years of contributing service upon notification to the Retirement Board at least 60 days before the deductions cease.
- For widow(er)s of employees or annuitants who die after November 19, 1991, the maximum limit on the spouse annuity is removed provided that the employee was at least 60 with at least 20 years of service or also if retirement occurred on or after January 1, 1982, at age 65 or over with at least 10 years of service for retirements.
- For widow(er)s of employees who retired on or after January 1, 1984, but before July 1, 1985, with at least 30 years of service, the annuity is 50% of the employee's annuity as of the date of retirement with no discount for under age 60.
- Beginning with retirements or deaths on January 1, 1992, with at least 10 years of service, the age discount for a widow(er)'s annuity will be 0.5% for each month the widow(er) is under age 55 at the date of the employee's death. This is reduced from age 60 for prior deaths or retirements.
- Beginning on November 19, 1991, provides for a \$1,000.00 death benefit payable upon the death of employee or annuitant to the employee's designated beneficiary, or to the employee's estate if no beneficiary has been named.
- Beginning December 1, 1991, the Fund may pay, on behalf of each of the Fund's annuitants who choose to participate in any of the County's health care plans, all or any portion of the total health care premium (including coverage for other family members) due from each such annuitant.
- Allows the annuitant to authorize the withholding of dues from annuity checks for certain labor organizations.
- Allows participation for all employees with at least one month of service.



APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)

- Provides for a repayment of contributions and transfer of service from the General Assembly and for former members of the General Assembly through February 1, 1993.
- Grants the authority to rent or lease office space to the Board of Trustees when deemed desirable for the purposes of the Fund.
- Allows the Pension Fund to withhold contributions to a labor organization from annuity checks provided that at least 100 annuitants authorize withholdings from their checks.
- Provides for the repayment of contributions by former members of the County Police who were the head of an employee association, to include both the employee and employer shares.

1992 Session

SB 1770

- Signed September 16, 1992.
- Early Retirement Incentive
- Provides an extra 1% per year of County service, up to 10 maximum, times the final four year average salary for those eligible employees. There is no cost to the employee. The age discount from age 55 to 60 is eliminated if eligible.
- Eligible if a contributing member on May 1, 1992 and:
- Retires on or after December 1, 1992 and on or before May 29, 1993;
- Attains age 55 or more on or before the date of retirement; and
- Has at least 10 years of creditable service.

1993 Session

SB 1650

- Signed January 26, 1993.
- Provides that the 3% annuity increase will begin no later than January 1, 1993 for employees who retire before age 60 before January 1, 1991 with at least 30 years of service.
- For widow(er)s of annuitants who die on or after January 1, 1993, the widow(er)'s annuity shall be 50% of employee's retirement annuity at death discounted 0.5% per month the widow(er)'s age is less than 55, except if the employee had 30 years of service.
- Allows an employee with 25 years of service to pay for up to 2 years of military service, whether or not followed by County service.
- Two year minimum subsequent service is changed to six months for employees who apply to repay a refund between January 1, 1993 and March 1, 1993.
- Employees may transfer to County up to 10 years with Municipal or Laborers' until March 1 1993.
- Allows for transfer of County service credit to Judges.
- Allows a State Policeman to transfer all or some of his service with County Police to State Employees Retirement System until July 1, 1993 and reinstate service credit terminated by a refund by paying 6% compounded annually until July 1, 1993.



APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)

- Former members of County Police who retire January 1, 1993 to March 1, 1993 do not have to pay employer contribution for periods served as head of an employee association.

1994 Session

- No legislative changes.

1995 Session

SB 114

- Approved July 14, 1995.
- 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 participants before 1996.
- Allows for active participants employed by the Cook County State's Attorney's office on January 1, 1995 to transfer to this Fund credits accumulated under a pension fund established under Article 5 of this Code and to transfer said credits from said fund to the Cook County fund upon payment of both employee and employer contributions with 6% interest to the County Employees' and Officers' Annuity and Benefit Fund.
- The Fund 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

SB 1456

- Approved August 9, 1996.
- Any chief of the County Police Department or undersheriff of the County Sheriffs Department may elect to be included as a deputy sheriff.



**APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)**

1997 Session

HB 313

- Signed June 27, 1997.
- Change County size necessary for fund creation to 3,000,000 from the previously required 500,000.
- As of January 1, 1998 the automatic annual increase for employee and spouse annuitants changed to 3% compounded for all past, current, and future annuitants, regardless of the effective date of the annuity. Term annuities are not eligible for the automatic annual increase.
- Early Retirement Incentive
- Provides an extra 1% per year of County service, up to 10 maximum, times the final four year average salary for those eligible employees. There is no cost to the employee. The age discount from age 55 to 60 is eliminated if eligible.
- Eligible if a contributing member on May 1, 1997 and:
- Retires on or after September 1, 1997 and on or before February 28, 1998;
- Attains age 55 or more on or before the date of retirement; and
- Has at least 10 years of creditable service.
- Effective January 1, 1998 all widow(er) annuitants will have their annuities increased by 3% and will receive the automatic increase of 3% compounded annually. Those widow(er) annuitants receiving a Term annuity will not be eligible for the automatic annual increase.
- Extends the Optional Plan of benefits to July 1, 2002.
- Allows members of the Cook County police department to transfer their service into the Policemen's fund until July 1, 1998. and to reinstate service credit terminated by a refund by paying 6% compounded annually.
- Allows members of the fund with at least 20 years of service credit to make contributions, until June 1, 1998, into the fund based on CTA compensation and creditable service is granted for this period for up to 10 years of service credit.

1998 Session

- Effective July 1, 1999, Public Act 90-731, allows an alternate payee (former spouse, child, or dependent) designated in a Qualified Domestic Relations Order to receive all or a specified portion of a member's retirement benefits or refund otherwise payable to the member.

1999 Session

- No legislative changes.

2000 Session

- Passed Public Act 87-1130, which removes the remarriage penalty. Effective September 6, 2000 widow annuities will no longer be ceased due to their remarriage.



**APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)**

2001 Session

- No legislative changes.

2002 Session

HB 5168

- Signed June 28, 2002.
- Contractual service to the Retirement Board, of at least 5 years, can be purchased as creditable service in the fund for up to 10 years of services by making a written application to the board before July 1, 2003. A person who establishes such credit may, at the same time, reinstate credit in the Fund and repay a refund without a return to service.
- An employee, who withdraws on or after July 1, 1996 but before August 1, 1996, at age 55 or over with 8 or more years of service, may elect to receive a minimum formula annuity equal to 2.2% of the Final Average Salary for each of the first 20 years of service and 2.4% for each year thereafter, not to exceed the maximum of 80% of Final Average Salary. There will be an age discount of 0.25% for each month that the employee is under the age of 60, unless the employee has at least 30 years of service.
- For withdrawals after June 30, 2002, with at least 10 years of service and age 50. The minimum formula annuity is increased to 2.4% of the Final Average Salary for each year of service, not to exceed the maximum of 80% of Final Average Salary.
- Early Retirement Incentive
- Provides an extra 1% per year of County service, up to 10 maximum, times the highest consecutive four year average salary in the last 10 years of service for those eligible employees. There is no cost to the employee. The age discount for attained age under 60 is eliminated if eligible.
- Eligible if a contributing member on January 1, 2001 and:
 - Retires on or after November 30, 2002 and on or before March 31, 2003;
 - Attains age 50 or more on or before the date of retirement; and
 - Has at least 20 years of creditable service in the Fund.
- For widow(er)s of annuitants who die in service or after July 1, 2002, or has at least 10 years of service and dies on or after July 1, 2002 while receiving an annuity, the widow(er)'s annuity shall be 65% of employee's retirement annuity at death discounted 0.5% per month the widow(er)'s age is less than 55, except if the employee had 30 years of service.
- For widow(er)s of annuitants who were not married at the time of retirement, but married after retirement for at least one year prior to annuitant's death, the widow(er) will be eligible for an annuity if the refunded contributions for a widow(er)s annuity are repaid, plus interest at the rate of 6% per year. (The Pension Fund Board has received a legal opinion that has interpreted this to include the current widow(er). The legal opinion was that, since in these instances no refund of spouse contributions was made, there is no payment due from the widow.)
- Extends the Optional Plan of benefits to July 1, 2005.



**APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)**

2003 Session

- No legislative changes.

2004 Session

- No legislative changes.

2005 Session

SB 1446

- Made certain changes to the provisions relating to QILDRO, effective July 1, 2006. It makes an alternate payee entitled to receive death benefits and allows the alternate payee to receive a percentage of the employee's retirement benefits (instead of only a fixed dollar amount).
- Public Act 94-0079, prohibits Illinois public pension funds from investing or depositing in entities doing business in or with the government of Sudan.

2006 Session

- No legislative changes.

2007 Session

HB 49

- Public Act 95-279, effective January 1, 2008.
- Provides that legally adopted children shall be entitled to the same benefits as other children, and no child's or survivor's benefit shall be disallowed because the child is an adopted child.

HB 3578

- Public Act 95-0654, effective January 1, 2008.
- Eliminated the alternative formula for County officers elected after January 1, 2008.



APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)

SB 377

- Signed into law on August 23, 2007 as Public Act 95-0369.
- Provided that members who were in active employee status on December 31, 2006, applies for a refund of contributions between the dates of August 23, 2007 and October 7, 2007, and resigns their position between August 23, 2007 and October 22, 2007, shall be entitled to receive a one-time lump sum retirement cancellation payment equal to the member's accumulated contributions with interest, multiplied by 1.5, in lieu of any retirement annuity or other benefit provided by the fund. An employee who receives a retirement cancellation payment may not be rehired until after being out of service for at least 365 days. A person who has received an alternative retirement cancellation payment and who returns to service under the Fund must repay the regular refund with interest at 3% per year and the 50% enhancement payment with interest at 6% per year.
- Eliminated the requirement to maintain various reserve accounts no longer needed for the administration of the fund.

SB 1380

- Signed into law on August 28, 2007 as Public Act 95-0504.
- Provides that for 6 months from the effective date, an employee may transfer to this Fund up to 6 years of creditable service accumulated under Article 3 of the Pension Code upon payment to this Fund of the amount of employee and employer contribution that would have been required if the employee had participated in this Fund during the period for which credits is being transferred plus interest at the rate of 6% per year.

2008 Session**SB 2520**

- Public Act 95-1036, effective February 17, 2009.
- Provides that duty disability and child's disability benefits shall not be allowed unless application therefor is made while the disability exists; except that this limitation does not apply if the Board finds that there was reasonable cause for delay in filing the application while the disability existed. Provides that this is intended to be a restatement and clarification of existing law and does not imply that application for a duty disability benefit made after the disability had ceased, without a finding of reasonable cause, was previously allowed under this Article.
- Provides that (i) before any action may be taken by the Board of Trustees on an application for duty disability benefit or widow's compensation or supplemental benefit, the related applicant must file a timely claim under the Workers' Compensation Act or the Workers' Occupational Diseases Act, as applicable, to establish that the disability or death resulted from an injury incurred in the performance of an act or acts of duty, and the applicant must receive compensation or payment from the claim or the claim must otherwise be finally adjudicated and (ii) with respect to duty disability', satisfactory proof must be provided to the Board that the final adjudication of the claim established that the disability or death resulted from an injury incurred in the performance of an act or acts of duty.
- Amends the Cook County County Article of the Illinois Pension Code. Adds a provision imposing forfeiture of benefits upon conviction of a felony arising out of or in connection with the member's employment.



APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)

2009 Session**SB 0364**

- Public Act 96-0006 effective April 3, 2009.
- Requires Board members to file a verified written statement of economic interest annually with the office of the Clerk of Cook County.
- Requires the Board to adopt a policy that sets quantifiable utilization goals for the management of assets in specific asset classes for emerging investment managers. Goals shall be separated by minority ownership, female ownership, and person with a disability ownership.
- Requires that if at least one emerging firm meets criteria of search process, at least one shall be invited to present to the Board for final consideration.
- Requires the Board to adopt a policy that sets forth goals for increasing the racial, ethnic, and gender diversity of its fiduciaries, including its consultants and senior staff.
- Requires the Board to adopt a policy that sets forth goals for utilization of WMDBE firms for all contracts and services, based on the percentage of total dollar amounts of all contracts let.
- Requires the Board to adopt a policy that sets forth goals for increasing the utilization of minority broker-dealers.
- Requires an annual report to the Governor and General Assembly on the utilization of "emerging firms" as defined by Article 1 of the Pension Code.
- Requires the Board to award all contracts for investment services using a competitive process that is substantially similar to the process required for the procurement of professional services under Article 35 of the Illinois Procurement Code. Requires the Board to adopt a procurement policy which will be posted on the Fund's website and filed with the Illinois Procurement Policy Board.
- Provides that a person may not act as a consultant or investment adviser unless that person is registered as an investment adviser or bank under the federal Investment Advisers Act of 1940.
- Requires investment contracts between the Retirement Board and investment service providers to include certain required information.
- Provides consultant contracts cannot exceed five years in duration; however, incumbent consultants may compete for new contracts.
- Requires investment consultants and advisers to disclose all direct and indirect fees, commissions, penalties, and other compensation paid by or on behalf of the investment consultant or adviser in connection with the services provided.
- Requires that a description of every contract let for investment services be posted on the website, including name of entity awarded the contract, amount of contract, total fees paid, and disclosure describing the factors that contributed to the selection.
- Requires the Fund to maintain a website that shall include standard investment reporting, a copy of relevant Board policies, a listing of investment consultants and managers, a notification of any requests for investment services, and the names and e-mail addresses of Board members, Fund directors, and senior staff.
- Requires Board members to attend at least eight hours of ethics training per year and requires each Board to annually certify its member's compliance and submit an annual certification to the Division of Insurance of the Department of Financial and Professional Regulation.



APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)

- Prohibits any Fund trustee or employee or their spouses or immediate family living with them to intentionally solicit or accept any gift from any prohibited source as prescribed in Article 10 of the State Officials and Employees Ethics Act, including educational materials and missions and travel expenses for discussing Fund business.
- Provides that any person who knowingly makes any false statement or falsifies or permits falsifying any record of the pension fund in an attempt to defraud is guilty of a Class 3 felony.
- Provides that no person or entity shall retain a person or entity to influence the outcome of an investment decision or the procurement of investment advice to a pension fund for compensation, contingent upon the decision of the Board.
- Requires approval for travel or education mission expense of a Trustee by a majority of the Board prior to mission.

SB 0189

- Public Act 96-0542 effective August 17, 2009.
- Amends the Open Meetings Act and the Freedom of Information Act.

2010 Session**SB 1946 and SB 550**

- Public Acts 96-0889, effective April 14, 2010, added 5/1-160 and Public Act 96-1490, effective December 30, 2010, made technical changes 5/1-160. These acts created a 2nd Tier of benefits for all reciprocal systems of the Pension Code.
- Members first participating in any reciprocal fund, except Judges and GARS, on or after January 1, 2011 will be Tier 2 members.
- Tier 2 members will have their salary capped at \$106,800 for all purposes. The amount of the cap is subject to increase annually at the lesser of 1/2 of the change in CPI-U or 3%. If the change in CPI-U is zero or negative, the cap will not change.
- Tier 2 member's Final Average Salary (FAS) used in annuity benefit calculations will be based on the highest consecutive 96 months in the last 10 years.
- Tier 2 members will not be able to receive an unreduced retirement annuity until age 67 and the earliest they can receive any retirement annuity is age 62. Annuities payable before age 67 are reduced 1/22% for each full month under 67 regardless of service. Tier 2 members must have at least 10 years of service to qualify for a retirement annuity.
- Tier 2 members will not be able to receive a COLA until the January 1 following their 67th birthday or following the 1 year anniversary of retirement, whichever is later. The COLA will not be compounded and will be the lesser of 1/2 the change in CPI-U or 3%. If the change in CPI-U is zero or negative, there will be no increase.
- The Tier 2 surviving spouse annuity will be 66-2/3% of the member's retirement annuity at death. If the member is not retired, it is 66-2/3% of the member's earned retirement annuity.
- The Tier 2 COLA for a surviving spouse annuity will begin the January 1 following the member's death if the member was retired. If the member was not retired it will begin on the January 1 following the 1 year anniversary of the member's death. The COLA will not be compounded and will be the lesser of the 1/2 change in CPI-U or 3%. If the change in CPI-U is zero or negative, there will be no increase.



**APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)**

- Tier 2 members receiving a retirement annuity will have their annuity suspended if they go to work on a full time basis with any reciprocal fund except Judges and GARS.
- There was no change in the member's benefit accrual percentage (2.4% per year) or the employee or employer contributions.

HB 4644

- Public Act 96-0961 effective July 2, 2010 added 5/9-128.2 allows elected officials to establish earnings credit for the amount of stipend that was not received.
- Member must pay employee contributions and employer's normal cost on the stipend not received and actuarially assumed interest. Payment must be received by January 2, 2011.

2011 Session

SB 1716

- Public Act 96-1513 effective June 1, 2011 allows 2 unmarried people to enter into a Civil Union. Partners of a Civil Union are to be treated the same as a spouse in the State of Illinois.
- The Fund will now grant spouse annuity benefits to a partner of a Civil Union and annuitants can cover their Civil Union partners under the Fund's Health Benefit plan. A Civil Union certificate will be treated as the equivalent to a Marriage certificate.

SB 1672

- Public Act 97-0530 effective August 23, 2011 requires all Funds to comply with the Federal H.E.A.R.T. Act of 2008.
- Public Act 97-0609 effective January 1, 2012 amends 5/1-160(h) stating members that first become participants on or after the effective date will have their retirement annuity suspended if they return to work for the employer on a contractual basis.
- The member is required to notify the Fund prior to accepting the contractual employment.

HB 1670

- Public Act 97-0504 effective January 1, 2012 amends the Open Meetings Act to require elected or appointed members of public bodies to take electronic training by the Attorney General's Public Access Counselor. Training must be completed by the end of 2012. Members that are elected or appointed after January 1, 2012 must complete the training within 90 days of taking the oath or assuming the responsibilities of the position.

HB 3813

- Public Act 97-0651 effective January 5, 2012 amends Article 1 in regards to Fraud and Fiduciary Liability.
- Requires fiduciaries to report reasonable suspicion of false statements. The Board of Trustees must report reasonable suspicion of false statements to the State's Attorney.



**APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)**

- The Act also amends 5/9-219 requiring sheriff police and correction officers that purchase service while on approved leave to represent a labor organization to remain in sworn status during the leave to be eligible to purchase service credit.

2012 Session

HB 3969

- Public Act 97-0967 effective August 16, 2012 amends Article 1 adding 5/1-166 which requires an employer to pay GARS for any additional liability created from a reciprocal retirement if the retiree's FAS is higher than their highest GARS salary, and they were employed by the non-GARS agency for 2 years or less since leaving GARS.

2013 Session

SB 1921

- Public Act 98-0551 effective August 27, 2013 amends Article 9 adds 5/9-119.1, which defines "earned annuity" to clarify how the Fund should administer Tier 2 Spouse Annuity benefits.
- Adds 5/9-202.1 to allow images to be treated as original records.
- Amends 5/9-112 to simplify the definition of salary and spells out how salary is defined for determining Ordinary Disability benefits.

SB 1

- Public Act 98-0599 effective June 1, 2014 amends Article 9 sections 219 and 220 so that new employees starting on or after June 1, 2014 shall not receive credit for lump sum vacation time paid and will not be allowed to purchase unused sick time. Note: this Act was later overturned as unconstitutional by the Illinois Supreme Court on May 8, 2015.

2014 Session

SB 2809

- Public Act 98-1137 effective June 1, 2015 amends Article 5/1-115 to allow the Attorney General to bring a civil action to enjoin the payment of benefits to any person who is convicted of any felony relating to or arising out of or in connection with that person's service as an employee under the Code.

2015 Session

SB 842

- Public Act 99-0008 effective July 1, 2015 creates Articles 5/9-184.5 and 5/10-107.5 which, if the County or County fails to transmit the required contribution to the Fund, allows the IL State Comptroller to deduct the amount due from payments of State Funds due to the Employer and remit to the Fund.



APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)

SB 1334

- Public Act 99-0462 effective January 1, 2016 amends Article 5/1-109.1 to include aspirational goals for retirement systems to use emerging investment managers for not less than 20% of the total funds under management. It also sets aspirational goal that not less than 20% of investment advisors and other contracts to utilize businesses owned by minorities, females, and persons with disabilities as those terms are defined in the Business Enterprise from Minorities, Females, and Persons with Disabilities Act.

2016 Session

SB 2817

- Public Act 99-0578 effective July 15, 2016 adds Article 5/9-108.3 to define “In Service”.
- Amends 5/9-158 to clarify that a Board Appointed Physician is not necessary for certain maternity or duty disability claims.
- Amends 5/9-179.2 to close “Other Governmental Service” provision to new participants after July 14, 2016.
- Adds 5/9-241 to clarify the Board’s ability to correct any calculation errors.

HB 6030

- Public Act 99-0683 effective July 29, 2016 adds Article 5/1-140 to allow the Illinois Department of Vital Records to share death reporting information to pension systems in Illinois.

2017 Session

SB 42

- Public Act 100-0023 effective July 6, 2017 makes many changes to the pension code adding Tier 3 for new hires of the Chicago (Municipal and Laborers) and State (SERS, SURS, TRS) funds and Optional Tier 3 for Cook County and other local systems (Chicago Teachers and Chicago Park).
- Adds 5/1-162 which would allow the Cook County Board (Employer) to opt into a Tier 3 plan. If the plan is adopted by Employer ordinance, it would allow any future new hire to elect the current Tier 2 plan or the new Tier 3 plan.
- Section 1-162 gives the Employer the ability to opt into Tier 3. Changes will be effective the later of 7/1/2018 or the date the Board adopts an ordinance to adopt the changes. If adopted it would then impact any new hires after 6 months after the adoption date. The earliest impact would be for new hires on or after January 1, 2019.
- If adopted new hires after 1/1/2019 (or later depending on ordinance date) would have the option of the current Tier 2 benefit under Section 1-160 or the new hybrid plan established under Section 1-162.
- New hires must make an election of which plan within 30 days of becoming a participant. The Fund has an obligation to establish process for making this election and can adopt rules for participation.
- For those that elect the benefits under 1-162 the new Tier 3 benefit structure would be:
 - The Section establishes a Hybrid Defined Benefit(DB)/Defined Contribution(DC) plan



APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)

- FAS would be an average of the last 120 months (10 years)
- Salary shall not exceed the SS Wage Base
- Retirement benefits can begin at age 67 (or normal retirement age determined by SSA but not earlier than age 67) if retiree has at least 10 years of service
- Employees accrue 1.25% per year of service for DB plan
- COLA begins on first anniversary of annuity start date, calculated based on ½ CPI-w
- Survivor benefit is 66-2/3% of retiree annuity at death or earned annuity for death of employee
- Employees contribute 6.2% to DB plan, but contribution cannot exceed normal cost of benefit
- Fund establishes a DC plan
- Employee contributes at least 4% of salary to DC plan
- Employer contributes between 2% and 6% to DC plan after one year of employment. The contribution can vary by individual employee and employer contributions immediately vest into an employee's account.
- Employee contributions are reduced to cover the cost of offering DC plan

SB 1714

- Public Act 100-0542 effective November 8, 2017 requires investment consultants to report annually to the Fund regarding search disclosures for MBE, WBE, and DBE.
- Requires annual disclosure of all compensation or economic opportunity received during the last 24 months from investment advisors retained by the Fund.
- Beginning January 1, 2018 no contract for consulting services shall be awarded by the board without first requiring the consultant to make the economic opportunity and the MBE, WBE, and DBE disclosures.

SB 402

- Public Act 100-0554 effective November 16, 2017 requires the Fund, as a lobbying entity, to have a sexual harassment policy.

SB 350

- Public Act 100-0334 effective August 25, 2017 amends 5/9-235 and 5/10-109 to provide that no benefits shall be paid to any person who otherwise would receive a survivor benefit who is convicted of a felony relating to the service of the employee from whom the benefit results.

2018 Session

SB 2578

- Public Act 100-0794 effective August 10, 2018 amends 5-9/228 to allow payments to be directed to a member's certified and licensed nursing home under limited conditions where they are legally disabled.
- The act requires the nursing home to notify the Fund in the event of the disabled member's death or any other relevant change in their status.

HB 4412

- Public Act 100-0902 effective August 17, 2018 amends 5-1/109.1(5) requires all Illinois pension funds to make best efforts to ensure the racial and ethnic makeup of its senior staff represents the racial and ethnic makeup of its membership.



**APPENDIX F
SUMMARY OF LEGISLATIVE CHANGES
(continued)**

2019 Session

HB 2071

- Public Act 101-0011 effective June 7, 2019 creates 5-9/179.4 to allow active participants to establish service credit and earnings credit for periods of furlough and/or salary reduction occurring between December 1, 2017 and November 30, 2018.
- The act requires the participant to apply in writing before December 31, 2019, not receive any remuneration from the county and pay to the Fund on an after-tax basis the employee contributions and the employer's normal cost (based on the December 31, 2018 actuarial valuation) plus compound interest based on the actuarially assumed rate.
- The participant must make the above payment while they are active participants and within 12 months after their application date.

HB 2460

- Public Act 101-0473 effective January 1, 2020 amends 5-1/113.6 to require funds' investment policy include a statement that material, relevant, and decision-useful sustainability factors (as provided under the Illinois Sustainable Investing Act) are considered by the board, within the bounds of financial and fiduciary prudence, in evaluating investment decisions.
- The Act creates 5-1-113.7 requires that every pension fund adopt a written investment policy and file a copy of that policy with the Department of Insurance within 30 days after its adoption whenever a board changes its policy.

SB 1264

- Public Act 101-0546 effective January 1, 2020 (Revised Uniform Unclaimed Property Act "RUUPA") creates 765 ILCS 1026/15-1505 to require funds to report to the Illinois Treasurer all property presumed abandoned by providing the name of the owner and any beneficiaries, the last known address, the Social Security number or taxpayer ID number, and the dollar amount.
- The funds shall not have to pay the presumed abandoned account balance to the IL Treasurer, only reporting the information is required.