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

A Component Unit of Cook County, Illinois

COMPREHENSIVE ANNUAL FINANCIAL REPORT

For the Fiscal Years Ended December 31, 2019 and 2018

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Prepared by the staff of the
County Employees' and Officers' Annuity and Benefit Fund of Cook County

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Table of Contents

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Introductory Section

This section provides information regarding the County Employees' and Officers' Annuity and Benefit Fund of Cook County's Certificate of Achievement, Board of Trustees, consultants, and organizational structure, as well as a letter of transmittal.

Certificate of Achievement

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

County Employees' and Officers'

Annuity and Benefit Fund

of Cook County, Illinois

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

December 31, 2018

Christopher P. Morrill

Executive Director/CEO

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Ex Officio Cook County Comptroller

Patrick J. McFadden
Vice-President
Elected Cook County Annuitant

Diahann Goode
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Elected Cook County Employee

John Blair
Elected Cook County Employee

Joseph Nevius
Elected Forest Preserve District Annuitant

Stephen Hughes
Elected Forest Preserve District Employee

Kevin Ochalla
Elected Cook County Employee

Bill Kouruklis
Ex Officio Cook County Treasurer (Designee)

James M. O'Rourke
Elected Cook County Annuitant

Professional Consultants

Legal Counsel
Burke Burns & Pinelli, Ltd.

Auditor
Legacy Professionals, LLP

Investment Consultant
Callan Associates, Inc.

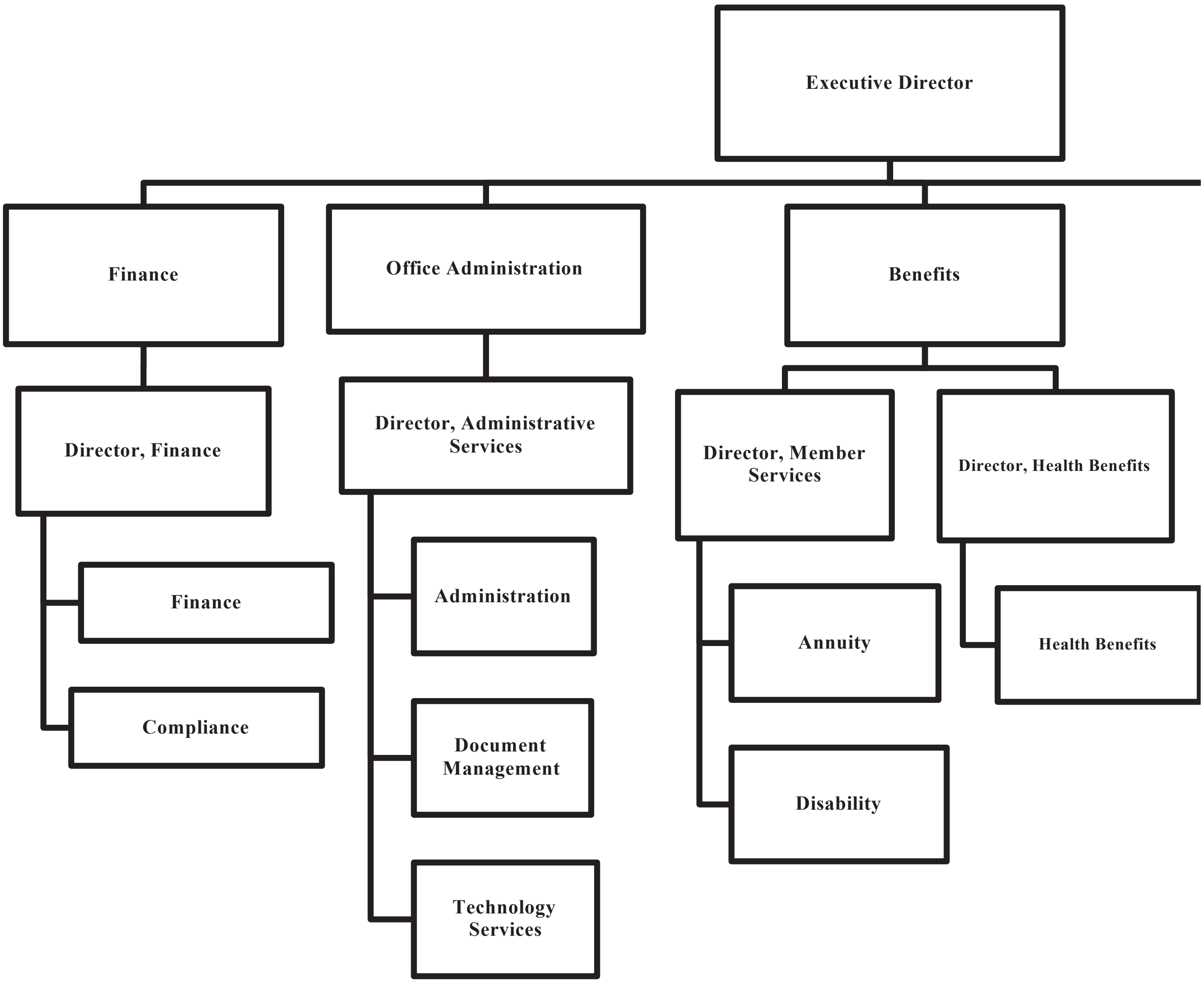
Consulting Actuary
Cavanaugh Macdonald Consulting, LLC

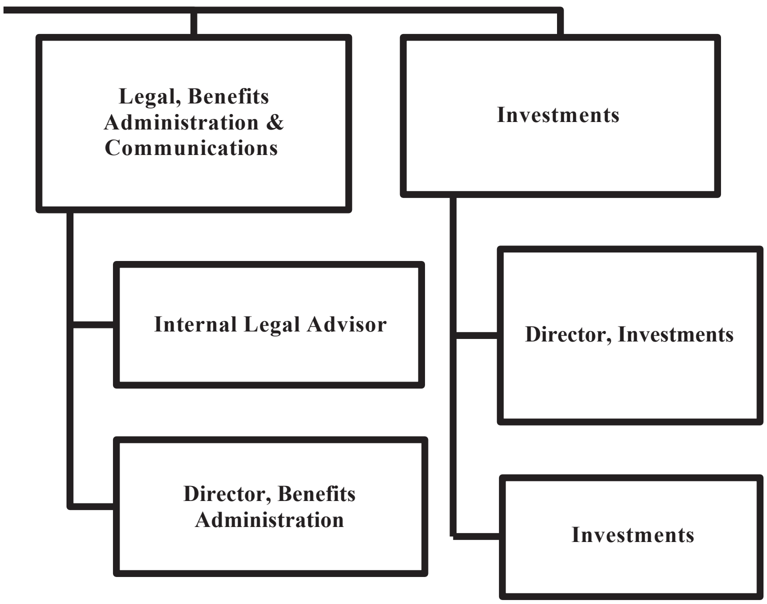
Master Custodian
BNY Mellon

Custodian
Cook County Treasurer

Investment Managers are listed on pages 86-87.
Brokers used by Investment Managers are listed on pages 88-89.

Organizational Chart




Legal, Benefits Administration & Communications
Investments
Internal Legal Advisor
Director, Investments
Director, Benefits Administration
Investments

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Letter of Transmittal

June 19, 2020

Retirement Board
County Employees' and Officers' Annuity and Benefit Fund of Cook County
and *ex officio* for the Forest Preserve District Employees' Annuity and Benefit Fund of Cook County
70 W Madison St, Suite 1925
Chicago, IL 60602

To the Retirement Board and Our Members:

We are pleased to submit to you the Comprehensive Annual Financial Report ("CAFR") of the County Employees' and Officers' Annuity and Benefit Fund of Cook County ("the Fund") for the calendar year ended December 31, 2019. The financial statements and their content are the responsibility of the Fund's management.

To the best of our knowledge and belief, the information contained in this report is complete and accurate in all material respects. This report is provided to allow the reader to gain an understanding of the Fund's financial position and operational activities as of December 31, 2019. Readers should review this report in conjunction with the Management's Discussion and Analysis (MD&A) found in the Financial Section of this report.

Fund Profile

Established in 1926 by an act of the Illinois General Assembly, the Fund is a defined benefit public pension fund that is governed by the Illinois Pension Code 40 ILCS 5/1-101 et seq. The Fund administers annuity, disability, death, and health benefits to employees and their beneficiaries of Cook County, Illinois. It is considered a component unit of Cook County and is included in the County's financial statements as a pension trust fund. As of December 31, 2019, the Fund consisted of 19,551 active employees, 16,305 retiree annuitants, 2,838 survivor annuitants, and 15,422 inactive members.

The Fund is governed by a nine-member Retirement Board ("Board") that also administers the Forest Preserve District Fund. The nine Trustees are elected or appointed as follows: three are elected by the employees of Cook County; one is elected by employees of the Forest Preserve District, two are elected by the annuitants of Cook County; one is elected by the annuitants of the Forest Preserve District, and two are ex officio seats appointed by the Comptroller and Treasurer of Cook County. Elected Trustees serve staggered three-year terms, resulting in no more than three positions being subject to election each year. The Fund has common trustees to administer the annuity and benefits of Cook County and Forest Preserve District employees in accordance with Illinois Compiled Statutes (ILCS) Chapter 40, Articles 1, 9, 10, and 20.

Summary of Financial Experience

The following table illustrates the changes in the Fund's net position between December 31, 2019 and December 31, 2018 (numbers in millions):

Change in Net Position	2019	2018	$ Change	% Change
Total additions	$ 2,561.9	$ 324.6	$ 2,237.3	689.2%
Total deductions	$ 932.9	$ 870.5	$ 62.4	7.2%
Change in net position from prior year	$ 1,629.0	$ (545.9)	$ 2,174.9	398.4%

A more detailed analysis of the Fund's financial information can be found in the Financial Section of this report.

Funding

The Fund engages an independent actuary, Cavanaugh Macdonald Consulting, LLC, to perform an actuarial valuation on an annual basis pursuant to the provisions of the Illinois Pension Code.

As of December 31, 2019, the Fund's combined actuarial accrued liability for pension and retiree benefits was $17.9 billion, and the actuarial value of assets was $11.0 billion, resulting in an unfunded actuarial accrued liability of $6.9 billion. The funded ratio (ratio of assets to liabilities) for pension benefits and retiree health benefits combined was 61.19%, a slight increase from prior year's funded ratio of 60.75%.

The Fund's actuarial accrued liability for pension benefits only was $16.9 billion and the actuarial value of assets was $11.0 billion, resulting in an unfunded liability of $5.9 billion and a funded ratio of approximately 65%. Based on the Fund's combined actuarial valuation, the Fund's actuarial accrued liability for retiree health benefits was $1.0 billion. As there are no dedicated assets for retiree health benefits, the actuarial value of assets was $0 for retiree health benefits, resulting in an unfunded liability for retiree health benefits of $1.0 billion.

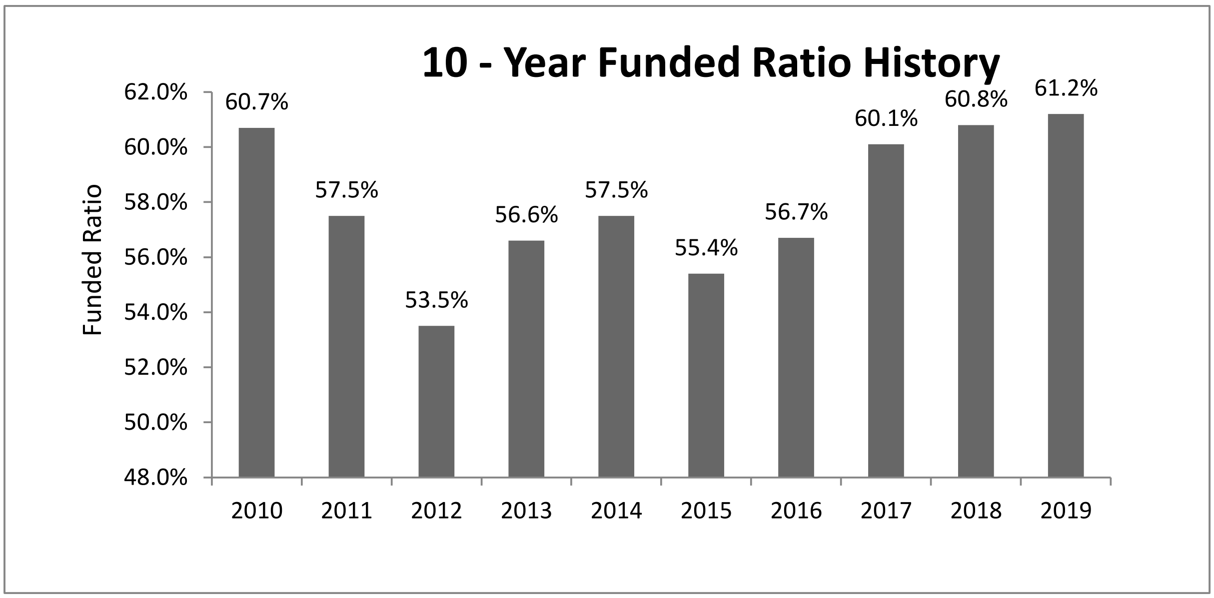
Employees contribute 8.5% of pensionable earnings (9.0% for County police employees) to the Fund. Contributions from the employer, as required by the Illinois Pension Code, are determined by a multiplier of active employee contributions. Specifically, the County levies a tax annually equal to the total amount of contributions made by employees in the calendar year 2 years prior to the year of the levy, multiplied by 1.54.

This multiplier, in the opinion of the Fund's actuary, is an inadequate funding mechanism to address the long-term financial requirements of the Fund. Since 1984, the statutory tax multiple used to determine the employer contribution has remained static at 1.54. According to the Fund's 2019 actuarial valuation, an actuarially-determined tax multiplier of 4.73 would be needed to generate the actuarially required 2020 employer contribution. Thus, the current fixed multiplier is an inadequate mechanism to provide long-term sustainability. The Fund's most recent actuarial valuation projects that the Fund's assets will be depleted by 2043. On a projected basis, the Fund faces a critical funding shortfall without legislative action to establish an actuarially-based funding policy.

The Fund has been submitting legislation to the General Assembly on an annual basis since 2010 which proposes an actuarially-based funding policy in lieu of a fixed multiplier. The Fund continues to work with its actuary, legislation liaison, fiduciary counsel and the employer to address the funding shortfall and identify permanent long-term solutions that can be enacted as statutory requirements within the Illinois Pension Code.

The Employer, under the leadership of President Preckwinkle and the Cook County Board of Commissioners, has attempted to address the downward funding trend being experienced by the Fund by identifying and transmitting an additional contribution source to the Fund. This supplemental contribution is made to the Fund pursuant to a one-year Intergovernmental Agreement (IGA) which has been renewed annually beginning in fiscal year 2016 and continuing to date through fiscal year 2020. The supplemental contribution source is derived from the Home Rule Sales Tax, which amounted to an additional contribution from the Employer to the Fund of $378.4 million (181% above the statutory contribution) in 2018, and $320.3 million (156% above the statutory contribution) in 2019. For 2020, the Employer is expected to make supplemental payments to the Fund of $306.2 million, of which $25.0 million was funded on December 31, 2019. On a near-term basis, the supplemental contributions serve to bridge the funding shortfall between annual contributions received and the annual benefit payments made by the Fund. As of the date of this letter, the Employer has made additional contributions to the Fund in 2020 (pursuant to the 2020 IGA) totaling $125,000,000. The Employer is expected to make additional payments during 2020 in the amounts of: $25,000,000 on June 30, 2020; $25,000,000 on July 31, 2020; $25,000,000 on August 31, 2020; $25,000,000 on September 30, 2020; $25,000,000 on October 31, 2020; and $31,214,508 on or before November 30, 2020 for a total of $306,214,508. These contributions significantly alleviate the negative cash flows experienced by the Fund in order to pay monthly benefit payments, especially during volatile market periods.

The following chart depicts historical funding ratios for the Fund.



Investments

The Board's authority to invest the Fund's assets is governed by 40 ILCS 5/1-101 et seq. and 40 ILCS 5/9-101 et seq. The Fund's Investment Policy, which provides additional strategies and safeguards for the Fund's investment objectives, can be found at CookCountyPension.com.

At year-end, the total invested assets of the Fund were valued at $11.2 billion compared with $9.6 billion at the end of 2018, an increase of approximately $1.6 billion. While 2018 was an unusual year where virtually all asset classes posted negative returns, 2019 was equally rare with all major asset classes delivering above-average returns. The Fund's investment rate of return for 2019 was approximately 19.1%, which was more favorable than several other broad market indices. In aggregate, allocations to non-U.S. equity and real estate outperformed their respective benchmarks, while domestic equity and fixed income trailed their benchmarks despite posting strong absolute returns. Hedge funds finished in line or exceeded their benchmarks.

The Board continues to work to maintain a diversified asset allocation within acceptable risk parameters. In 2019, the Fund formalized additional commitments of $80 million to Clarion Partners' Lion Industrial Trust, an industrial real estate open-end fund, and $50 million to Artemis Real Estate Partners' Income and Growth Fund, a closed-end core plus real estate fund managed by a women-owned firm.

Additional information regarding performance and investment professionals who provide services to the Fund can be found in the Investment Section of this report.

2019 Initiatives

The Fund continues to implement strategic initiatives across member services, organizational flexibility, systems and performance measurement, and liability and risk management. As the annuitant membership grows, the Fund's staff continually reviews its strategic and operating imperatives to maintain and improve quality member service.

Benefits

The Fund maintains its commitment to delivering high-touch customer service with an increasing volume of benefit requests that included the processing of over 1,020 retirement applications in the past year. The Employer implemented a new payroll module in 2018, and the Fund worked in coordination with the employer to ensure a smooth transition and seamless service to members retiring and requesting other related benefit services.

Member engagement remains a primary focus and the Fund continues to seek new ways to enhance communication with members, including frequent website updates, and two issues of a health benefits digest newsletter in 2019. The Fund has been drafting and will soon be issuing a communications survey to members in an upcoming pension newsletter to retired members.

In August of 2018, the Fund implemented a change in procedure by which the physician appointed by the Board to review disability applicants, as required by the Illinois Pension Code, was completed. The Board engaged a national health care company that provides occupational health services to perform these evaluations. The company offers multiple locations available to members, including 16 Chicagoland locations, with extended hours, including some weekend hours, to accommodate member needs. In 2019, the first full year of engaged services with this new provider, over 975 evaluations were performed on disability applicants, providing an expedited and convenient process to members.

Effective January 1, 2019, the Fund implemented a mandated Medicare enrollment for all Health Plan members eligible for Medicare at age 65 or at retirement if older than age 65. Health Plan members ineligible for premium free Medicare Part A are required to buy Medicare Part A and Part B in order to maintain coverage in the Fund's Health Plan. These members receive a reduced premium rate to offset the cost of Medicare Part A premiums. The Fund and members benefit from this change as Medicare becomes the primary payor on all claims.

During 2019, the Fund expanded mandated Medicare enrollment to include additional members under age 65 who qualify for Medicare due to disability.

The Fund continues to work with its pharmacy benefits manager to seek improved drug manufacturers' rebates. Increased rebates of over $3.0 million were received in 2019, as compared to 2018 rebates, which had the effect of moderating prescription medication costs. In addition, the Fund's participation in the Medicare Employer Group Waiver Program, which commenced in 2017, continues to provide additional government subsidies to the Fund. The Fund's receipt of such subsidies increased by over $4.0 million in 2019, a 33% increase from 2018, due to its participation in this program. These increased rebates and subsidies significantly offset increased medical costs, resulting in a nearly flat allocation to postemployment healthcare expense.

In 2019, the Fund again completed an Out-of-State member information verification project. In June of 2019, the Fund sent verification letters to all of the out-of-state and out-of-country annuitant members (totaling approximately 2,700). The verification letters were sent to these annuitant members in order to verify various information necessary for benefit continuation, including current address, signatures, and status of legal guardian or agent under a Power of Attorney. For annuitants residing in Illinois, the Fund utilizes and works with the Illinois Department of Public Health's data to verify members' accurate status.

Investment

In 2019, the Fund's independent investment consultant conducted an asset-liability study to update funding and capital market assumptions as well as assess ability to fund higher return, but less liquid, investments. No significant changes were made to the Fund's strategic asset allocations and targets as a direct result of this study.

Investment manager activity in 2019 focused on implementing initiatives approved in 2018. As previously mentioned, contracts with Clarion Partners and Artemis Real Estate Partners, both real estate managers new to the Fund, were finalized in 2019. Next, the Fund liquidated a REIT mandate to fund anticipated capital commitments for both of these new commitments. Near the end of 2019, the Fund also approved a follow-on commitment to a closed-end core real estate fund. The contract for this new commitment is expected to be finalized in 2020. The objective of these three new funds is to diversify the Fund's core real estate exposure and reduce exposure to non-strategic REITs.

In addition, Fund staff, working with its investment consultant, performed a comprehensive investment manager fee review. The Fund's investment consultant reviewed all of the fee terms with listed investment managers and recommended a number of agreements for renegotiation. These renegotiations resulted in annual savings of approximately $1 million in fees paid to investment managers prospectively for both Cook County and Forest Preserve Funds.

Legislation

The following Public Acts were enacted in calendar year 2019:

Public Act 101-0011 Provisions

- Created 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.

Public Act 101-0473 Provisions

- Amended 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.

Public Act 101-0546 Provisions

- Created 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.

Letter of Transmittal (continued)

Accounting System and Internal Control

This report and the financial statements included within were prepared to conform to the principles of governmental accounting and reporting pronounced by the Governmental Accounting Standards Board and the American Institute of Certified Public Accountants.

The financial statements were prepared using the accrual basis of accounting. Under the accrual basis, revenues are recognized in the accounting period in which they are earned, without regard to the date of collection, and expenses are recognized when the corresponding liabilities are incurred, regardless of when payment is made.

The Fund maintains a system of internal controls to adequately safeguard its assets and assure the reliability of its financial records. The controls are designed to provide reasonable, but not absolute, assurance that these objectives are met. The concept of reasonable assurance recognizes that first, the cost of the control should not exceed the benefits likely to be derived, and second that the valuation of the cost and benefits requires estimates and judgments by management.

Management and the external auditor continually review the controls for adequacy.

The financial statements included in this report were audited by Legacy Professionals, LLP, who have issued an unmodified opinion for calendar year ended December 31, 2019. A copy of their report is contained in the Financial Section of this report.

Administration

The fiscal year ending on December 31, 2019 was my first full year of responsibilities as the Executive Director of the Fund. Many initiatives directed at improving member service, efficiency of operations and most importantly, collaboration with interested stakeholders in securing long-term actuarial based funding are underway. I am pleased and honored to serve in this very important position and appreciate all the efforts of the Board and Fund staff to deliver outstanding service to a diverse, hard-working, and diligent group of members providing vital support to the operations of Cook County.

Awards

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Fund for its CAFR for the fiscal year ended December 31, 2018. This was the tenth year that the Fund has earned this prestigious award. In order to be awarded a Certificate of Achievement, the Fund must publish an easily readable and efficiently organized comprehensive annual financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that this current CAFR continues to meet the Certificate of Achievement Program's requirements, and we are submitting it to the GFOA to determine its eligibility for another certificate.

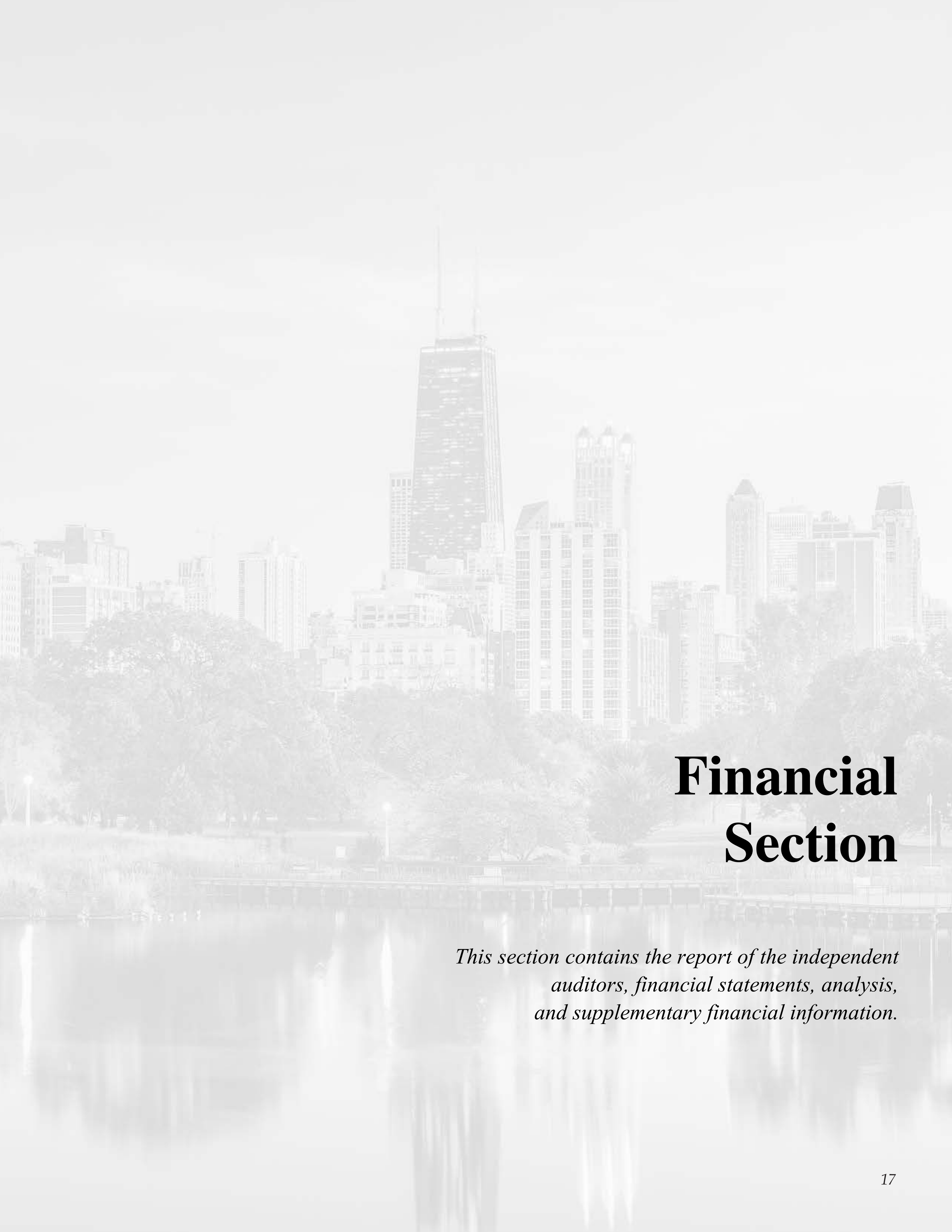
Acknowledgments

This report was prepared through the combined efforts of the Fund's staff under the direction of the Board. On behalf of the Board, I would like to thank the staff and professional consultants for their efforts in compiling this report.

Respectfully submitted,

Regina Tuczak

Regina Tuczak, Executive Director



Financial Section

This section contains the report of the independent auditors, financial statements, analysis, and supplementary financial information.

Report of Independent Auditors

LEGACY
PROFESSIONALS LLP
CERTIFIED PUBLIC ACCOUNTANTS

REPORT OF INDEPENDENT AUDITORS

To the Board of Trustees of
County Employees' and Officers' Annuity
and Benefit Fund of Cook County

Report on the Financial Statements

We have audited the accompanying financial statements of County Employees' and Officers' Annuity and Benefit Fund of Cook County (the Plan), a fiduciary fund of Cook County, Illinois, which comprise the combining statements of pension plan fiduciary net position and postemployment healthcare plan net position as of December 31, 2019 and 2018, and the related combining statements of changes in pension plan fiduciary net position and postemployment healthcare plan net position for the years then ended, and the related notes to the financial statements, which collectively comprise the Plan's basic financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement.

An audit includes performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Plan's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to in the first paragraph present fairly, in all material respects, the plan net position of County Employees' and Officers' Annuity and Benefit Fund of Cook County as of December 31, 2019 and 2018, and the changes in plan net position for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, Schedule of Changes in the Employer's Net Pension Liability and Related Ratios, Schedule of Employer Contributions and Related Notes, Schedule of Investment Returns, Schedule of Changes in the Employer's Net Postemployment Healthcare Liability and Related Ratios, and Schedule of Employer Contributions and Related Notes be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquires of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our audits were conducted for the purpose of forming an opinion on the Plan's basic financial statements as a whole. The Schedules of Net Administrative Expenses and Professional and Consulting Fees, Schedules of Investment Expenses, Additions by Source, Deductions by Type, and Schedule of Employer Contributions Receivable are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audits of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is fairly stated in all material respects in relation to the basic financial statements as a whole.

Other Matters (continued)

Previously Audited Information

We also have previously audited the basic financial statements for the years ended December 31, 2017, 2016, 2015, and 2014 (which are not presented herein), and we expressed unmodified opinions on those financial statements. In our opinion, the Additions by Source and Deductions by Type is fairly stated in all material respects in relation to the basic financial statements from which it has been derived.

Legacy Professionals LLP

Westchester, Illinois

June 19, 2020

Management's Discussion and Analysis (Unaudited)

COUNTY EMPLOYEES' AND OFFICERS' ANNUITY AND BENEFIT FUND OF COOK COUNTY

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

This section presents Management's Discussion and Analysis of the financial position and performance of the County Employees' and Officers' Annuity and Benefit Fund of Cook County (the Plan) for the years ended December 31, 2019 and 2018. This discussion is presented as an overview of the financial activities of the Plan and should be read in conjunction with the Plan's financial statements.

Overview of the Basic Financial Statements

The following discussion and analysis is intended to serve as an introduction to the Plan's basic financial statements. The financial statements are prepared on an economic sources focus and accrual basis of accounting in accordance with Governmental Accounting Standards Board (GASB) pronouncements. The basic components of the financial package are described below:

Combining Statements of Pension Plan Fiduciary Net Position and Postemployment Healthcare Plan Net Position provides a snapshot of account balances and net position held in trust for future benefit payments and any liabilities as of the Plan's year end. Over time increases and decreases in net position may serve as a useful indicator of whether the financial position of the Plan is improving or deteriorating.

Combining Statements of Changes in Pension Plan Fiduciary Net Position and Postemployment Healthcare Plan Net Position shows the revenues (additions) and expenses (deductions) during the year, where additions less deductions equal net increase (decrease) in net position. The net increase (decrease) in net position reports the change in net position as reported in the combining Statements of Changes in Pension Plan Fiduciary Net Position and Postemployment Healthcare Plan Net Position of the prior year and the current year.

Notes to the Financial Statements provide additional information that is essential to achieving a better understanding of the data provided in the basic financial statements.

Required Supplementary Information provides schedules and related notes concerning actuarial information, funding progress, employer contributions and investment returns.

Supplementary Information includes schedules of net administrative expenses, professional and consulting fees, investment expenses, additions by source, and deductions by type and employer contributions receivable.

Financial Highlights

Net position increased by $1,628,935,438 or 16.5% from $9,862,023,782 at December 31, 2018 to $11,490,959,220 at December 31, 2019. Comparatively, net position decreased by $545,859,661 or -5.2% from $10,407,883,443 at December 31, 2017 to $9,862,023,782 at December 31, 2018. The increase in net position for 2019 was primarily due to the increase in the fair value of investments. The decrease in net position for 2018 was primarily due to the decrease in the fair value of investments.

Rate of return of the Plan's investment portfolio was 19.07% for 2019, -3.79% for 2018 and 15.35% for 2017.

Net Position

The condensed Combining Statements of Pension Plan Fiduciary Net Position and Postemployment Healthcare Plan Net Position reflects the resources available to pay benefits to members. A summary of the Combining Statements of Pension Plan Fiduciary Net Position and Postemployment Plan Net Position is as follows:

Plan Net Position
As of December 31,

	2019	2018	2017	Current Year Increase (Decrease) in Dollars	Current Year Increase (Decrease) in Percent
Total assets	$ 12,242,245,144	$ 10,886,244,214	$ 11,765,897,724	$ 1,356,000,930	12.5%
Total liabilities	751,285,924	1,024,220,432	1,358,014,281	(272,934,508)	- 26.6%
Net position	$ 11,490,959,220	$ 9,862,023,782	$ 10,407,883,443	$ 1,628,935,438	16.5%

Changes in Plan Net Position

The condensed Combining Statements of Changes in Pension Plan Fiduciary Net Position and Postemployment Healthcare Plan Net Position reflects the changes in the resources available to pay benefits to members. A summary of the Combining Statements of Changes in Pension Plan Fiduciary Net Position and Postemployment Healthcare Plan Net Position is as follows:

Changes in Plan Net Position
For the Years Ended December 31,

	2019	2018	2017	Current Year Increase/(Decrease) in Dollars	Percent
Additions:					
Employer contributions	$ 526,240,864	$ 587,748,221	$ 559,205,626	$ (61,507,357)	-10.5%
Employee contributions	134,837,512	134,159,171	138,826,184	678,341	0.5%
Net investment income (loss) (includes security lending activities)	1,865,645,039	(424,787,945)	1,399,625,874	2,290,432,984	539.2%
Other	35,158,714	27,479,205	23,321,813	7,679,509	27.9%
Total additions	2,561,882,129	324,598,652	2,120,979,497	2,237,283,477	689.2%
Deductions:					
Benefits	890,115,295	831,661,745	790,352,526	58,453,550	7.0%
Refunds	37,745,951	33,662,521	32,995,364	4,083,430	12.1%
Administrative expenses	5,085,445	5,134,047	5,406,034	(48,602)	-0.9%
Total deductions	932,946,691	870,458,313	828,753,924	62,488,378	7.2%
Net increase (decrease)	1,628,935,438	(545,859,661)	1,292,225,573	2,174,795,099	398.4%
Net position					
Beginning of year	9,862,023,782	10,407,883,443	9,115,657,870	(545,859,661)	-5.2%
End of year	$ 11,490,959,220	$ 9,862,023,782	$ 10,407,883,443	$ 1,628,935,438	16.5%

Additions to Plan Net Position

Total additions were $2,561,882,129 in 2019, $324,598,652 in 2018 and $2,120,979,497 in 2017.

Employer contributions decreased to $526,240,864 in 2019 from $587,748,221 in 2018 and increased from $559,205,626 in 2017. Employer contributions are statutorily set at 1.54 times employee contributions collected two years prior. The County made supplemental contributions of $320,296,720 in 2019, $378,436,000 in 2018, and $353,800,000 in 2017.

Employee contributions, including permissive service credit purchases, increased to $134,837,512 in 2019 from $134,159,171 in 2018 and decreased from $138,826,184 in 2017 when compared to 2018 employee contributions. The majority of members contribute 8.5% of covered wages.

Net investment income totaled $1,865,645,039 for 2019 compared to net investment loss of ($424,787,945) for 2018 and net investment income of $1,399,625,874 for 2017. Investment earnings fluctuate primarily from the overall performance of the financial markets from year to year.

Deductions to Plan Net Position

Total deductions were $932,946,691 in 2019, $870,458,313 in 2018 and $828,753,924 in 2017.

Benefits increased to $890,115,295 in 2019 from $831,661,745 in 2018 and $790,352,526 in 2017 due primarily to the 3% annual cost of living increases for annuitants and an increase in the number of retirees.

Refunds increased to $37,745,951 in 2019 from $33,662,521 in 2018 and increased from $32,995,364 in 2017. These changes are due to fluctuations in refund applications.

The cost to administer the Plan decreased by 0.9% to $5,085,445 in 2019 from $5,134,047 in 2018. Comparatively, the cost to administer the Plan decreased by 5.03% to $5,134,047 in 2018 from $5,406,034 in 2017.

Actuarial Information

Pension Benefits

Under GASB Statement No. 67, *Financial Reporting for Pension Plans*, the Plan's funding for pension benefits is as follows:

Funding for Pension Benefits
For the Years Ended December 31,

	2019	2018	2017
Total pension liability	$ 25,071,941,811	$ 21,723,236,738	$ 22,940,794,624
Plan fiduciary net position	11,490,959,220	9,862,023,782	10,407,883,443
Employer's net pension liability	$ 13,580,982,591	$ 11,861,212,956	$ 12,532,911,181
Plan fiduciary net position as a percentage of the total pension liability	45.83%	45.40%	45.37%

Postemployment Healthcare Benefits

Under GASB Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*, the Plan's funding for postemployment healthcare benefits is as follows:

Funding for Healthcare Benefits
For the Years Ended December 31,

	2019	2018	2017
Total other postemployment benefits liability	$ 1,900,989,370	$ 1,534,053,569	$ 2,148,249,441
Plan fiduciary net position	-	-	-
Employer's net other postemployment benefits liability	$ 1,900,989,370	$ 1,534,053,569	$ 2,148,249,441

Contributions for postemployment healthcare benefits are made on a "pay-as-you-go" basis, resulting in a 0.00% funded ratio.

Actuarial Information (continued)

Combined

The Plan actuary has performed a combined valuation of the pension and postemployment healthcare benefits provided by the Plan to measure the overall funded status and contribution requirements of the Plan. Such a valuation is required under Chapter 40, Article 5/9-199 of the Illinois Pension Code which provides that the Plan shall submit a report each year containing a detailed statement of the affairs of the Plan, its income and expenditures, and assets and liabilities. The combined valuation reflects the actuarial assumptions adopted by the Board based on the results of an actuarial experience study. These assumptions conform to the actuarial standards recommended by the Plan's actuary and were used by the Plan's actuary to present the combined funding status in accordance with *Section 9-199*. The Plan's funding under the combined actuarial valuation is as follows:

Funding for Combined Pension and Postemployment Healthcare Benefits For the Years Ended December 31,

	2019	2018	2017
Unfunded actuarial accrued liability	$ 6,966,299,527	$ 6,791,017,319	$ 6,741,295,828
Funded ratio	61.19%	60.75%	60.09%

Contact Information

This financial report is designed to provide the employer, plan participants and others with a general overview of the Plan's finances and show accountability for money it receives. Questions concerning any data provided in the report or requests for additional information should be addressed to:

County Employees' and Officers' Annuity
and Benefit Fund of Cook County
Attention: Executive Director
70 West Madison Street
Suite 1925
Chicago, Illinois 60602

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Combining Statements of Pension Plan Fiduciary Net Position and Postemployment Healthcare Plan Net Position

December 31, 2019

	Total	Pension	Postemployment Healthcare
ASSETS			
RECEIVABLES			
Employer contributions less allowance of $7,502,563 in 2019	$ 203,949,497	$ 203,949,497	$ -
Employee contributions	5,728,669	5,728,669	-
Accrued investment income	33,186,100	33,186,100	-
Receivable for securities sold	126,392,197	126,392,197	-
Due from Forest Preserve District Employees' Annuity and Benefit Fund of Cook County	382,786	382,786	-
EGWP/Medicare Part D subsidy & other	11,593,953	2,774,646	8,819,307
Prescription rebates	814,807	-	814,807
Imprest balance receivable	1,441,000	-	1,441,000
Other	27,302	27,302	-
Total receivables	383,516,311	372,441,197	11,075,114
INVESTMENTS			
U.S. and international equities	6,282,967,633	6,282,967,633	-
U.S. Government and government agency obligations	1,051,214,578	1,051,214,578	-
Corporate and foreign government obligations	1,106,718,809	1,106,718,809	-
Collective international equity fund	83,116,013	83,116,013	-
Commingled fixed income fund	41,141,429	41,141,429	-
Private global fixed fund limited partnership	258,865,492	258,865,492	-
Exchange traded funds	8,691,798	8,691,798	-
Private equities	678,909,985	678,909,985	-
Hedge funds	730,203,620	730,203,620	-
Real estate funds	689,481,138	689,481,138	-
Short-term investment	330,944,641	330,944,641	-
Total investments	11,262,255,136	11,262,255,136	-
Collateral held for securities on loan	596,473,697	596,473,697	-
Total assets	12,242,245,144	12,231,170,030	11,075,114
LIABILITIES			
Accounts payable	8,693,505	8,693,505	-
Healthcare & other benefits payable	11,075,114	-	11,075,114
Payable for securities purchased	135,043,608	135,043,608	-
Securities lending collateral	596,473,697	596,473,697	-
Total liabilities	751,285,924	740,210,810	11,075,114
Net position			
Net position restricted for pensions	11,490,959,220	11,490,959,220	-
Net position held in trust for postemployment healthcare	-	-	-
Total	$ 11,490,959,220	$ 11,490,959,220	$ -

See accompanying notes to financial statements.

Combining Statements of Pension Plan Fiduciary Net Position and Postemployment Healthcare Plan Net Position (continued)

December 31, 2018			
	Total	Pension	Postemployment Healthcare
ASSETS			
RECEIVABLES			
Employer contributions less allowance of $8,185,337 in 2018	$ 222,543,029	$ 222,543,029	$ -
Employee contributions	14,314,210	14,314,210	-
Accrued investment income	29,686,644	29,686,644	-
Receivable for securities sold	34,415,136	34,415,136	-
Due from Forest Preserve District Employees' Annuity and Benefit Fund of Cook County	381,010	381,010	-
EGWP/Medicare Part D subsidy & other	5,479,027	-	5,479,027
Prescription rebates	949,412	-	949,412
Imprest balance receivable	1,441,000	-	1,441,000
Other	11,349	11,349	-
Total receivables	309,220,817	301,351,378	7,869,439
INVESTMENTS			
U.S. and international equities	4,958,851,665	4,958,851,665	-
U.S. Government and government agency obligations	1,170,334,505	1,170,334,505	-
Corporate and foreign government obligations	1,049,336,411	1,049,336,411	-
Collective international equity fund	70,371,275	70,371,275	-
Commingled fixed income fund	28,081,553	28,081,553	-
Private global fixed fund limited partnership	255,881,343	255,881,343	-
Exchange traded funds	55,162,948	55,162,948	-
Private equities	513,790,532	513,790,532	-
Hedge funds	666,385,423	666,385,423	-
Real estate funds	647,961,102	647,961,102	-
Short-term investment	218,141,023	218,141,023	-
Total investments	9,634,297,780	9,634,297,780	-
Collateral held for securities on loan	942,725,617	942,725,617	-
Total assets	10,886,244,214	10,878,374,775	7,869,439
LIABILITIES			
Accounts payable	12,634,128	12,634,128	-
Healthcare & other benefits payable	7,869,439	-	7,869,439
Payable for securities purchased	60,991,248	60,991,248	-
Securities lending collateral	942,725,617	942,725,617	-
Total liabilities	1,024,220,432	1,016,350,993	7,869,439
Net position			
Net position restricted for pensions	9,862,023,782	9,862,023,782	-
Net position held in trust for postemployment healthcare	-	-	-
Total	$ 9,862,023,782	$ 9,862,023,782	$ -

See accompanying notes to financial statements.

Combining Statements of Changes in Pension Plan Fiduciary Net Position and Postemployment Healthcare Plan Net Position

Year Ended December 31, 2019

	Total	Pension	Postemployment Healthcare
ADDITIONS			
Employer contributions			
Statutory	$ 205,944,144	$ 205,944,144	$ -
Supplemental	320,296,720	320,296,720	-
Allocation to postemployment healthcare	-	(38,237,172)	38,237,172
Total employer contributions	526,240,864	488,003,692	38,237,172
Employee contributions			
Salary deductions	129,339,031	129,339,031	-
Refund repayments	2,674,863	2,674,863	-
Former and miscellaneous service payments	768,064	768,064	-
Optional payments and deductions	41,495	41,495	-
Deductions in lieu of disability	2,014,059	2,014,059	-
Total employee contributions	134,837,512	134,837,512	-
Investment income			
Net appreciation (depreciation) in fair value of investments	1,681,234,945	1,681,234,945	-
Dividends	135,119,218	135,119,218	-
Interest	82,809,998	82,809,998	-
	1,899,164,161	1,899,164,161	-
Less investment expenses	(36,827,682)	(36,827,682)	-
Net investment income (loss)	1,862,336,479	1,862,336,479	-
Securities lending			
Income	3,985,214	3,985,214	-
Expenses	(676,654)	(676,654)	-
Net securities lending income	3,308,560	3,308,560	-
Other			
Employer federal subsidized programs	5,783,060	5,783,060	-
EGWP/Medicare Part D subsidy	25,698,131	-	25,698,131
Prescription plan rebates	3,184,779	-	3,184,779
Employee transfers from Forest Preserve District Employees' Annuity and Benefit Fund of Cook County	252,406	252,406	-
Miscellaneous	240,338	240,338	-
Total other additions	35,158,714	6,275,804	28,882,910
Total additions	2,561,882,129	2,494,762,047	67,120,082
DEDUCTIONS			
Benefits			
Annuity			
Employee	751,788,339	751,788,339	-
Spouse and children	60,115,798	60,115,798	-
Disability			
Ordinary	10,473,241	10,473,241	-
Duty	617,835	617,835	-
Healthcare less annuitant contributions of $52,401,260 in 2019	67,120,082	-	67,120,082
Total benefits	890,115,295	822,995,213	67,120,082
Refunds	37,745,951	37,745,951	-
Net administrative expenses	5,085,445	5,085,445	-
Total deductions	932,946,691	865,826,609	67,120,082
Net increase (decrease)	1,628,935,438	1,628,935,438	-
Net position			
Beginning of year	9,862,023,782	9,862,023,782	-
End of year	$ 11,490,959,220	$ 11,490,959,220	$ -

See accompanying notes to financial statements.

Combining Statements of Changes in Pension Plan Fiduciary Net Position and Postemployment Healthcare Plan Net Position (continued)

Year Ended December 31, 2018

	Total	Pension	Postemployment Healthcare
ADDITIONS			
Employer contributions			
Statutory	$ 209,312,221	$ 209,312,221	$ -
Supplemental	378,436,000	378,436,000	-
Allocation to postemployment healthcare	-	(38,310,969)	38,310,969
Total employer contributions	587,748,221	549,437,252	38,310,969
Employee contributions			
Salary deductions	129,003,778	129,003,778	-
Refund repayments	2,249,491	2,249,491	-
Former and miscellaneous service payments	660,852	660,852	-
Optional payments and deductions	164,362	164,362	-
Deductions in lieu of disability	2,080,688	2,080,688	-
Total employee contributions	134,159,171	134,159,171	-
Investment income			
Net appreciation (depreciation) in fair value of investments	(595,032,962)	(595,032,962)	-
Dividends	128,038,585	128,038,585	-
Interest	73,805,330	73,805,330	-
	(393,189,047)	(393,189,047)	-
Less investment expenses	(36,754,398)	(36,754,398)	-
Net investment income (loss)	(429,943,445)	(429,943,445)	-
Securities lending			
Income	6,160,217	6,160,217	-
Expenses	(1,004,717)	(1,004,717)	-
Net securities lending income	5,155,500	5,155,500	-
Other			
Employer federal subsidized programs	5,678,102	5,678,102	-
EGWP/Medicare Part D subsidy	18,324,171	-	18,324,171
Prescription plan rebates	3,294,421	-	3,294,421
Employee transfers from Forest Preserve District Employees' Annuity and Benefit Fund of Cook County	182,511	182,511	-
Miscellaneous	-	-	-
Total other additions	27,479,205	5,860,613	21,618,592
Total additions	324,598,652	264,669,091	59,929,561
DEDUCTIONS			
Benefits			
Annuity			
Employee	704,246,643	704,246,643	-
Spouse and children	55,983,104	55,983,104	-
Disability			
Ordinary	10,851,548	10,851,548	-
Duty	650,889	650,889	-
Healthcare less annuitant contributions of $50,903,709 in 2018	59,929,561	-	59,929,561
Total benefits	831,661,745	771,732,184	59,929,561
Refunds	33,662,521	33,662,521	-
Net administrative expenses	5,134,047	5,134,047	-
Total deductions	870,458,313	810,528,752	59,929,561
Net increase (decrease)	(545,859,661)	(545,859,661)	-
Net position			
Beginning of year	10,407,883,443	10,407,883,443	-
End of year	$ 9,862,023,782	$ 9,862,023,782	$ -

See accompanying notes to financial statements.

Notes to Financial Statements

COUNTY EMPLOYEES' AND OFFICERS' ANNUITY AND BENEFIT FUND OF COOK COUNTY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2019 AND 2018

NOTE 1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

County Employees' and Officers' Annuity and Benefit Fund of Cook County (the Plan) is administered in accordance with Chapter 40, Article 5/9 of the Illinois Compiled Statutes (the Statutes).

Financial Reporting Entity - Accounting principles generally accepted in the United States of America define a financial reporting entity as consisting of the primary government and its component units for which the primary government is financially accountable. Financial accountability includes appointing a voting majority of a component unit's governing board, the ability of a primary government to impose its will on the component unit, or a potential for a component unit to provide specific financial benefits to or impose specific financial burdens on the primary government. The Plan has determined that no other outside entity meets the above criteria and, therefore, no other entity has been included as a component unit in the Plan's financial statements.

Based on the above criteria, the Plan is considered to be a fiduciary fund of Cook County, Illinois (the County) and is included in the County's financial statements.

Method of Accounting - The financial statements are prepared using the accrual basis of accounting. Employer contributions are recognized as income pursuant to legal requirements as specified by the Illinois Compiled Statutes. Employee contributions are recognized in the period in which the contributions are due. Benefits and refunds are recognized when due and payable in accordance with the terms of the Plan.

Investments - Investments are reported at fair value, which generally represents reported market value as of the last business day of the year. Where less than an entire investment holding is sold, average value is used to determine realized gain or loss.

Allocated Expenses - Administrative expenses are initially paid by the Plan. These expenses are allocated between the Plan and the Forest Preserve District Employees' Annuity and Benefit Fund of Cook County (the Forest Fund) on a pro rata basis, as applicable.

Capital Assets - The Plan has set a capitalization threshold of $100,000 for all capital asset types. As of December 31, 2019 and 2018, the Plan does not have any capital assets.

Estimates - The preparation of the financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect certain reported amounts and disclosures in the financial statements. Actual results could differ from those estimates.

NOTE 1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Subsequent Events - Subsequent events have been evaluated through June 19, 2020, which is the date the financial statements were available to be issued.

NOTE 2. PLAN DESCRIPTION

The Plan was established on January 1, 1926, and is governed by legislation contained in the Illinois Compiled Statutes (the Statutes), particularly Chapter 40, Article 5/9 (the Article). Effective with the signing of Public Act 96-0889 into law on April 14, 2010, participants that first became contributors on or after January 1, 2011 are Tier 2 participants. All other participants that were contributing prior to January 1, 2011 are Tier 1 participants. The Plan can be amended only by the Illinois Legislature. The Plan is a single employer defined benefit pension plan with a defined contribution minimum. The Plan was established for the purpose of providing retirement, death and disability benefits for full-time employees of the County and the dependents of such employees. The Plan is considered to be a fiduciary fund of Cook County, Illinois and is included in the County's financial statements.

The Statutes authorize a Board of Trustees (the Board) of nine members to carry out the provisions of the Article. According to the Article, two members of the Board are ex officio, four are elected by the employee members of the Plan and three are elected by the annuitants of the Plan. The two ex officio members are the Comptroller of Cook County, or someone chosen by the Comptroller, and the Treasurer of Cook County, or someone chosen by the Treasurer. All members of the Board are fiduciaries with respect to the Plan and are statutorily mandated to discharge their duties, as such, solely in the interest of the Plan's participants and beneficiaries.

The Board has the powers and duties required in the Article to collect all contributions due to the Plan, to invest the Plan's reserves, to have an annual audit, to appoint employees, to authorize or suspend payment of any benefit and to have exclusive original jurisdiction in all matters relating to or affecting the Plan. The Board approves its own budget which is prepared by the administrative staff of the Plan. The Board is required annually to submit to the County Board of Cook County a detailed report of the financial affairs and status of the Plan. Provisions in other articles of Chapter 40 require the Board to submit its annual audit and actuarial valuation reports to the State of Illinois Department of Insurance, as well as another detailed annual report, the form and content of which is specified by the Department of Insurance.

Covered employees are required to contribute 8.5% (9% for sheriffs) of their salary to the Plan, subject to the salary limitations for Tier 2 participants in Article 5/1-160. If an employee leaves covered employment without qualifying for an annuity, accumulated contributions are refunded with interest (3% or 4% depending on when the employee became a participant). The County's total contribution is the amount of contributions made by the employees to the Plan in the calendar year two years prior to the year for which annual applicable tax is levied, multiplied by 1.54. The source of funds for the County's contributions has been designated by State Statute as the County's annual property tax levy. The County's payroll for employees covered by the Plan for the years ended December 31, 2019 and 2018 was $1,553,498,503 and $1,533,721,507 respectively.

NOTE 2. PLAN DESCRIPTION (CONTINUED)

The Plan provides retirement as well as death and disability benefits. Tier 1 employees age 50 or older and Tier 2 employees age 62 or older are entitled to receive a minimum formula annuity of 2.4% for each year of credited service if they have at least 10 years of service. The maximum benefit is 80% of the final average monthly salary. For Tier 1 employees under age 60 and Tier 2 employees under age 67, the monthly retirement benefit is reduced by ½% for each month the participant is below that age. The reduction is waived for Tier 1 participants having 30 or more years of credited service.

Participants should refer to the applicable State Statutes for more complete information.

At December 31, 2019 and 2018, participants consisted of the following:

	2019	2018
Active members	19,551	19,671
Retired members	16,305	15,820
Beneficiaries	2,838	2,782
Inactive members	15,422	14,898
Total	54,116	53,171

NOTE 3. EMPLOYER'S PENSION LIABILITY

Net Pension Liability

The components of the employer's net pension liability of the Plan for the years ended December 31, 2019 and 2018 are as follows:

	2019	2018
Total pension liability	$ 25,071,941,811	$ 21,723,236,738
Plan fiduciary net position	11,490,959,220	9,862,023,782
Employer's net pension liability	$ 13,580,982,591	$ 11,861,212,956
Plan fiduciary net position as a percentage of the total pension liability	45.83%	45.40%

See the schedule of changes in the employer's net pension liability and related ratios in the required supplementary information for additional information related to the funded status of the Plan.

NOTE 3. EMPLOYER'S PENSION LIABILITY (CONTINUED)

Net Pension Liability (continued)

The net pension liability was determined by actuarial valuations performed as of December 31, 2019 and 2018 using the following actuarial methods and assumptions:

Actuarial valuation date	December 31, 2019	December 31, 2018
Actuarial cost method	Entry Age Normal	Entry Age Normal
Amortization method	Level Dollar - Open	Level Dollar - Open
Remaining amortization period	30 years	30 years
Asset valuation method	Five Year Smoothed Average Market	Five Year Smoothed Average Market
Actuarial assumptions		
Inflation	2.75% per year, compounded annually;	2.75% per year, compounded annually;
Salary increases	3.50% to 8.00%, based on age;	3.50% to 8.00%, based on age;
Investment rate of return	7.25% per year, compounded annually;	7.25% per year, compounded annually;
Retirement age	Rates of retirement for each age from 50 to 80 based on recent experience of the Plan where all employees are assumed to retire by age 80	Rates of retirement for each age from 50 to 80 based on recent experience of the Plan where all employees are assumed to retire by age 80
Mortality	RP-2014 Blue Collar Mortality Table, base year 2006. Buck Modified MP-2017 projection scale.	RP-2014 Blue Collar Mortality Table, base year 2006. Buck Modified MP-2017 projection scale.
Postretirement annuity increase	Tier 1 participants - 3.0% compounded annually Tier 2 participants - the lesser of 3.0% or one half of the increase in the Consumer Price Index	Tier 1 participants - 3.0% compounded annually Tier 2 participants - the lesser of 3.0% or one half of the increase in the Consumer Price Index

The actuarial assumptions used in the December 31, 2019 and 2018 valuations were based on the results of an actuarial experience study conducted by Conduent, Inc. (formerly Buck Consultants, LLC) dated February 2018. The Plan engaged Cavanaugh Macdonald Consulting to prepare the December 31, 2019 and 2018 valuations.

NOTE 3. EMPLOYER'S PENSION LIABILITY (CONTINUED)

Discount Rate

The discount rate used to measure the total pension liability at December 31, 2019 and 2018 was 4.14% and 4.98% respectively. The projection of cash flows used to determine the discount rate assumed that contributions will continue to follow the current funding policy. Based on this assumption, the Plan's fiduciary net position was projected to be insufficient to make all projected future benefit payments of current plan members. A municipal bond rate of 2.75% and 4.13% at December 31, 2019 and 2018, respectively, and the long-term investment rate of return of 7.25% at December 31, 2019 and 2018 was used in the development of the blended discount rate. The municipal bond rates are based on the S&P Municipal Bond 20 Year High Grade Rate Index. Based on the long-term rate of return of 7.25% and municipal bond rate of 2.75% at December 31, 2019 and 4.13% at December 31, 2018, the blended discount rate would be 4.14% at December 31, 2019 and 4.98% at December 31, 2018.

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following is an analysis of the net pension liability's sensitivity to changes in the discount rate at December 31, 2019 and 2018. The following table presents the net pension liability of the employer using the blended discount rate as well as the employer's net pension liability calculated using a discount rate 1 percent lower and 1 percent higher than the current discount rate:

	1% Decrease 3.14%	Current Discount Rate 4.14%	1% Increase 5.14%
Net Pension Liability - December 31, 2019	$ 17,585,226,992	$ 13,580,982,591	$ 10,346,852,439

	1% Decrease 3.98%	Current Discount Rate 4.98%	1% Increase 5.98%
Net Pension Liability - December 31, 2018	$ 15,172,534,698	$ 11,861,212,956	$ 9,169,383,954

NOTE 4. SUMMARY OF EMPLOYER FUNDING POLICIES

Statutory Funding

Employer contributions are funded primarily through a tax levied by Cook County, Illinois. The employer contributions to be remitted to the Plan are equal to the total contributions made by the employees to the Plan in the calendar year two years prior, multiplied by 1.54.

Supplemental Funding

Per the 2019 IGA (Intergovernmental Agreement), the County is required to make supplemental payments totaling $320,296,720 by November 30, 2019, to promote the long-term fiscal sustainability of the Plan. During the year ended December 31, 2019, the County made supplemental contributions to the Plan totaling $320,296,720. Per the 2018 IGA, the County is required to make supplemental payments totaling $353,436,000 by November 30, 2018. During the year ended December 31, 2018, the County made supplemental contributions to the Plan totaling $378,436,000. The additional $25,000,000 received on December 31, 2018 pertains to the 2019 IGA.

NOTE 5. INVESTMENTS

Investment Policy

The Board of Trustees is responsible for establishing reasonable and consistent investment objectives, policies, and guidelines governing the investment of Plan assets in accordance with the Illinois Compiled Statutes. The Plan is authorized to invest in bonds, notes, certificates of indebtedness, mortgage notes, real estate, stocks, shares, debentures, or other obligations or securities as set forth in the "prudent person" provisions of the state statutes. All of the Plan's financial instruments are consistent with the permissible investments outlined in the state statutes and any index-linked financial instruments are limited to those indices that replicate the permissible investments outlined in the State Statutes. During the year ended December 31, 2019 and 2018, there were no significant changes to the investment policy.

NOTE 5. INVESTMENTS (CONTINUED)

The Plan's investment policy in accordance with the Statutes establishes the following target allocation across asset classes:

Asset Class	Target Allocation %	Long-term Expected Real Rate of Return
Domestic equities	33.00%	5.45%
International equities	21.00%	5.65%
Fixed income	26.00%	1.75%
Real estate funds	9.00%	4.25%
Private equity	4.00%	7.25%
Hedge Funds	6.00%	3.25%
Short-term investment	1.00%	0.60%
Total investments	100.00%	

Long-Term Expected Real Rate of Return

The long-term expected real rates of return are the nominal expected returns for various asset classes net of the long-term inflation assumption of 2.25%. The nominal expected return is expressed as the annualized growth rate over 30 years (i.e., geometric or compounded return). A building block methodology is employed to develop long-term return expectations. Building block includes a long-term estimate of the short-term real rate, inflation, term premium, credit premium, equity risk premium among others. Current economic conditions (inflation, yields, valuation) serve as a starting point for development; however, over a 30-year horizon, risk premiums are largely influenced by long-term history. The 30-year geometric long-term expected real rate of return for each major asset class included with the Plan's target asset allocation as of December 31, 2019 are listed in the table above.

Annual Money-Weighted Rate of Return

The annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 19.07% and (3.79%) for the years ended December 31, 2019 and 2018 respectively. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

NOTE 5. INVESTMENTS (CONTINUED)

Credit Risk

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The Plan's investment policy is an average credit quality for each manager's total fixed income portfolio (Corporate and U.S. Government holdings) of not less than A- by two out of three credit agencies (Moody's Investor Service, Standard & Poor's and/or Fitch). The following table presents a summarization of the Plan's credit quality ratings of investments at December 31, 2019 and 2018 valued by Moody's Investors Service, Standard & Poor's and/or Fitch:

Type of Investment	Rating	2019	2018
U.S. Government and government agency obligations	Aaa	$ 1,008,730,719	$ 1,126,661,748
	Aa	4,512,518	4,446,042
	A	1,647,521	1,034,254
	Baa	566,991	410,323
	Ba	113,670	-
	Not Rated	35,643,159	37,782,138
		$ 1,051,214,578	$ 1,170,334,505
Corporate and foreign government obligations	Aaa	$ 122,430,000	$ 140,912,898
	Aa	38,097,442	55,450,980
	A	218,228,365	244,845,248
	Baa	402,222,020	439,977,678
	Ba	64,735,538	47,343,211
	B	28,690,310	27,024,658
	Caa	3,336,325	-
	Not Rated	228,978,809	93,781,738
		$ 1,106,718,809	$ 1,049,336,411
Commingled fixed income fund	Not Rated	$ 41,141,429	$ 28,081,553
Short-term investment	Not Rated	$ 330,944,641	$ 218,141,023

NOTE 5. INVESTMENTS (CONTINUED)

Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. Investments with longer maturities are subject to increased risk of adverse interest rate changes. In an effort to mitigate this risk, the Plan's investment policy states that the duration for each manager's total fixed income portfolio shall not exceed 30% of the duration of its respective fixed income performance benchmark (*Bloomberg Barclays US Aggregate Fixed Income Index, Bloomberg Barclays US 1-3 Year Government/Credit Index,* which was 5.87 years at December 31, 2019 and 5.87 years at December 31, 2018*)*. The following table presents a summarization of the Plan's debt investments at December 31, 2019 and 2018, using the segmented time distribution method:

Type of Investment	Maturity	2019	2018
U.S. Government and government agency obligations	Less than 1 year	$ -	$ 167,349,384
	1 - 5 years	255,840,867	355,220,165
	5 - 10 years	188,143,448	186,092,265
	Over 10 years	607,230,263	461,672,691
		$ 1,051,214,578	$ 1,170,334,505
Corporate and foreign government obligations	Less than 1 year	$ 6,216,627	$ 219,808,611
	1 - 5 years	271,756,368	240,685,129
	5 - 10 years	337,402,395	290,893,458
	Over 10 years	491,343,419	297,949,213
		$ 1,106,718,809	$ 1,049,336,411
Commingled fixed income fund	1 - 5 years	$ 41,141,429	$ 28,081,553
Short-term investment	Less than 1 year	$ 330,944,641	$ 218,141,023

NOTE 5. INVESTMENTS (CONTINUED)

Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. The Plan's exposure to foreign currency risk at December 31, 2019 and 2018 is as follows:

Type of Investment	Fair Value (USD) 2019	Fair Value (USD) 2018
U.S. and international equities		
Australian dollar	$ 64,975,042	$ 61,079,609
Brazil real	47,176,852	36,260,689
British pound sterling	269,787,968	233,612,366
Canadian dollar	143,967,483	121,270,059
Chilean peso	2,690,695	2,579,305
Colombian peso	229,259	353,726
Danish krone	27,717,442	23,220,147
Egyptian pound	254,698	162,844
European euro	548,901,567	432,970,169
Hong Kong dollar	186,091,181	159,921,452
Hungarian forint	904,850	779,492
Indian rupee	19,722,568	17,563,526
Indonesian rupiah	10,845,405	9,088,212
Israeli shekel	8,409,897	6,620,433
Japanese yen	394,011,003	315,882,453
Malaysian ringgit	6,128,297	5,079,458
Mexican peso	13,549,503	10,215,052
New Taiwan dollar	64,691,046	46,706,841
New Turkish lira	321,273	54,295
New Zealand dollar	6,494,738	12,423,410
Norwegian krone	14,780,532	11,186,482
Philippines peso	4,751,295	4,107,072
Polish zloty	3,533,224	5,221,095
Russian ruble	473,980	418,882
Singapore dollar	32,354,412	28,583,794
South African rand	17,120,665	16,043,067
South Korean won	52,590,803	46,400,568
Swedish krona	53,562,423	50,572,540
Swiss franc	137,494,181	90,292,671
Thailand baht	10,250,963	7,826,846
United Arab Emirates dirham	2,184,317	1,304,847
U.S. dollar	4,137,000,071	3,201,050,263
Total U.S. and international equities	$ 6,282,967,633	$ 4,958,851,665

NOTE 5. INVESTMENTS (CONTINUED)

Foreign Currency Risk (continued)

Type of Investment	Fair Value (USD) 2019	Fair Value (USD) 2018
Corporate and foreign government obligations		
Brazil real	$ 42,536	$ 927,578
British pound sterling	1,985,212	728,888
Canadian dollar	576,455	732,473
Chinese yuan renminbi	-	733,031
Czech koruna	-	2,579,712
European euro	11,066,623	1,582,488
Hungarian forint	-	1,108,290
Indian rupee	-	14,540
Japanese yen	-	1,021,298
Mexican peso	263,747	541,343
Peruvian sol	-	532,737
Philippines peso	-	2,466,560
Polish zloty	863	465,682
Russian ruble	-	701,429
Singapore dollar	-	93,330
South African rand	270,338	-
South Korean won	-	279,744
Swedish krona	-	453,178
Taiwan dollar	-	760,528
New Turkish lira	-	989,532
Norwegian krone	728,988	695,979
U.S. dollar	1,091,784,047	1,031,928,071
Total corporate and foreign government obligations	$ 1,106,718,809	$ 1,049,336,411
Private equities		
European euro	$ 45,808,248	$ 30,651,851
U.S. dollar	633,101,737	483,138,681
Total private equities	$ 678,909,985	$ 513,790,532

For the years ended December 31, 2019 and 2018, net realized gain on investments sold, reflecting the difference between the proceeds received and cost value of securities sold, was $203,265,693 and $478,576,208 respectively. These amounts are included in the net appreciation (depreciation) in fair value of investments as reported on the combining statements of changes in pension plan fiduciary net position and postemployment healthcare plan net position. The calculation of realized gains and losses is independent of the calculation of net appreciation (depreciation) in the fair value of plan investments. Investments purchased in a previous year and sold in the current year result in their realized gains and losses being reported in the current year and their net appreciation (depreciation) in Plan assets being reported in both the current year and the previous years.

NOTE 6. DERIVATIVES

Derivative transactions involve, to varying degrees, credit risk, interest rate risk and market risk. Credit risk is the possibility that a loss may occur because a party to a transaction fails to perform according to the previously agreed upon terms. Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. Market risk is the possibility that a change in interest or currency rates will cause the value of a financial instrument to decrease or become more costly to settle. The following table summarizes the derivatives held within the Fund's investment portfolio as of December 31, 2019 and 2018.

	Notional Amounts		Fair Value	
	2019	2018	2019	2018
Hedging derivative instruments				
Foreign currency contracts purchased	$ -	$ -	$ (82,053,047)	$ (119,728,163)
Foreign currency contracts sold	-	-	81,926,715	119,604,889
Futures				
Equity	-	2,858,634	-	(173,650)
Fixed Income	(105,683,341)	(42,720,771)	(1,305,798)	1,329,775
Swaps				
Interest rate swaps	-	-	-	(775,834)
Inflation rate swaps	-	-	-	(299,536)
Return swaps	-	-	-	27,002

Forward Currency Forward Contracts

Forward currency contracts are used to hedge against fluctuations in foreign currency-denominated assets used primarily in portfolio trade settlements. These contracts are a cash contract in which a seller agrees to deliver a specific cash commodity to a buyer sometime in the future. Forward agreements are subject to the creditworthiness of the counterparties, which are principally large financial institutions. Forward currency contracts are reported at fair value within the combining statement of pension plan fiduciary net position and postemployment healthcare plan net position included in investments. The gain or loss on forward currency contracts is recognized and recorded on the combining statement of changes in pension plan fiduciary net position and postemployment healthcare plan net position as part of investment income. The foreign currency contracts are short-term in nature.

NOTE 6. DERIVATIVES (CONTINUED)

Forward Currency Forward Contracts (continued)

The Plan's exposure to foreign currency risk at December 31, 2019 and 2018 is as follows:

	2019	2018
Foreign currency exchange sales		
Currency		
Australian dollar	$ 5,922,970	$ 5,775,404
Brazil real	107,216	1,188,837
British pound sterling	3,333,837	4,163,582
Canadian dollar	2,475,982	5,841,758
Chilean peso	594,846	-
Chinese yuan renminbi	2,847,408	2,640,904
Colombian peso	297,762	488,418
Czech koruna	527,865	2,813,404
Danish krone	-	27,273
European euro	5,109,574	5,645,797
Hong Kong dollar	131,792	57,624
Hungarian forint	431,020	1,108,290
Indian rupee	1,780,857	1,370,140
Indonesian rupiah	251,921	876,101
Israeli shekel	841,443	994,922
Japanese yen	2,441,775	3,935,175
Mexican peso	993,987	218,311
New Taiwan dollar	1,243,234	-
New Zealand dollar	533,765	2,073,553
Norwegian krone	2,467,533	2,249,579
Peruvian sol	502,988	532,737
Philippines peso	266,597	2,775,428
Polish zloty	637,504	740,795
Russian ruble	2,068,233	701,429
Singapore dollar	2,969,976	1,613,291
South Korean won	1,264,814	1,386,691
South African rand	-	251,139
Swedish krona	1,623,465	2,742,988
Swiss franc	868,637	2,003,079
Taiwan dollar	-	2,538,580
Thailand baht	291,623	1,042,820
Turkish lira	41,458	1,406,242
U.S. dollar	39,056,633	60,400,598
Total	$ 81,926,715	$ 119,604,889

NOTE 6. DERIVATIVES (CONTINUED)

Forward Currency Forward Contracts (continued)

	2019	2018
Foreign currency exchange purchases		
Currency		
Australian dollar	$ (1,213,651)	$ (2,420,985)
Brazil real	(1,098,767)	(385,672)
British pound sterling	(3,642,161)	(1,688,995)
Canadian dollar	(590,784)	(3,494,140)
Chilean peso	(1,468,306)	(1,853,262)
Chinese yuan renminbi	(3,750,096)	(4,581,231)
Colombian peso	(791,855)	(493,295)
Czech koruna	(391,863)	(233,691)
European euro	(23,661,651)	(21,869,186)
Hong Kong dollar	(96,746)	-
Hungarian forint	(961,258)	-
Indian rupee	(791,964)	(1,355,601)
Indonesian rupiah	(1,008,583)	(1,134,166)
Israeli shekel	(402,227)	(2,198,794)
Japanese yen	(446,655)	(1,501,240)
Mexican peso	(216,356)	(241,996)
New Taiwan dollar	(1,347,741)	-
New Zealand dollar	(917,351)	(3,378,101)
Norwegian krone	(859,120)	(1,171,395)
Peruvian sol	(500,737)	-
Philippines peso	(172,848)	(308,868)
Polish zloty	(147,110)	(275,114)
Singapore dollar	(408,598)	(1,046,909)
South Korean won	(535,524)	(1,106,947)
South African rand	(302,810)	(1,894,716)
Swedish krona	(530,282)	(1,782,559)
Swiss franc	(2,487,437)	(9,456,032)
Taiwan dollar	-	(1,778,052)
Thailand baht	(282,400)	(2,874,171)
Turkish lira	(179,164)	(416,709)
U.S. dollar	(32,849,002)	(50,786,336)
	$ (82,053,047)	$ (119,728,163)

Futures & Swaps

Futures are agreements to purchase or sell a specific amount of an asset at a specified maturity for an agreed-upon price. Futures contracts are reported at fair value in the equity and fixed income investments on the combining statement of pension plan fiduciary net position and postemployment healthcare plan net position. The gain or loss on futures contracts is reported as part of investment income on the combining statement of changes in pension plan fiduciary net position and postemployment healthcare plan net position. These instruments are not rated by the credit rating agencies.

NOTE 6. DERIVATIVES (CONTINUED)

Futures & Swaps (continued)

Swaps are arrangements to exchange currency or assets. Swaps are reported at fair value in the fixed income investments on the combining statement of pension plan fiduciary net position and postemployment healthcare plan net position. The gain or loss on futures contracts is reported as part of investment income on the combining statement of changes in pension plan fiduciary net position and postemployment healthcare plan net position. These instruments are not rated by the credit rating agencies.

The following table presents a summarization of the Plan's Future and Swaps investments' interest rate risk exposure at December 31, 2019 and 2018, using the segmented time distribution method:

Derivative Type	Maturity	2019	2018
Futures	Less than 1 Year	$ (1,305,798)	$ 1,156,125
Swaps	Less than 1 Year	$ -	$ 27,002
	1 - 5 years	-	(304,633)
	5 - 10 years	-	(785,776)
	Over 10 years	-	15,039
		$ -	$ (1,048,368)

NOTE 7. WHEN-ISSUED TRANSACTIONS

The Plan may purchase securities on a when-issued basis, that is, obligate itself to purchase securities with delivery and payment to occur at a later date. At the time the Plan enters into a commitment to purchase the security, the transaction is recorded at the purchase price which equals fair value. The value at delivery may be more or less than the purchase price. No interest accrues to the Plan until delivery and payment takes place. As of December 31, 2019 and 2018, the Plan contracted to acquire securities on a when-issued basis with a total principal amount of approximately $31,356,662 and $37,540,000 respectively.

NOTE 8. FAIR VALUE MEASUREMENTS

GASB Statement No. 72, *Fair Value Measurement and Application*, established a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). The three levels of the fair value hierarchy are described below:

Basis of Fair Value Measurement

Level 1	Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities
Level 2	Quoted prices in markets that are not considered to be active or financial instruments for which all significant inputs are observable, either directly or indirectly
Level 3	Prices or valuations that require inputs that are both significant to the fair value measurement and unobservable

The Plan categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The Plan has the following recurring fair value measurements as of December 31, 2019 and 2018:

		Fair Value Measurements at 12/31/2019 Using		
	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Investments by fair value level				
U.S. and international equities	$ 6,282,967,633	$ 6,282,967,633	$ -	$ -
U.S. Government and government agency obligations	1,051,214,578	-	1,051,214,578	-
Corporate and foreign government obligations	1,106,718,809	-	1,106,718,809	-
Exchange traded funds	8,691,798	8,691,798	-	-
Total investments by fair value level	8,449,592,818	$ 6,291,659,431	$ 2,157,933,387	$ -
Investments measured at net asset value	2,812,662,318			
Total investments at fair value	$ 11,262,255,136			

NOTE 8. FAIR VALUE MEASUREMENTS (CONTINUED)

		Fair Value Measurements at 12/31/2018 Using		
	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Investments by fair value level				
U.S. and international equities	$ 4,958,851,665	$ 4,958,851,665	$ -	$ -
U.S. Government and government agency obligations	1,170,334,505	-	1,170,334,505	-
Corporate and foreign government obligations	1,049,336,411	-	1,049,336,411	-
Exchange traded funds	55,162,948	55,162,948	-	-
Total investments by fair value level	7,233,685,529	$ 5,014,014,613	$ 2,219,670,916	$ -
Investments measured at net asset value	2,400,612,251			
Total investments at fair value	$ 9,634,297,780			

Level 1 Measurements

U.S. and international equities and exchange traded funds are traded in active markets on national and international securities exchanges and are valued at closing prices on the measurement date.

Level 2 Measurements

U.S. Government and government agency obligations and corporate and foreign government obligations are generally valued by benchmarking model-derived prices to quoted market prices and trade data for identical or comparable securities. To the extent that quoted prices are not available, fair value is determined based on a valuation model that include inputs such as interest rate yield curves and credit spreads. Securities traded in markets that are not considered active are valued based on quoted market prices, broker to dealer quotations, or alternative pricing sources with reasonable levels of price transparency. Securities that trade infrequently and therefore have little or no price transparency are valued using the investment manager's best estimates.

NOTE 8. FAIR VALUE MEASUREMENTS (CONTINUED)

The valuation methods for investments measured at net asset value (NAV) are presented on the following table:

	Fair Value 12/31/2019	Fair Value 12/31/2018	Unfunded Commitments	Redemption Frequency (If Eligible)	Redemption Notice Period
Investments measured at net asset value:					
Collective international equity fund (1)					
Lazard/Wilmington Emerging Markets Sudan Free Portfolio	$ 83,116,013	$ 70,371,275	$ -	Daily	N/A
Commingled fixed income fund (2)					
MacKay Shields Defensive Bond Arbitrage Fund Ltd.	41,141,429	28,081,553	-	Daily	5 days
Private global fixed fund limited partnership (3)					
Franklin Templeton Global Multisector Plus Fund, L.P.	258,865,492	255,881,343	-	Monthly	15 days
Private equities (4)	678,909,985	513,790,532	259,295,162	Closed Ended	N/A
Hedge funds (5)					
Burnham Harbor Fund Ltd.	535,014,672	490,556,721	-	Monthly	95 days
RC Kenwood Fund Ltd.	195,188,948	175,828,702	-	Quarterly	90 days
Real estate funds (6)					
JPMCB Strategic Property Fund	274,387,829	272,741,485	-	Quarterly	45 days
PRISA Separate Account	251,997,195	247,088,693	-	Quarterly	90 days
Artemis Real Estate Partners	8,259,296	-	41,741,671	Closed Ended	N/A
Others	154,836,818	128,130,924	129,395,647	Quarterly	90 days
Short-term investment (7)					
BNY Mellon EB Temporary Investment Fund	330,944,641	218,141,023	-	Daily	N/A
Total investments measured at net asset value	$ 2,812,662,318	$ 2,400,612,251			

(1) Collective international equity fund - The fund's investment objective is to achieve long-term capital appreciation by investing primarily in equity and equity-related securities of issuers that are located, or do significant business, in emerging market countries. The fair value of the investment in the fund has been determined using the NAV per share of the investment.

(2) Commingled fixed income fund - The fund's investment objective is to track the performance of the Barclays U.S. Aggregate Index. The fair value of the investment in the fund has been determined using the NAV per share of the investment.

(3) Private global fixed income fund limited partnership - The partnership's investment objective is to maximize total investment return by investing in a portfolio of fixed and floating rate debt securities and debt obligations of governments, government-related or corporate issuers worldwide, as well as derivative financial instruments. The fair value of the investment in the partnership fund has been determined using the NAV per share (or its equivalent) of the investment.

NOTE 8. FAIR VALUE MEASUREMENTS (CONTINUED)

(4) Private equities - This investment consists of 78 limited partnership investments in 2019 and 79 in 2018, with an investment objective to achieve long-term capital appreciation and capital preservation through investments in limited partnerships, privately issued securities, private equity funds, and other pooled investments. Closed-end limited partnership interests are generally illiquid and cannot be redeemed. It is expected that liquidation of the limited partnership interests will generally coincide with the terms of the various underlying partnership agreements. These underlying private equity partnerships generally have a fund life per the Limited Partnership Agreements of approximately 10 to 12 years plus 2 to 3 one-year extensions. However, the underlying general partners may extend their funds indefinitely to facilitate an orderly liquidation of the underlying assets. The fair value of the investments in this type has been determined using the NAV per share (or its equivalent) of the investments.

(5) Hedge funds - The investment objective of the hedge funds is to invest in non-traditional portfolio managers, diversified portfolios of hedge funds having a low correlation with major investment markets, and diversified groups of alternative investment funds that invest or trade in a wide variety of financial instruments and strategies. The fair value of the investment in the hedge funds has been determined using the NAV per share (or its equivalent) of the investment.

(6) Real estate funds - These investments include a commingled pension trust fund, an insurance company separate account, and other real estate funds that are designed as funding vehicles for tax-qualified pension plans. Their investments are comprised primarily of real estate investments either directly owned or through partnership interests and mortgage and other loans on income producing real estate. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the investments. Due to the nature of the investments and available cash on hand, significant redemptions in this type of investment may at times be subject to additional restrictions.

(7) Short-term investment - This investment's objective is to invest in short-term investments of high quality and low risk to protect capital while achieving investment returns. The fair value of the investment in the fund has been determined using the NAV per share of the investment.

NOTE 9. SECURITIES LENDING

State Statutes and the investment policy permit the Plan to lend its securities to broker-dealers and other entities with a simultaneous agreement to return collateral for the same securities in the future. The Plan's custodian, acting as the lending agent, lends securities for collateral in the form of cash, U.S. Government obligations and irrevocable letters of credit equal to 102% of the fair value of domestic securities plus accrued interest and 105% of the fair value of foreign securities plus accrued interest.

The Plan does not have the right to sell or pledge securities received as collateral unless the borrower defaults. The average term of securities loaned was 117 days for 2019 and 75 days for 2018; however, any loan may be terminated on demand by either the Plan or the borrower. Cash collateral was invested in a separately managed portfolio, which had an average weighted maturity at December 31, 2019 and 2018 of 56 and 77 days, respectively.

As of December 31, 2019 and 2018, the fair value (carrying amount) of loaned securities was $975,308,040 and $1,188,389,587 respectively. As of December 31, 2019 and 2018, the fair value (carrying amount) of cash collateral received by the Plan was $596,473,697 and $942,725,617 respectively. The cash collateral is included as an asset and a corresponding liability on the combining statements of pension plan fiduciary net position and postemployment healthcare plan net position. As of December 31, 2019 and 2018, the fair value (carrying amount) of non-cash collateral received by the Plan was $404,530,922 and $278,065,381 respectively.

Although the Plan's securities lending activities are collateralized as described above, they involve both market and credit risk. In this context, market risk refers to the possibility that the borrower of securities will be unable to collateralize the loan upon a sudden material change in the fair value of the loaned securities. Credit risk refers to the possibility that counterparties involved in the securities lending program may fail to perform in accordance with the terms of their contracts.

Indemnification deals with the situation in which a client's securities are not returned due to the insolvency of a borrower. The contract with the lending agent requires indemnification to the Plan if borrowers fail to return the securities or fail to pay the Plan for income distributions by the issuers of securities while the securities are on loan.

NOTE 9. SECURITIES LENDING (CONTINUED)

A summary of securities loaned at fair value as of December 31, 2019 and 2018 is as follows:

	2019	2018
Securities loaned - backed by cash collateral		
U.S. and international equities	$ 446,175,774	$ 663,838,237
U.S. Government and government agency obligations	49,919,899	130,459,946
Exchange traded funds	6,664,738	40,377,541
Corporate and foreign government obligations	77,408,275	83,164,383
Total securities loaned - backed by cash collateral	580,168,686	917,840,107
Securities loaned - backed by non-cash collateral		
U.S. and international equities	333,379,234	221,564,089
U.S. Government and government agency obligations	55,824,110	47,724,114
Exchange traded funds	5,349,602	-
Corporate and foreign government obligations	586,408	1,261,277
Total securities loaned - backed by non-cash collateral	395,139,354	270,549,480
Total	$ 975,308,040	$ 1,188,389,587

NOTE 10. EMPLOYER'S POSTEMPLOYMENT HEALTHCARE LIABILITY

Plan Description

The Plan administers a Postemployment Group Healthcare Benefit Plan (PGHBP), a single-employer defined benefit postemployment healthcare plan. The PGHBP is administered in accordance with Chapter 40, Article 5/10 of the Illinois Compiled Statutes, which assigns the authority to establish and amend benefit provisions to the Plan's Board of Trustees. PGHBP provides a healthcare benefit to annuitants of Cook County, Illinois (the employer) who elect to participate in the PGHBP.

NOTE 10. EMPLOYER'S POSTEMPLOYMENT HEALTHCARE LIABILITY (CONTINUED)

Plan Description (continued)

At December 31, 2019 and 2018, participants consisted of the following:

	2019	2018
Active members	19,551	19,671
Inactive plan members or beneficiaries currently receiving benefit payments	11,953	11,809
Inactive plan members entitled to but not yet receiving benefit payments	1,510	1,592
Total	33,014	33,072

Benefits provided - The PGHBP provides healthcare and vision benefits for annuitants and their dependents.

Contributions - The PGHBP is funded on a "pay-as-you-go" basis. The employee and spouse annuitants pay between 52% - 66% and 42% - 56% of the annual medical costs, respectively, depending upon Medicare eligibility and coverage type. The remaining costs are funded by an allocation from the Plan.

Method of Accounting - The PGHBP's financial statements have been combined with the Plan's financial statements and are presented using the accrual basis of accounting. Healthcare expenses are recognized when incurred and estimable.

Employer's Net Postemployment Healthcare Liability

The components of the employer's net postemployment healthcare liability at December 31, 2019 and 2018 were as follows:

	2019	2018
Total postemployment healthcare liability	$ 1,900,989,370	$ 1,534,053,569
Plan fiduciary net position	-	-
Employer's net postemployment healthcare liability	$ 1,900,989,370	$ 1,534,053,569
Plan fiduciary net position as a percentage of the total postemployment healthcare liability	0.00%	0.00%

Contributions for postemployment healthcare benefits are made on a "pay-as-you-go" basis. There are no dedicated assets for healthcare benefits resulting in a 0.00% funded ratio.

See the schedule of changes in the employer's net postemployment healthcare liability and related ratios in the required supplementary information for additional information related to the funded status of the PGHBP.

NOTE 10. EMPLOYER'S POSTEMPLOYMENT HEALTHCARE LIABILITY (CONTINUED)

The net postemployment healthcare liability was determined by actuarial valuation performed as of December 31, 2019 and 2018 using the following actuarial methods and assumptions:

Actuarial valuation date	December 31, 2019	December 31, 2018
Actuarial cost method	Entry Age Normal	Entry Age Normal
Amortization method	Level Dollar - Open	Level Dollar - Open
Remaining amortization period	30 years	30 years
Actuarial assumptions:		
Inflation	2.75% per year	2.75% per year
Salary increases	3.50% to 8.00%, based on age	3.50% to 8.00%, based on age
Health care cost trend rates	7.25% in the first year, decreasing by .25% per year until an ultimate rate of 4.75% is reached for pre-Medicare 5.75% in the first year, decreasing by .25% per year until an ultimate rate of 4.75% is reached for post-Medicare	7.25% in the first year, decreasing by .25% per year until an ultimate rate of 4.75% is reached for pre-Medicare 5.75% in the first year, decreasing by .25% per year until an ultimate rate of 4.75% is reached for post-Medicare
Mortality	RP-2014 Blue Collar Mortality Table, base year 2006, Buck (formerly Conduent) Modified MP-2017	RP-2014 Blue Collar Mortality Table, base year 2006, Buck (formerly Conduent) Modified MP-2017

The actuarial assumptions used in the December 31, 2019 and 2018 valuations were based on the results of an actuarial experience study conducted by Buck Consultants, LLC (formerly Conduent, Inc.) over the period 2013 through 2016.

Discount Rate

The blended discount rate used to measure the total postemployment healthcare liability at December 31, 2019 and 2018 was 2.75% and 4.13% respectively. The projection of cash flows used to determine the discount rate assumed that the employer's contributions will continue to follow the current funding policy. Based on this assumption, the Plan's fiduciary net position was projected to be insufficient to make all projected future benefit payments of current plan members. Municipal bond rates of 2.75% and 4.13% at December 31, 2019 and 2018, respectively, and the long-term investment rate of return of 0% were used in the development of the blended discount rates. The municipal bond rates are based on the S&P Municipal Bond 20 Year High Grade Rate Index.

NOTE 10. EMPLOYER'S POSTEMPLOYMENT HEALTHCARE LIABILITY (CONTINUED)

Sensitivity of the Net Postemployment Healthcare Liability to Changes in the Discount Rate

The following is an analysis of the net postemployment healthcare liability's sensitivity to changes in the discount rate at December 31, 2019 and 2018. The following table presents the net postemployment healthcare liability of the employer using the blended discount rate as well as the employer's net postemployment healthcare liability calculated using a discount rate 1 percent lower and 1 percent higher than the current discount rate:

	1% Decrease 1.75%	Current Discount Rate 2.75%	1% Increase 3.75%
Net postemployment healthcare liability as of December 31, 2019	$ 2,252,215,661	$ 1,900,989,370	$ 1,622,569,147

	1% Decrease 3.13%	Current Discount Rate 4.13%	1% Increase 5.13%
Net postemployment healthcare liability as of December 31, 2018	$ 1,803,057,515	$ 1,534,053,569	$ 1,319,144,094

Sensitivity of the Net Postemployment Healthcare Liability to Changes in the Health Care Cost Trend Rate

The following is an analysis of the net postemployment healthcare liability's sensitivity to changes in the health care cost trend rate at December 31, 2019 and 2018. The following table presents the net postemployment healthcare liability of the employer using the health care cost trend rate as well as the employer's net postemployment healthcare liability calculated using a health care cost trend rate 1 percent lower and 1 percent higher than the current health care cost trend rate:

	1% Decrease	Health Care Cost Trend Rate	1% Increase
Net postemployment healthcare liability as of December 31, 2019	$ 1,589,836,565	$ 1,900,989,370	$ 2,306,985,201

	1% Decrease	Health Care Cost Trend Rate	1% Increase
Net postemployment healthcare liability as of December 31, 2018	$ 1,289,159,107	$ 1,534,053,569	$ 1,850,456,464

NOTE 11. RELATED PARTY TRANSACTIONS

The Plan has common Trustees and shares office space with the Forest Preserve District Employees' Annuity and Benefit Fund of Cook County (Forest Fund) who reimburses the Plan for shared administrative services provided by the Plan. During the years ended December 31, 2019 and 2018, the Plan allocated administrative expenditures of $100,658 and $99,627 respectively to the Forest Fund.

As of December 31, 2019 and 2018, the Forest Fund owes the Plan $382,786 and $381,010 respectively. These amounts include plan transfers of Plan members transferring from one plan to another.

NOTE 12. PRONOUNCEMENTS ISSUED NOT YET EFFECTIVE

In May 2020, the Governmental Accounting Standards Board (GASB) issued Statement No. 95, *Postponement of the Effective Dates of Certain Authoritative Guidance.* This Statement No. 95 primary objective is to provide temporary relief to governments and other stakeholders in light of the COVID-19 pandemic, and extends the effective dates of certain accounting and financial reporting periods beginning after June 15, 2018. The Plan's effective dates have been updated for each applicable pronouncement according to Statement No. 95.

In November 2016, GASB issued Statement No. 83, *Certain Asset Retirement Obligations*. Statement No. 83 addresses accounting and financial reporting for certain asset retirement obligations and establishes criteria for determining the timing and pattern of recognition of a liability and a corresponding deferred outflow of resources for asset retirement obligations. Statement No. 83 is effective for the Plan's fiscal year ending December 31, 2020.

In January 2017, GASB issued Statement No. 84, *Fiduciary Activities*. Statement No. 84 improves guidance regarding the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. Statement No. 84 is effective for the Plan's fiscal year ending December 31, 2020.

In June 2017, GASB issued Statement No. 87, *Leases*. Statement No. 87 was issued to improve accounting and financial reporting for leases by governments. This Statement increases the usefulness of governmental financial statements by requiring recognition of certain lease assets and liabilities for leases that were previously classified as operating leases. Statement No. 87 establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to use an underlying asset. Statement No. 87 is effective for the Plan's fiscal year ending December 31, 2022.

In June 2017, GASB issued Statement No. 88, *Certain Disclosures Related to Debt, Including Direct Borrowings and Direct Placements*. Statement No. 88 was issued to improve the information that is disclosed in notes to government financial statements related to debt. This Statement also clarifies which liabilities governments should include when disclosing information related to debt. Statement No. 88 is effective for the Plan's fiscal year ending December 31, 2020.

NOTE 12. PRONOUNCEMENTS ISSUED NOT YET EFFECTIVE (CONTINUED)

In June 2018, GASB issued Statement No. 89, *Accounting for Interest Cost Incurred Before the End of a Construction Period*. Statement No. 89 was issued to enhance the relevance and comparability of information about capital assets and the cost of borrowing for a reporting period and simplify accounting for interest cost incurred before the end of a construction period. Statement No. 89 is effective for the Plan's fiscal year ending December 31, 2021.

In August 2018, GASB issued Statement No. 90, *Major Equity Interests - An Amendment of GASB Statements No. 14 and No.61*. Statement No. 90 was issued to improve the consistency and comparability of reporting a government's majority equity interest in a legally separate organization and to improve the relevance of financial statement information for certain component units. Statement No. 90 is effective for the Plan's fiscal year ending December 31, 2020.

In May 2019, GASB issued Statement No. 91, *Conduit Debt Obligations.* Statement No. 91 was issued to provide a single method of reporting conduit debt obligations by issuers and eliminate diversity in practice associated with commitments extended by issuers, arrangements associated with conduit debt obligations, and related note disclosures. Statement No. 91 is effective for the Plan's fiscal year ending December 31, 2022.

In January 2020, GASB issued Statement No. 92, *Omnibus 2020*. Statement No. 92 was issued to enhance comparability in accounting and financial reporting and to improve the consistency of authoritative literature by addressing practice issues that have been identified during implementation and application of certain GASB Statements. Statement No. 92 is effective for the Plan's fiscal year ending December 31, 2022.

In March 2020, GASB issued Statement No. 93, *Replacement of Interbank Offered Rates.* Statement No. 93 was issued to address the result of global reference rate reform, when London Interbank Offered Rate (LIBOR) is expected to cease to exist in its current form at the end of 2021, and other accounting and financial reporting implications that result from the replacement of an interbank offered rate (IBOR). Statement No. 93 is effective for the Plan's fiscal year ending December 31, 2022.

In March 2020, GASB issued Statement No. 94, *Public-Private and Public-Public Partnerships and Availability Payment Arrangements.* This Statement No. 94 was issued to improve financial reporting by addressing issues related to public-private and public-public partnership arrangements (PPPs). Statement No. 94 is effective for the Plan's fiscal year ending December 31, 2023.

The Plan is currently evaluating the impact of adopting the aforementioned GASB Statements.

NOTE 13. SUBSEQUENT EVENTS

The Plan has been named as a defendant in a class action litigation, entitled *Lori G. Levin, et. al., v. The Retirement Board of the County Employees' and Officers' Annuity and Benefit Fund of Cook County*, in which the plaintiff seeks, on behalf of herself and similarly situated annuitants, the ability to purchase health insurance administered by the Plan, despite her ineligibility under the Board's policy. On June 7, 2019, the Appellate Court reversed the order of the Circuit Court of Cook County affirming the Board's decision denying Ms. Levin's participation in the health insurance program administered by the Plan. The Plan successfully filed a petition for leave to appeal the decision to the Illinois Supreme Court. On May 21, 2020, the Illinois Supreme Court entered a *Per Curiam* Opinion stating that one Justice had recused himself and that it was not able to obtain the constitutionally required concurrence of at least four justices necessary to enter a decision. Accordingly, the appeal was dismissed. Because the *Per Curiam* Opinion was only recently entered, the Plan has not yet determined what, if any, further legal action it intends to take but it is probable that the decision could have a financial impact on the Plan, although the financial impact is not reasonably estimable at this time.

These financial statements do not include any adjustments related to the impact of COVID-19 (Coronavirus) on the Plan's net position. As a direct result of the Coronavirus pandemic, market volatility has increased and impacted returns, while global economic activity has significantly slowed down with no certainty of when conditions may return to normal. The Plan anticipates that there may be an impact on the Plan's investments, contributions, member benefit applications, and retiree healthcare expenses. The extent of the impact is currently being monitored and evaluated by the Plan.

Required Supplementary Information - Pension

Schedule of Changes in the Employer's Net Pension Liability and Related Ratios

	2019	2018
Total pension liability		
Service cost	$ 367,986,188	$ 440,682,868
Interest	1,078,970,836	1,027,348,255
Difference between expected and actual experience	1,775,621	(278,982,116)
Changes of assumptions	2,760,713,592	(1,601,212,188)
Expected benefit payments, including refunds of employee contributions	(860,741,164)	(805,394,705)
Net change in total pension liability	3,348,705,073	(1,217,557,886)
Total pension liability		
Beginning of year	21,723,236,738	22,940,794,624
End of year	$ 25,071,941,811	$ 21,723,236,738
Plan fiduciary net position		
Contributions - employer	$ 488,003,692	$ 549,437,252
Contributions - employee	134,837,512	134,159,171
Net investment income	1,865,645,039	(424,787,945)
Expected benefit payments, including refunds of employee contributions	(860,741,164)	(805,394,705)
Administrative expenses	(5,085,445)	(5,134,047)
Other	6,275,804	5,860,613
Net change in plan fiduciary net position	1,628,935,438	(545,859,661)
Plan fiduciary net position		
Beginning of year	9,862,023,782	10,407,883,443
End of year	$ 11,490,959,220	$ 9,862,023,782
Employer's net pension liability	$ 13,580,982,591	$ 11,861,212,956
Plan fiduciary net position as a percentage of the total pension liability	45.83%	45.40%
Covered payroll	$ 1,553,498,503	$ 1,533,721,507
Employer's net pension liability as a percentage of covered payroll	874.22%	773.36%

Note:

This schedule is intended to show information for ten years.
The additional years' information will be displayed as it becomes available.

See Report of Independent Auditors.

Required Supplementary Information - Pension (continued)

Schedule of Changes in the Employer's Net Pension Liability and Related Ratios

	2017	2016
Total pension liability		
Service cost	$ 478,904,097	$ 559,176,234
Interest	1,082,982,064	1,002,950,495
Difference between expected and actual experience	(152,859,373)	318,014,746
Changes of assumptions	(950,493,320)	(1,893,474,930)
Expected benefit payments, including refunds of employee contributions	(757,930,854)	(709,560,225)
Net change in total pension liability	(299,397,386)	(722,893,680)
Total pension liability		
Beginning of year	23,240,192,010	23,963,085,690
End of year	$ 22,940,794,624	$ 23,240,192,010
Plan fiduciary net position		
Contributions - employer	$ 511,750,985	$ 414,703,155
Contributions - employee	138,826,184	139,355,592
Net investment income	1,399,625,874	629,442,470
Expected benefit payments, including refunds of employee contributions	(757,930,854)	(709,560,225)
Administrative expenses	(5,406,034)	(5,373,555)
Other	5,359,418	4,046,158
Net change in plan fiduciary net position	1,292,225,573	472,613,595
Plan fiduciary net position		
Beginning of year	9,115,657,870	8,643,044,275
End of year	$ 10,407,883,443	$ 9,115,657,870
Employer's net pension liability	$ 12,532,911,181	$ 14,124,534,140
Plan fiduciary net position as a percentage of the total pension liability	45.37%	39.22%
Covered payroll	$ 1,567,480,401	$ 1,580,251,254
Employer's net pension liability as a percentage of covered payroll	799.56%	893.82%

Note:
This schedule is intended to show information for ten years.
The additional years' information will be displayed as it becomes available.

See Report of Independent Auditors.

Schedule of Changes in the Employer's Net Pension Liability and Related Ratios

	2015	2014
Total pension liability		
Service cost	$ 496,161,454	$ 491,887,347
Interest	994,674,970	958,433,835
Difference between expected and actual experience	(126,330,351)	-
Changes of assumptions	1,329,087,966	-
Expected benefit payments, including refunds of employee contributions	(676,470,215)	(622,003,259)
Net change in total pension liability	2,017,123,824	828,317,923
Total pension liability		
Beginning of year	21,945,961,866	21,117,643,943
End of year	$ 23,963,085,690	$ 21,945,961,866
Plan fiduciary net position		
Contributions - employer	$ 136,075,504	$ 146,075,414
Contributions - employee	137,707,719	129,325,318
Net investment income	(21,896,696)	488,890,897
Expected benefit payments, including refunds of employee contributions	(676,470,215)	(622,003,259)
Administrative expenses	(5,151,110)	(5,010,206)
Other	4,380,293	3,753,960
Net change in plan fiduciary net position	(425,354,505)	141,032,124
Plan fiduciary net position		
Beginning of year	9,068,398,780	8,927,366,656
End of year	$ 8,643,044,275	$ 9,068,398,780
Employer's net pension liability	$ 15,320,041,415	$ 12,877,563,086
Plan fiduciary net position as a percentage of the total pension liability	36.07%	41.32%
Covered payroll	$ 1,572,417,298	$ 1,514,550,023
Employer's net pension liability as a percentage of covered payroll	974.30%	850.26%

Note:
This schedule is intended to show information for ten years.
The additional years' information will be displayed as it becomes available.

See Report of Independent Auditors.

Required Supplementary Information - Pension (continued)

Schedule of Employer Contributions and Related Notes

Last Ten Fiscal Years

	2019	2018	2017	2016	2015
Actuarially determined contribution	$ 523,625,965	$ 562,815,816	$ 514,888,487	$ 519,642,931	$ 595,370,046
Contributions in relation to the actuarially determined contribution	(488,003,692)	(549,437,252)	(511,750,985)	(414,703,155)	(136,075,504)
Contribution deficiency	$ 35,622,273	$ 13,378,564	$ 3,137,502	$ 104,939,776	$ 459,294,542
Covered payroll	$ 1,553,498,503	$ 1,533,721,507	$ 1,567,480,401	$ 1,580,251,254	$ 1,572,417,298
Contributions as a percentage of covered payroll	31.41%	35.82%	32.65%	26.24%	8.65%

Notes to Schedule of Employer Contributions

Actuarially determined contribution rates are calculated as of December 31, one year prior to the fiscal year in which contributions are reported.

Valuation Date	December 31, 2019
Methods and assumptions used to determine contribution rates:	
Actuarial cost method	Entry Age Normal
Amortization method	Level Dollar - Open
Remaining amortization period	30 years
Asset valuation method	Five Year Smoothed Average Market
Inflation	2.75% per year, compounded annually
Salary increases	3.50% to 8.00%, based on age
Investment rate of return	7.25% per year, compounded annually
Retirement age	Based on actual past experience, assume all employees retire by age 80 (Tier 1 participants) and 75 (Tier 2 participants)
Mortality	RP-2014 Blue Collar Mortality Table, base year 2006, Buck Modified MP-2017 projection scale
Postretirement annuity increases	Tier 1 participants - 3.0% compounded annually Tier 2 participants - the lesser of 3.0% or one half of the increase in the Consumer Price Index

See Report of Independent Auditors.

Schedule of Employer Contributions and Related Notes

Last Ten Fiscal Years

	2014	2013	2012	2011	2010
Actuarially determined contribution	$ 540,218,287	$ 493,724,370	$ 454,327,461	$ 352,850,988	$ 283,892,734
Contributions in relation to the actuarially determined contribution	(146,075,414)	(147,720,014)	(152,734,539)	(160,652,118)	(144,539,577)
Contribution deficiency	$ 394,142,873	$ 346,004,356	$ 301,592,922	$ 192,198,870	$ 139,353,157
Covered payroll	$ 1,514,550,023	$ 1,484,269,715	$ 1,478,253,368	$ 1,456,444,123	$ 1,494,093,569
Contributions as a percentage of covered payroll	9.64%	9.95%	10.33%	11.03%	9.67%

See Report of Independent Auditors.

Schedule of Investment Returns

	2019	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expense	19.07%	-3.79%	15.35%	7.67%	-0.10%	5.90%

Note:

This schedule is intended to show information for ten years.
The additional years' information will be displayed as it becomes available.

See Report of Independent Auditors.

Required Supplementary Information - Postemployment Healthcare

Schedule of Changes in the Employer's Net Postemployment Healthcare Liability and Related Ratios

	2019	2018	2017
Total postemployment healthcare liability			
Service cost	$ 46,682,354	$ 40,557,095	$ 82,344,830
Interest	64,502,784	68,565,681	84,911,522
Changes in benefit terms	(81,634,771)	(292,725,744)	(79,293,990)
Difference between expected and actual experience	(9,467,033)	(92,253,919)	(55,814,160)
Changes of assumptions	385,089,639	(300,028,016)	(66,330,809)
Benefit payments	(38,237,172)	(38,310,969)	(47,454,621)
Net change in total postemployment healthcare liability	366,935,801	(614,195,872)	(81,637,228)
Total postemployment healthcare liability			
Beginning of year	1,534,053,569	2,148,249,441	2,229,886,669
End of year	$ 1,900,989,370	$ 1,534,053,569	$ 2,148,249,441
Plan fiduciary net position			
Contributions - employer	$ 38,237,172	$ 38,310,969	$ 47,454,641
Benefit payments - net	(38,237,172)	(38,310,969)	(47,454,641)
Net change in plan fiduciary net position	-	-	-
Plan fiduciary net position			
Beginning of year	-	-	-
End of year	$ -	$ -	$ -
Employer's net postemployment healthcare liability	$ 1,900,989,370	$ 1,534,053,569	$ 2,148,249,441
Plan fiduciary net position as a percentage of the total postemployment healthcare liability	0.00%	0.00%	0.00%
Covered payroll	$ 1,603,347,918	$ 1,576,658,158	$ 1,602,986,483
Employer's net postemployment healthcare liability as a percentage of covered payroll	118.56%	97.30%	134.02%

Note:
This schedule is intended to show information for ten years.
The additional years' information will be displayed as it becomes available.

See Report of Independent Auditors.

Required Supplementary Information - Postemployment Healthcare (continued)

Schedule of Employer Contributions and Related Notes

Last Ten Fiscal Years

	2019	2018	2017	2016	2015
Actuarially determined contribution	$ 157,705,345	$ 133,228,086	$ 187,348,423	$ 206,678,514	$ 190,871,452
Contributions in relation to the actuarially determined contribution	(38,237,172)	(38,310,969)	(47,454,621)	(49,565,249)	(50,756,817)
Contribution deficiency	$ 119,468,173	$ 94,917,117	$ 139,893,802	$ 157,113,265	$ 140,114,635
Covered payroll	$ 1,603,347,918	$ 1,576,658,158	$ 1,602,986,483	$ 1,609,559,234	$ 1,597,597,077
Contributions as a percentage of covered payroll	2.38%	2.43%	2.96%	3.08%	3.18%

Notes to Schedule of Employer Contributions

Actuarially determined contribution rates are calculated as of December 31, one year prior to the fiscal year in which contributions are reported.

Valuation Date:	December 31, 2019
Methods and assumptions used to determine contribution rates:	
Actuarial cost method	Entry Age Normal
Amortization method	Level Dollar - Open
Remaining amortization period	30 years
Inflation	2.75% per year
Salary increases	3.50% to 8%, based on age
Health care cost trend rate	7.25% in the first year, decreasing by .25% per year until an ultimate rate of 4.75% is reached for pre-Medicare 5.75% in the first year, decreasing by .25% per year until an ultimate rate of 4.75% is reached for post-Medicare
Retirement age	Based on actual past experience, assume all employees retire by age 80 (Tier 1 participants) and 75 (Tier 2 participants)
Mortality	RP-2014 Blue Collar Mortality Table, base year 2006, Buck (formerly Conduent) Modified MP-2017 projection scale

See Report of Independent Auditors.

Schedule of Employer Contributions and Related Notes

Last Ten Fiscal Years

	2014	2013	2012	2011	2010
Actuarially determined contribution	$ 189,907,202	$ 178,698,965	$ 156,700,388	$ 165,176,771	$ 163,823,488
Contributions in relation to the actuarially determined contribution	(43,957,458)	(40,097,630)	(37,986,237)	(38,185,306)	(40,183,057)
Contribution deficiency	$ 145,949,744	$ 138,601,335	$ 118,714,151	$ 126,991,465	$ 123,640,431
Covered payroll	$ 1,514,550,023	$ 1,484,269,715	$ 1,478,253,368	$ 1,456,444,123	$ 1,494,093,569
Contributions as a percentage of covered payroll	2.90%	2.70%	2.57%	2.62%	2.69%

See Report of Independent Auditors.

Supplementary Information

Schedules of Net Administrative Expenses and Professional and Consulting Fees

Years Ended December 31, 2019 and 2018

	2019	2018
Administrative expenses		
Bank charges	$ 33,150	$ 32,791
Document imaging	-	40,269
Election expense	105,612	109,904
Employee benefits	515,339	453,329
Insurance - fidelity, fiduciary and liability	185,141	133,047
Maintenance of equipment, systems, software and support	447,247	412,385
Membership, conference and training	22,257	25,058
Office expense	67,273	99,333
Postage	92,010	106,743
Printing and stationery	47,144	74,165
Professional and consulting fees	533,833	638,274
Recovery site expense	32,608	106,203
Regulatory filing fees	8,000	8,000
Rent	526,635	462,115
Salaries	2,569,854	2,532,058
Total	5,186,103	5,233,674
Less administrative expenses allocated to Forest Preserve District Employees' Annuity and Benefit Fund of Cook County	(100,658)	(99,627)
Net administrative expenses	$ 5,085,445	$ 5,134,047
Professional and consulting fees		
Actuarial service	$ 90,335	$ 135,986
Audit	67,200	86,238
Consulting	231,680	181,907
Legal	116,937	206,461
Lobbyist	27,681	27,682
Total	$ 533,833	$ 638,274

Schedules of Investment Expenses

Years Ended December 31, 2019 and 2018

	2019	2018
Investment manager expense		
Adelante Capital Management	$ 539,997	$ 457,100
Angelo Gordon	246,596	244,784
Ariel Investments	678,862	623,201
Artemis Real Estate Partners	313,434	-
Blackstone Alternative Asset Management	5,677,392	5,377,349
CastleArk Management	656,740	1,245,229
CBRE Global Investors	355,312	332,240
Channing Capital Management	1,124,165	1,606,152
Franklin Templeton Investments	2,845,937	2,937,650
Frontier Capital Management	1,181,541	1,304,572
Garcia Hamilton	166,157	73,848
Great Lakes Advisors, Inc.	477,712	469,673
J.P. Morgan Asset Management	3,255,713	3,474,764
Killian Capital Management	-	253,180
LaSalle Investment Management	94,680	135,598
Lazard Asset Management, LLC	716,271	658,675
LM Capital Group, LLC	655,518	614,451
MacKay Shields	1,039,832	911,975
Mellon Capital	129,983	168,333
Mesirow Financial	3,381,152	3,642,946

Schedules of Investment Expenses

Years Ended December 31, 2019 and 2018

	2019	2018
Investment manager expense (continued)		
Mondrian Investment Partners, Ltd.	$ 1,105,729	$ 1,157,706
Muller and Monroe Asset Management	321,028	350,000
NCM Capital	442,471	423,628
New Century Investment Management	269,937	403,002
PGIM Investments	803,037	126,420
Progress Investment Management	2,238,364	2,141,325
Prudential Real Estate Investors	2,001,087	1,942,989
RhumbLine Advisers	217,221	172,931
Russell Investments	216,041	225,498
SPC Capital Management	41,427	70,000
Strategic Global Advisors	683,272	110,310
State Street Global Advisors	384,621	400,370
The Rock Creek Group	1,426,769	1,392,256
Wells Capital Management	1,470,332	1,152,034
William Blair & Company	777,626	1,263,872
	35,935,956	35,864,061
Investment consulting fees		
Callan LLC	386,431	380,736
Investment custodian fees		
BNY Mellon	505,295	509,601
Total investment expenses	$ 36,827,682	$ 36,754,398

Additions by Source

Year Ended December 31,	Employer Contributions	Employee Contributions	Net Investment and Net Securities Lending Income (1)	Other (2)	Total Additions
2014	$ 190,032,872	$ 129,325,318	$ 488,890,897	$ 9,742,062	$ 817,991,149
2015	$ 186,832,321	$ 137,707,719	$ (21,896,696)	$ 11,457,843	$ 314,101,187
2016	$ 464,268,404	$ 139,355,592	$ 629,442,470	$ 14,019,340	$ 1,247,085,806
2017	$ 559,205,626	$ 138,826,184	$ 1,399,625,874	$ 23,321,813	$ 2,120,979,497
2018	$ 587,748,221	$ 134,159,171	$ (424,787,945)	$ 27,479,205	$ 324,598,652
2019	$ 526,240,864	$ 134,837,512	$ 1,865,645,039	$ 35,158,714	$ 2,561,882,129

Deductions by Type

Year Ended December 31,	Benefits	Refunds	Net Administrative Expenses	Total Deductions
2014	$ 645,601,458	$ 26,347,361	$ 5,010,206	$ 676,959,025
2015	$ 701,031,411	$ 33,273,171	$ 5,151,110	$ 739,455,692
2016	$ 742,396,434	$ 26,702,222	$ 5,373,555	$ 774,472,211
2017	$ 790,352,526	$ 32,995,364	$ 5,406,034	$ 828,753,924
2018	$ 831,661,745	$ 33,662,521	$ 5,134,047	$ 870,458,313
2019	$ 890,115,295	$ 37,745,951	$ 5,085,445	$ 932,946,691

1 - Includes realized and unrealized net gain or loss on investments and net securities lending income.

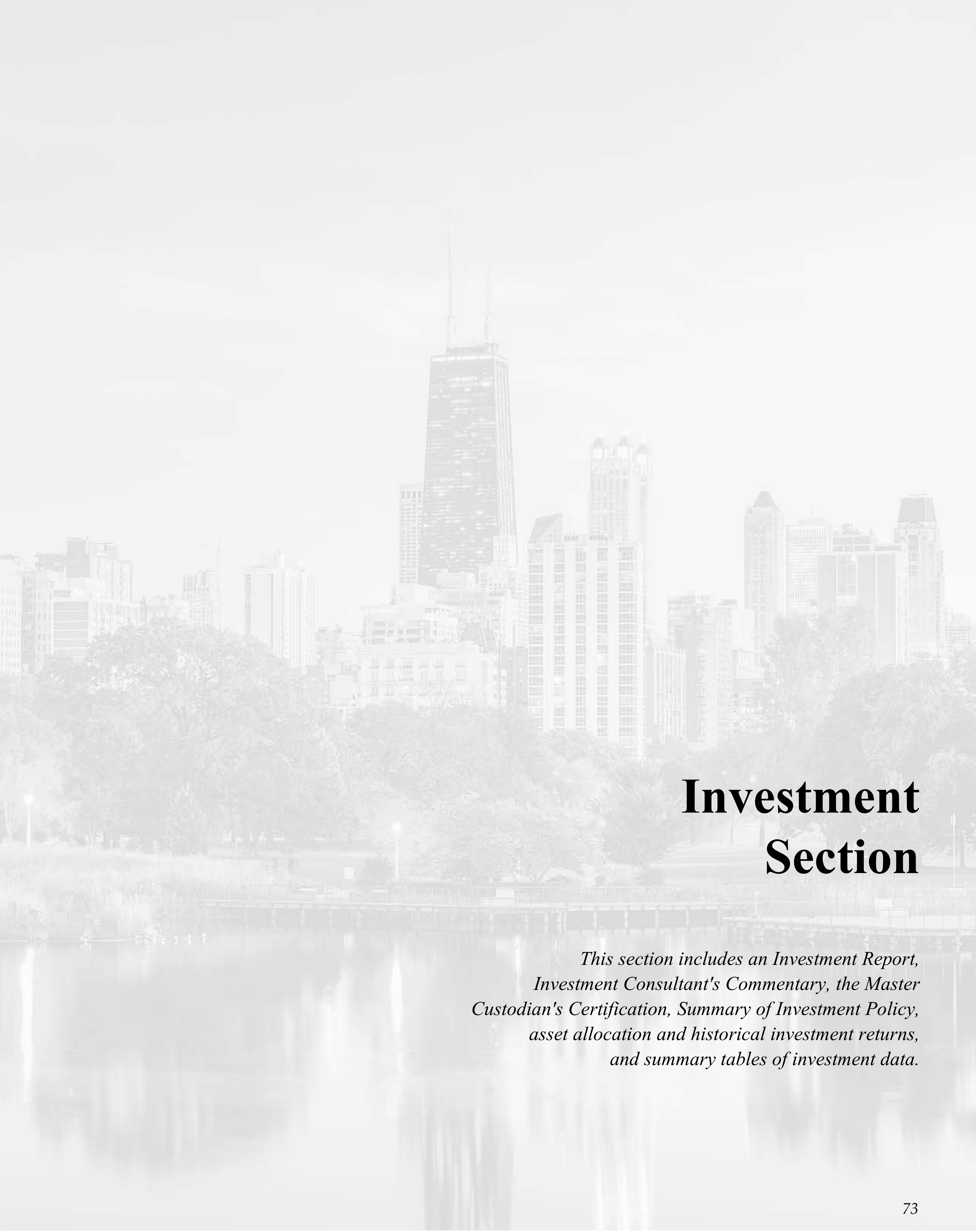
2 - Includes employer federal subsidized programs, EQWP/Medicare Part D, prescription/repayment plan rebates and miscellaneous income.

Schedule of Employer Contributions Receivable

December 31, 2019

Contribution Year	Contributions Receivable	Uncollected Balance	Reserved	Net Contributions Receivable
2018	$ 211,449,224	$ 1,945,095	$ 759,354	$ 1,185,741
2019	$ 209,506,965	209,506,965	6,743,209	202,763,756
		$ 211,452,060	$ 7,502,563	$ 203,949,497

Note:
Employer contributions are funded primarily through property taxes levied by Cook County, Illinois.



Investment Section

This section includes an Investment Report, Investment Consultant's Commentary, the Master Custodian's Certification, Summary of Investment Policy, asset allocation and historical investment returns, and summary tables of investment data.

Investment Report

June 19, 2020

To the Retirement Board and Our Members:

The County Employees' and Officers' Annuity and Benefit Fund of Cook County ("the Fund") employs a prudent investment strategy to meet its long-term actuarial objective of growing fund assets to support member benefits. Together with fund staff and the investment consultant, Callan LLC, the Retirement Board oversees the investment strategy through ongoing study of the portfolio structure, return assumptions, and projected funding needs to support member benefits.

In 2019, the Fund experienced a strong investment year returning 19.07% and exceeding its custom benchmark net of investment management fees. During that period, investments earned $1.9 billion for the Fund and increased investment assets from $9.6 billion at the end of 2018 to just over $11.2 billion at December 31, 2019. Financial market performance in 2019 was quite rare with all major asset classes delivering returns above their long-term historical averages. Notably, all of the Fund's asset classes delivered absolute positive returns for the full year. In particular, allocations to non-U.S. equity and real estate outperformed their respective benchmarks.

In 2019, supplemental contributions from the employer enhanced the Fund's financial situation. During the year, supplemental employer contributions of $320.3 million resulting from a one-year Intergovernmental Agreement (IGA) supported the Fund in meeting benefit obligations.

The Fund continues to implement strategies towards policy allocation targets with the additional funding.

The Consultant's Commentary; Master Custodian's certification letter; Summary of the Fund's Investment Policy; and selected investment schedules follow for your review.

Sincerely,

Regina Tuczak

Regina Tuczak
Executive Director

Data provided to the Fund by its investment consultant form the basis of the information that is presented throughout the Investment Section. All portfolio rates of return are presented using time and asset-weighted returns. Returns are calculated net of investment manager fees.

Investment Consultant's Commentary

Callan

Callan Associates Inc.
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Suite 2400
Chicago, IL 60602

Main 312.346.3536
Fax 312.346.1356

www.callan.com

Board of Trustees
County Employees' and Officers' Annuity and
Benefit Fund of Cook County
70 W. Madison Street, Suite 1925
Chicago, IL 60602

Dear Trustees:

Callan LLC is pleased to present the County Employees' and Officers' Annuity and Benefit Fund of Cook County ("Fund") summary for fiscal year ended December 31, 2019. As of year-end, the Fund reported a fair value of approximately $11.3 billion, an increase of approximately $1.6 billion since December 31, 2018. This increase in value included approximately $216 million in net withdrawals.

While 2018 was an unusual year where virtually all asset classes posted negative returns, 2019 was equally rare with all major asset classes delivering above-average returns. U.S. equity markets rebounded tremendously in 2019; investors were emboldened when the U.S. and China made progress towards a phase one trade deal, which was ultimately signed in December. The U.S. economy closed the year with the unemployment rate at a 50-year low of 3.5%. GDP was steady at 2.1%. Inflation remained at a very low level as the Fed's preferred inflation gauge, the Core PCE Deflator, rose only 1.4% in the fourth quarter.

Equity markets reached record highs and even fixed income investors were rewarded with nearly double-digit returns, an amazing feat given the sector's paltry yields. December capped a 129-month bull market for the S&P 500 Index, the longest ever, and a cumulative return of nearly 500% since the low point of the Great Financial Crisis on March 9, 2009. Going into year-end, perceived progress in U.S./China trade negotiations, some degree of closure around Brexit, and expectations for the Fed to remain on hold for the foreseeable future overshadowed various areas of concern. The S&P 500 Index brought home a banner year for 2019 with a whopping 31.5% return, the best calendar year return since 2013 and capping a decade of strong performance. Smaller capitalization securities also performed strongly, but trailed larger capitalization securities as the Russell 2000 Index was up 25.5% for the year.

Non-U.S. developed markets trailed the U.S. markets, but were still up sharply in 2019 (MSCI ACWI ex-USA IMI +21.6%). Virtually all countries posted positive returns, though results were varied. Emerging markets outperformed developed markets in the fourth quarter but trailed for the full year.

Fixed income markets posted strong returns in 2019 fueled both by falling interest rates and strong investor demand, especially for higher-yielding sectors. The Bloomberg Barclays US Aggregate Bond Index rose 8.7%, the best calendar year return since 2002, with the lowest-quality credit tier of the Index up 16.4%.

Real estate investments in 2019 had a stable, though not a stellar year. Transaction volumes for the four major property types were only modestly up from 2018. Although volumes did not quite reach levels some had hoped for, there was still plenty of liquidity. A standard real estate fund index (NCREIF ODCE) return for 2019 was 4.4%, which was down approximately 3.0% from 2018.

Callan

Total Fund Fiscal Year End Performance (net of fees)

The Fund generated a total return of 19.07% net of investment manager fees for the year ended December 31, 2019, which exceeded the 19.00% return of the Fund's Total Fund Benchmark (Policy Benchmark). On a gross of fees basis, the Fund ranked in the top quartile of a comparable peer universe of funds with assets greater than $1 billion. In aggregate, the Fund's allocations to non-U.S. equity and real estate outperformed their respective benchmarks, while domestic equity and fixed income trailed their benchmarks despite posting strong absolute returns. Hedge funds finished in line or exceeded their benchmarks.

For the trailing three years, the Fund generated a 9.73% annualized return which finished in line with the 9.74% benchmark return. On a gross of fee basis, the Fund ranked in the 35th percentile (1% being the highest, 100% being the lowest) of a comparable gross of fee peer group. In the last five years, the Fund posted a 7.25% annualized return versus the 7.21% return of the benchmark. In addition, relative to its peer universe, the Fund ranked in the 41st percentile.

Asset Class Fiscal Year End Performance (net of fees)

The U.S. composite equity portfolio posted a return of 30.42% for the year ended December 31, 2019, trailing the Domestic Equity Benchmark, the Russell 3000 Index, return of 31.02%. The portfolio benefited from the large capitalization management while smaller capitalization strategies detracted overall. For the three-year period, the domestic portfolio generated an annualized 13.35% return, yet trailed the 14.57% return of the benchmark. For the last five years, domestic equities added 10.42% per annum, yet trailed the strong benchmark return of 11.24%.

The non-U.S. equity portfolio posted a return of 22.33% for the one year period ending December 31, 2019, outperforming the ACWI ex US IMI Index return of 21.63%. International Small Capitalization and Emerging Market strategies supported the outperformance with 24.33% and 29.11% returns, respectively.

The fixed income portfolio posted a return of 8.25% for the one year period ending December 31, 2019, underperforming the 8.72% return of the Bloomberg Barclays US Aggregate Index. The portfolio was negatively impacted by its global fixed income exposure while the core/core plus strategies outperformed.

Within the real estate portfolio, public REITS ended the year with a 27.29% return versus 26.00% for the NAREIT Index. The private real estate strategies also outperformed with a 5.95% return versus the 4.39% return posted by the NFI-ODCE Index.

The private equity portfolio contributed a 22.81% return for the year ended December 31, 2019. Approximately 95% of the portfolio is invested in a single fund of funds program that has generated an annualized since inception IRR of 20.5% since Cook County's first investment in 2013. Approximately 69% of committed capital has been called.

The hedge fund portfolio posted a 6.35% return that matched that of its Libor +4% target and exceeded the HFRI Fund of Funds Index return of 4.81% for 2019. The more beta-oriented strategies performed better during this period.

Callan

Investment Manager Changes

There was a single manager change in 2019. The Artemis Income & Growth Fund was selected as a Core Plus real estate investment and the commitment was executed in November.

All performance returns for the Fund presented in this report have been calculated by Callan LLC using a time-weighted rate of return calculation for accounts with daily pricing and a modified BAI calculation for accounts without daily pricing.

Sincerely,

John P. Jackson, CFA
Senior Vice President, Callan LLC

Master Custodian's Certification

BNY MELLON

Asset Servicing

Michael J. Beggy
Vice President

June 19, 2020

To the Board of Trustees and the Executive Director of the County Employees' and Officers' Annuity & Benefit Fund of Cook County:

BNY Mellon as custodian of the County Employees' and Officers' Annuity & Benefit Fund of Cook County (the "client") has established an "Account" that holds the clients property in safekeeping facilities of the Custodian (or other custodian banks or clearing operations), provided the recordkeeping of certain property of the client and completed the annual accounting certification for the year January 1, 2019 through December 31, 2019.

In addition, in accordance with the terms of the Custody Agreement dated, November 1, 2007, BNY Mellon also provides the following services as Custodian:

- Market settlement of purchases and sales and engage in other transactions, including free receipts and deliveries, exchanges and other voluntary corporate actions, with respect to securities or property received by the Custodian
- Take actions necessary to settle transactions in futures and/or options contracts, short selling programs, foreign exchange or foreign exchange contracts, swaps and other derivative investments with third parties
- Lend the assets of the Account in accordance with a separate Securities Lending Agreement.
- Invest available cash in any collective fund, including a collective investment fund maintained by the Custodian or and affiliate of the Custodian for collective investment of employee benefit trusts or deposit in an interest bearing account of banking department of Custodian.
- Appoint subcustodians, including affiliates of the custodian, as to part or all of the Account.
- Hold property in nominee name, in bearer form or in book entry form, in a clearinghouse corporation or in a depository.
- Take all action necessary to pay for, and settle authorized transactions.
- Collect income payable to and distributions due to the Account.
- Collect all proceeds from securities, certificates of deposit or other investments which may mature or be called.
- Forward to the authorized party as designated by the client, proxies or ballots that are to be a voted by the authorized party.
- Attend to corporate actions that have no discretionary decision requirement
- Report the value of the Account as agreed upon by the client and custodian.
- Credit the account with income and maturity proceeds on securities contractual payment date.

Sincerely,

Michael J. Beggy

Michael J. Beggy
Relationship Executive

Summary of Investment Policy

Summary of Investment Policy *(Compiled by Callan LLC, Investment Consultant to the Fund)*

Investment Authority

The County Employees' and Officers' Annuity and Benefit Fund of Cook County (Fund) is a statutorily created public defined benefit plan. The Fund was established on January 1, 1926 and is governed by the Illinois Pension Code [40 ILCS 5] (Code). The Fund was designed to provide retirement, death and disability benefits for Cook County employees and their surviving spouses, children and certain other dependents.

Overview

Under the guidance and direction of the Board and governed by the "prudent man rule," it is the mission of the County Employees' and Officers' Annuity Fund of Cook County ("the Fund") and the Investment Staff to optimize the total return of the Fund's investment portfolio through a policy of diversified investments using parameters of prudent risk management as measured on the total portfolio, acting at all times in the exclusive interest of the participants and beneficiaries of the Fund. Investments made by the Fund shall satisfy the conditions of the Illinois Pension Code and applicable Illinois law and, in particular, the prudent man rule set forth in the Illinois Pension Code [40 ILCS 5/1-109].

Subject to these fiduciary standards, the Board and Investment Staff shall endeavor at all times to implement the Statement of Investment Policy in a manner consistent with the stated mission of the Fund, while ensuring transparency and compliance with all applicable laws and regulations. The Policy is set forth by the Board in order to:

- Establish a clear understanding of all involved parties of the investment goals and objectives of the Fund.
- Define and assign the responsibilities of all involved parties.
- Establish the relevant investment horizon for which the Fund assets will be managed.
- Establish risk parameters governing assets of the Fund.
- Establish target asset allocation and re-balancing procedures.
- Establish a methodology and criteria for selecting, retaining and terminating Investment Professionals.
- Offer specific guidance to and define limitations for all Investment Managers regarding the investment of Fund assets.

In summary, the purpose of the Statement of Investment Policy is to formalize the Board's investment objectives, policies and procedures and to define the duties and responsibilities of the various entities involved in the investment process. The Statement of Investment Policy is intended to serve as a guide, reference tool and communication link between the Board, Investment Staff and Investment Professionals.

Roles and Responsibilities

The Board is the sole fiduciary and responsible for the oversight of all aspects of the Fund's operations, including benefits administration and the investment of the assets. As a fiduciary, the Board will discharge its duties in the sole interest of the participants and beneficiaries of the Fund.

Summary of Investment Policy (continued)

Investment Committee

The Board has established an Investment Committee (IC), which is a committee of the whole. The IC reviews and makes recommendations of investment related policies to the Board for approval. The IC works with Investment Staff, and investment consultant(s) to implement all Board approved investment policies, evaluate investment performance and comply with the IPS.

Investment Staff

The Executive Director (ED) and Chief Investment Officer (CIO) are responsible for the implementation of investment strategy approved by the Board and for the coordination of all investment activities on behalf of the Fund. The Investment Staff is responsible for the implementation of the investment program and making recommendations to the Board and Investment Committee as appropriate.

Investment Consultant

The Board may hire investment consultant(s) to assist the Board, its Committees and Staff in developing and implementing a prudent process for establishing, monitoring and evaluating the Fund's investment policy.

Investment Managers

Manage assets in accordance with the guidelines and objectives and consistent with each investment manager's stated investment philosophy and style.

Objectives

The primary return objectives of the Fund are to:

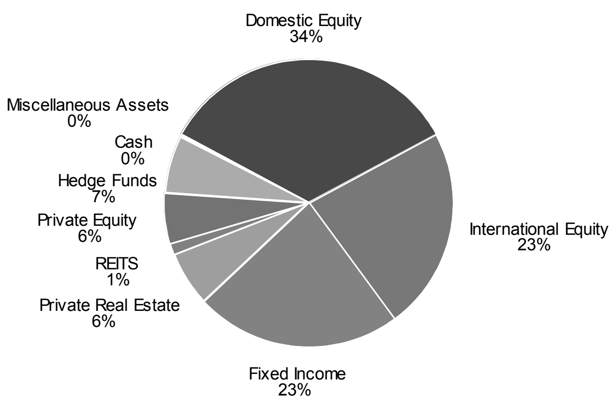
- Ensure that the current and future obligations of the Fund are met when due
- Ensure the assets of the Fund are invested with the care, skill, and diligence that a prudent person acting in a like capacity would undertake
- Ensure the assets of the Fund are invested in a manner that minimizes and controls the costs incurred in administering and managing the assets
- Diversify the investment of the assets to minimize the risk of large losses
- Attain the actuarial assumed annual rate of return over a long-term time horizon
- Exceed an asset policy weighted composite benchmark (Policy Target) over a market cycle of 5 to 10 years

In establishing the asset allocation policy, the Board takes into consideration the actuarial rate of return, the nature of the Fund's liabilities, the cash flow needs, the return and risk expectations for the capital markets, as well as any applicable legislation and statutes governing the Fund. The asset policy reflects the Board's return objectives at a prudent level of risk.

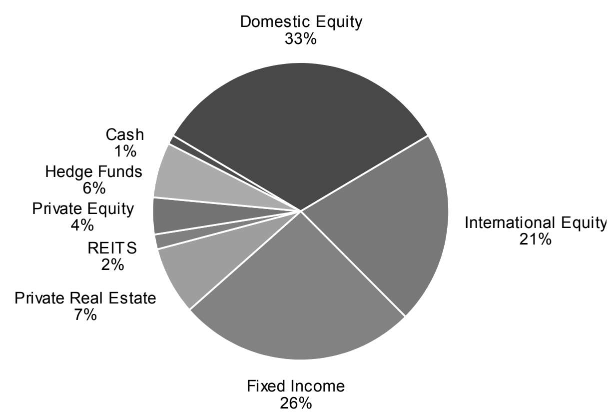
2019 Asset Allocation

As of December 31, 2019, compared to the target allocation, the Fund was allocated within its target ranges. An overweight to U.S Equity and Non-U.S. Equity was offset by its underweight to Fixed Income. The Fund's asset allocation at the end of 2019 is shown below.

Actual Asset Allocation



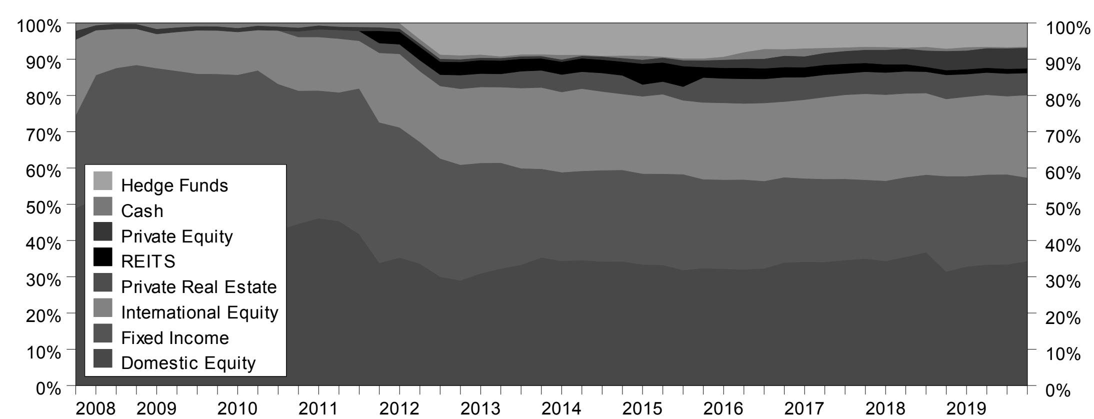
Target Asset Allocation



Historical Allocation by Asset Class

The chart below illustrates the historical asset allocation of the Fund.

Actual Historical Asset Allocation



Summary of Investment Policy (continued)

Historical Investment Returns (Net of Fees)

Below is a detailed analysis of the Fund's net of fee investment performance on a calendar year basis. Calculations were prepared utilizing a time-weighted rate of return methodology.

Asset Class	2019	2018	2017	2016	2015	2014	2013	2012	2011
Net of Fee Returns									
Domestic Equity	**30.42%**	**-6.78%**	**19.78%**	**14.57%**	**-1.61%**	**9.84%**	**35.13%**	**14.94%**	**-0.20%**
Domestic Equity Benchmark (2)	31.02%	-5.24%	21.13%	12.74%	0.48%	12.56%	33.55%	16.42%	-0.15%
International Equity	**22.33%**	**-13.59%**	**28.67%**	**2.92%**	**-1.36%**	**-4.44%**	**18.25%**	**19.36%**	**-11.82%**
International Equity Benchmark (3)	21.63%	-14.76%	27.19%	4.50%	-5.66%	-3.87%	15.29%	16.98%	-14.81%
Fixed Income	**8.25%**	**-0.49%**	**4.13%**	**4.11%**	**-0.58%**	**5.57%**	**-2.03%**	**5.96%**	**7.72%**
Fixed Income Benchmark (4)	8.72%	0.01%	3.54%	2.65%	0.55%	5.97%	-2.02%	4.48%	8.03%
REITS	**27.29%**	**-6.21%**	**7.90%**	**6.33%**	**1.15%**	**27.17%**	**1.29%**	**17.89%**	**-**
NAREIT Equity Index	26.00%	-4.62%	5.23%	8.52%	3.20%	30.14%	2.47%	18.06%	8.29%
Private Real Estate	**5.95%**	**8.68%**	**5.24%**	**9.97%**	**13.74%**	**11.73%**	**10.08%**	**11.00%**	**17.34%**
NCREIF NFI-ODCE Value Weight Net	4.39%	7.36%	6.66%	7.79%	13.95%	11.46%	12.90%	9.79%	14.96%
Private Equity	**22.81%**	**29.77%**	**13.07%**	**11.49%**	**-2.95%**	**-9.46%**	**4.52%**	**4.45%**	**13.12%**
Hedge Funds	**6.35%**	**1.75%**	**7.06%**	**2.68%**	**1.77%**	**5.99%**	**8.80%**	**-**	**-**
LIBOR + 4%	6.35%	6.35%	5.26%	4.75%	4.30%	4.23%	4.28%	4.47%	4.33%
HFRI Fund of Funds Index	4.90%	-1.52%	7.74%	-0.79%	0.52%	4.34%	8.83%	2.98%	-3.11%
Total Cook County Fund	**19.07%**	**-3.79%**	**15.35%**	**7.67%**	**-0.25%**	**5.51%**	**14.97%**	**12.51%**	**1.19%**
Total Fund Benchmark (1)	19.00%	-2.93%	14.40%	6.88%	0.27%	6.85%	12.96%	11.72%	0.75%

1. The Total Fund Benchmark is as follows:

As of 12/31/17 to present: 33.0% Russell 3000 Index, 21.0% MSCI ACWI ex U.S. IMI, 26% Blmbg Aggregate, 9% Custom Real Estate Index, 6% (3 Month Libor+ 4.0%), 4.0% Private Equity Custom Index, 1% U.S. 90 Day T-Bill.

12/31/13 - 12/31/16: 25% Russell 3000 Index; 20% MSCI ACWI ex U.S. Index, 32% Blmbg Aggregate Index, 8% Custom Real Estate Index 9% (3 Month Libor+ 4.0%), 6% Private Equity Custom Index.

12/31/12: 26% Russell 3000 Index; 20% MSCI ACWI ex U.S. Index, 40% Custom Fixed Income Index, 8% Custom Real Estate Index, 6% Private Equity Custom Index.

12/31/11: 30% Russell 3000 Index; 20% MSCI ACWI ex U.S. Index, 40% Custom Fixed Income Index, 5% Custom Real Estate Index, 5% Private Equity Custom Index.

2. Domestic Equity Benchmark: Russell 3000 since 10/1/2011; custom blend previously.

3. International Benchmark: MSCI ACWI ex-US IMI since 1/1/18; MSCI ACWI ex-U.S. since 1/1/13; custom blend previously.

4. Fixed Income Benchmark: Bloomberg Aggregate Index since 1/1/13; custom blend previously.

Schedule of Investment Results

	For the Year Ended December 31, 2019	Annualized Returns 3 Years	5 Years
Total Fund	19.07%	9.73%	7.25%
Policy Benchmark *	19.00%	9.74%	7.21%
Domestic Equity	30.42%	13.35%	10.42%
Russell 3000	31.02%	14.57%	11.24%
International Equity	22.33%	10.80%	6.66%
MSCI ACWI ex. U.S. IMI	21.63%	9.66%	5.39%
Fixed Income	8.25%	3.90%	3.03%
BloomBarc Aggregate	8.72%	4.03%	3.05%
Real Estate	5.95%	6.61%	8.67%
NFI-ODCE Value Weight Net	4.39%	6.13%	7.98%
Private Equity	22.81%	21.69%	14.29%
CCPF Fund Composite	6.35%	5.02%	3.89%
Hedge Funds	6.35%	5.02%	3.89%
Libor-3 Month+4%	6.35%	5.99%	5.40%

*The Policy Benchmark is as follows:

As of December 31, 2019, 2018, & 2017: 33.0% Russell 3000 Index, 21.0% MSCI ACWI ex U.S. IMI, 26% Blmbg Aggregate, 9% Custom Real Estate Index, 6% (3 Month Libor+ 4.0%), 4.0% Private Equity Custom Index, 1% U.S. 90 Day T-Bill.

As of December 31, 2016 & 2015: 25% Russell 3000 Index, 20% MSCI ACWI ex U.S. Index, 32% Blmbg Aggregate Index, 8% Custom Real Estate Index 9% (3 Month Libor+ 4.0%), 6% Private Equity Custom Index.

Note: Investment results are calculated and presented using standard performance evaluation methods in a manner consistent with the investment industry in general and public pension funds in particular. Rates of return were determined using a modified time-weighted return calculation.
Returns are calculated net of investment manager fees.

Schedule of Investment Summary and Asset Allocation

	For Year Ended December 31, 2019			For Year Ended December 31, 2018		
Asset Class	Fair Value	Percent of Total	Target	Fair Value	Percent of Total	Target
Domestic Equity	$ 4,145,691,869	37%	33%	$ 3,256,213,211	34%	33%
International Equity	2,229,083,575	20%	21%	1,828,172,677	19%	21%
Fixed Income	2,457,940,308	22%	26%	2,503,633,812	26%	26%
Real Estate	689,481,138	6%	9%	647,961,102	7%	9%
Hedge Funds of Funds	730,203,620	6%	4%	666,385,423	7%	4%
Private Equity	678,909,985	6%	6%	513,790,532	5%	6%
Short-term investments	330,944,641	3%	1%	218,141,023	2%	1%
Total Investments	$ 11,262,255,136	100%	100%	$ 9,634,297,780	100%	100%

Schedule of Top Ten Largest Holdings (Excludes Commingled Funds)

For year ended December 31, 2019

Top 10 Domestic Equity Holdings	Sector	Shares	Fair Value	% of Total
Microsoft Corp.	Technology	843,417	$ 133,006,861	3.2%
Apple Inc.	Technology	354,944	104,229,306	2.5%
Amazon.com Inc.	Consumer discretionary	35,319	65,263,861	1.6%
Facebook Inc.	Communication	203,937	41,858,069	1.0%
Berkshire Hathaway Inc.	Financial Services	169,126	38,307,039	0.9%
JP Morgan Chase & Co.	Financial Services	265,802	37,052,799	0.9%
Apple Inc.	Technology	122,631	36,010,593	0.9%
Alphabet Inc.	Communication	50,849	68,046,321	1.6%
Johnson & Johnson	Healthcare	223,083	32,541,117	0.8%
Visa Inc.	Financial Services	145,542	27,347,342	0.7%
Total Top 10 Domestic Equity Holdings		2,414,650	$ 583,663,308	14.1%
Total Domestic Equity			$4,145,691,869	100.0%

Top 10 International Equity Holdings	Sector	Shares	Fair Value	% of Total
Nestle SA (Switzerland)	Consumer Goods	126,944	$ 13,735,935	0.6%
Tencent Holdings LTD (China)	Internet	227,400	10,961,708	0.5%
Taiwan Semiconductor Manufacture (Taiwan)	Electronics	967,389	10,681,714	0.5%
CAE Inc (Canada)	Industrials	397,268	10,532,542	0.5%
Vivendi (France)	Media	362,102	10,494,784	0.5%
Sanofi (France)	Healthcare	103,359	10,397,755	0.5%
Samsung Electronic Co. LTD (South Korea)	Electronics	214,450	10,347,448	0.5%
Roche Holding AG (Switzerland)	Healthcare	29,693	9,628,339	0.4%
Informa PLC	Media	847,600	9,622,894	0.4%
Deutsche Boerse AG (Germany)	Financial Services	57,578	9,058,077	0.4%
Total Top 10 International Equity Holdings		3,333,783	$ 105,461,197	4.7%
Total International Equity			$2,229,083,575	100.0%

Top 10 Fixed Income Holdings	Sector	Par	Fair Value	% of Total
U.S. Treasury Note 2.375% 10/31/2029	US Government	14,000,000	$ 14,561,680	0.6%
U.S. Treasury Note 3.000% 10/31/2047	US Government	12,325,000	13,882,017	0.6%
U.S. Treasury Note 2.375% 11/15/2049	US Government	13,325,000	13,318,204	0.5%
U.S. Treasury Note 4.750% 02/15/2041	US Government	8,525,000	12,045,910	0.5%
U.S. Treasury Note 2.250% 08/15/2049	US Government	12,073,000	11,744,735	0.5%
Federal Home loan Bank 3.250% 11/16/2028	US Agencies	9,800,000	10,717,378	0.4%
U.S. Treasury Note 4.500% 02/15/2036	US Government	8,000,000	10,620,640	0.4%
U.S. Treasury Note 2.375% 08/15/2024	US Government	10,195,000	10,507,273	0.4%
U.S. Treasury Note 2.125% 05/15/2025	US Government	9,740,000	9,940,936	0.4%
U.S. Treasury Note 2.625% 02/15/2029	US Government	9,000,000	9,544,950	0.4%
Total Top 10 Fixed Income Holdings		106,983,000	$ 116,883,724	4.8%
Total Fixed Income			$2,457,940,308	100.0%

A complete list of the portfolio holdings is available for review upon request.

Schedule of Investment Manager Fees and Assets Under Managment

For year ended December 31, 2019

Asset Category	Investment Manager Fees	Assets Under Management
Equity		
Adelante Capital Management	$ 539,997	$ 97,623,716
Ariel Investments	678,862	113,900,196
CastleArk Management	656,740	101,667,848
Channing Capital Management	1,124,165	214,674,615
Franklin Templeton Investments	2,095,487	350,620,335
Frontier Capital Management	1,181,541	172,670,158
Mesirow Financial	300,450	49,023,632
Great Lakes Advisors, Inc.	477,712	387,885,633
J.P. Morgan Asset Management	915,402	181,051,419
Lazard Asset Management, LLC	716,271	386,903,454
Mondrian Investment Partners, Ltd.	1,105,729	165,794,242
Progress Investment Management	2,087,114	345,283,334
Strategic Global Advisors	683,272	112,928,615
RhumbLine Advisers	217,221	2,268,750,866
Russell Implementation Services, Inc.	216,041	446,472,849
State Street Global Advisors	384,621	823,881,780
Wells Capital Management	1,470,332	206,604,832
William Blair & Company	777,626	111,677,500
Total Global Equity	$ 15,628,583	$ 6,537,415,024
Fixed Income		
Franklin Templeton Investments	$ 750,450	$ 258,865,492
Garcia Hamilton	166,157	71,627,877
LM Capital Group, LLC	655,518	441,195,348
MacKay Shields	1,039,832	412,523,859
Mellon Capital	129,983	560,144,216
Piedmont Investment Advisors (Formerly NCM Capital)	442,471	271,601,798
New Century Investment Management	269,937	124,670,174
PGIM Investments	803,037	418,709,617
Progress Investment Management	151,250	23,891,948
Total Fixed Income	$ 4,408,635	$ 2,583,230,327

For year ended December 31, 2019

Asset Category	Investment Manager Fees	Assets Under Management
Real Estate		
Angelo Gordon & Co.	$ 246,596	$ 20,060,116
Artemis Real Estate Partners	313,434	8,198,141
Blackstone Alternative Asset Management	529,505	35,602,180
CBRE Global Investors	355,312	33,391,144
J.P. Morgan Asset Management	2,340,311	274,387,829
LaSalle Investment Management	94,680	10,249,199
Mesirow Financial	621,445	55,595,334
Prudential Real Estate Investors	2,001,087	251,997,195
Total Real Estate	$ 6,502,370	$ 689,481,138
Hedge Funds of Funds		
Blackstone Alternative Asset Management	$ 5,147,887	$ 535,014,672
The Rock Creek Group	1,426,769	195,188,948
Total Hedge Funds	$ 6,574,656	$ 730,203,620
Private Equity **		
Legacy direct	$ -	$ 3,688,521
Mesirow Financial	2,459,257	657,276,670
Muller and Monroe Asset Management	321,028	26,058,238
SPC Capital Management	41,427	2,578,243
Total Private Equity	$ 2,821,712	$ 689,601,672
Short-Term Investments		
BNY Mellon ***	$ -	$ 32,323,356
Total	$ 35,935,956	$ 11,262,255,136

** *Fees shown are for fund-of-fund managers and do not reflect fees of underlying managers of investments, which are reflected in the net income from the related investment*

*** *Investments are held in commingled funds and/or publicly traded funds, and related investment returns are net of fees.*

Schedule of Brokerage Commissions

For Year Ended December 31, 2019

Broker Name	Number of Shares	Commissions	Cost per Share
Domestic Equity Commissions			
Loop Capital Markets, LLC*	7,942,320	$ 224,279	$ 0.028
Cabrera Capital Markets*	3,092,037	88,046	0.028
Baird, Robert W & Co.	1,566,924	45,823	0.029
Williams Capital Group*	1,779,808	34,753	0.020
Goldman Sachs & Co.	1,141,431	31,593	0.028
Penserra Securities*	1,552,328	30,948	0.020
J.P. Morgan Securities	1,132,817	28,130	0.025
Raymond James & Associates, Inc.	1,005,309	26,262	0.026
Stiffel Nicolaus	869,451	24,393	0.028
Liquident, Inc.	1,236,200	19,982	0.016
William Blair & Co.	677,564	19,319	0.029
Investment Tech Group, Inc.	769,096	18,394	0.024
Keybanc Capital Markets, Inc.	554,740	14,802	0.027
Jefferies, LLC	602,917	14,771	0.024
Piper Jaffray & Co.	694,761	14,708	0.021
Seaport Group Securities, LLC	571,616	12,327	0.022
Stephens Inc.	403,878	12,255	0.030
National Financial Services Corp.	464,637	11,876	0.026
Instinet Clearing Service, Inc.	547,564	10,937	0.020
King & Associates*	471,899	10,911	0.023
Credit Suisse	347,179	10,737	0.031
Merrill Lynch, Pierce, Fenner, Smith, Inc.	689,980	10,120	0.015
Brokers with < $10,000 of Commission	8,616,177	221,331	0.026
Total Domestic Equity Commissions	**36,730,633**	**$ 936,697**	**$ 0.026**

*Women/minority-owned brokerage firm. The Retirement Board's brokerage policy encourages investment managers, as they search for best possible trade execution, to utilize women/minority-owned enterprises, specifically firms headquartered in the State of Illinois.

For Year Ended December 31, 2019

Broker Name	Number of Shares	Commissions	Cost per Share
International Equity Commissions			
Loop Capital Markets, LLC*	9,264,129	$ 58,287	$ 0.006
Credit Suisse	4,715,683	46,350	0.010
Morgan Stanley & Co.	4,879,657	37,693	0.008
Citigroup Global Markets, Inc.	1,099,479	26,704	0.024
UBS Warburg	7,996,562	26,004	0.003
Penserra Securities*	2,460,704	23,621	0.010
Merrill Lynch Securities	3,183,266	21,375	0.007
Goldman Sachs & Co.	3,308,865	20,606	0.006
Societe Generale	2,215,599	16,812	0.008
J.P. Morgan Securities	2,263,931	14,462	0.006
Mischler Financial Group, Inc.*	1,169,220	14,437	0.012
Jefferies, LLC	2,727,980	14,283	0.005
Barclays Capital	865,131	10,849	0.013
Investment Technology Group LTD	1,601,883	10,668	0.007
Instinet Europe Limited	2,189,717	10,430	0.005
RBC Dominion Security Services	1,208,326	10,044	0.008
Daiwa Capital Markets America, Inc.	457,400	9,782	0.021
North South Capital, LLC*	911,350	9,465	0.010
Credit Lyonnais Sec	1,207,870	7,093	0.006
Joh. Berenberg, Gossler & Co.	90,577	6,735	0.074
Cabrera Capital Markets*	453,428	6,440	0.014
Bofa Securities, Inc.	581,337	6,187	0.011
Citigroup Global Markets, Inc.	2,852,495	5,326	0.002
Brokers with < $5,000 of Commission	40,850,808	172,326	0.004
Total International Equity Commissions	**98,555,397**	**$ 585,979**	**$ 0.006**

*Women/minority-owned brokerage firm. The Retirement Board's brokerage policy encourages investment managers, as they search for best possible trade execution, to utilize women/minority-owned enterprises, specifically firms headquartered in the State of Illinois.

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Actuarial Section

This section includes the actuarial reports and summarizes actuarial liability and unfunded actuarial liability. Schedules of data summarizing information about members and beneficiaries, actuarial assumptions, and principal provisions, and a glossary of terms are also included.

Actuarial Certification – Pension Benefits

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.

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. The valuation results depend on the integrity of this information. The benefits considered are those delineated in the Fund. The CEABF was established on July 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.

Cavanaugh Macdonald performs the actuarial valuation annually. All exhibits, except Summary of Fair Value of Assets and Changes in Fair Value of Assets were prepared by the actuary.

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.

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 meet the parameters set by the Actuarial Standards of Practice and 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 beginning on page 121.

Actuarial computations presented in this report are for purposes of determining the actuarial contribution rates for funding the Fund 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 Fund'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.

We have prepared required accounting information for GASB Statement Nos. 67 and 68 for the measurement year ending December 31, 2019, based on valuation dates of December 31, 2018 and December 31, 2019.

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
- Calculation of Actuarial (Gain)/Loss
- Analysis of Experience
- Actuarial Balance Sheet
- History of UAAL and Funded Ratio
- Solvency Test
- Reconciliation of Change in Unfunded Actuarial Liability
- Determination of Actuarial Value of Assets
- GASB 67 Schedule of Changes in Net Pension Liability
- GASB 67 Net Pension Liability (Asset)
- GASB 67 Sensitivity of Net Pension Liability
- GASB 67 and 68 Actuarial Assumptions and Methods
- Membership Data
- Summary of Benefit Provisions
- Description of Actuarial Methods and Valuation Procedures
  - Actuarial Cost Method
  - Asset Valuation Method
  - Valuation Procedures
- Summary of Actuarial Assumptions

Actuarial Certification – Pension Benefits (continued)

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

This is to certify that Larry Langer and Wendy Ludbrook 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 Fund and future expectations. However, the Board of Trustees has the final decision regarding the selection of the assumptions and adopted them as indicated in the Summary of Actuarial Assumptions.

Respectfully submitted,

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

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

Ryan Gundersen
Senior Consultant

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Actuarial Valuation – Pension Benefits

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 Cook 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 Fund;
- to determine the actuarial contribution rate, based on the Fund's funding policy;
- to measure and disclose various asset and liability measures;
- to monitor any deviation between actual Fund 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.

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

Membership (continued)

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	2,838	2,782
Total	19,143	18,602
Average age	72.3	72.2
Annual benefit amounts		
Retirees	$ 778,302,518	$ 725,247,543
Beneficiaries	62,084,048	57,466,491
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.

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.

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 beginning on page 108.

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 $160.9 million during the prior year. This net loss is about 1.0% 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 $114.5 million during the year ending December 31, 2019. This loss increased the unfunded actuarial accrued liability by $114.5 million and decreased the funded ratio by 0.4%.

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 beginning on page 121. 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.

Actuarial Experience (continued)

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%.

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 $46.4 million. This loss increased the unfunded actuarial accrued liability by $46.4 million 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 on page 105.

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 based on 30 years 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 $75.1 million, or 4.68% of pay. This represents an increase in the employer normal cost rate of 0.08% of pay from last year's employer normal cost rate of 4.60%.

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 $6.0 billion. This represents an increase of $0.2 billion in the unfunded actuarial accrued liability from last year's amount of $5.8 billion. The annual

Actuarial Contributions (continued)

payment required to amortize the unfunded actuarial accrued liability of $6.0 billion, over a period of 30 years, as of December 31, 2019 is $475.3 million, or 29.6% of pay.

The annual actuarially required employer contribution for fiscal year ending December 31, 2021 is $550.4 million, or 34.3% of pay. This represents an increase of $13.4 million in the employer contribution amount of $537.0 million for fiscal year ending December 31, 2020, or an increase of 1.0% of pay from last year's employer contribution rate of 33.3%.

The actuarial liabilities and development of the annual actuarial employer contribution is shown beginning on page 103.

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 64.83%. This represents an increase of 0.39% from last year's funded ratio of 64.44% 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 on page 107.

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 68 can be found beginning on page 112.

Changes in Fund Provisions

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

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. A description of these assumptions can be found beginning on page 121.

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

Comparative Summary of Key Actuarial Valuation Results

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		15,422		14,898
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	$	16,941,207,568	$	16,314,389,047
Actuarial Value of Assets		10,983,364,279		10,512,756,514
Unfunded Actuarial Accrued Liability	$	5,957,843,289	$	5,801,632,533
Funded Ratio		64.83%		64.44%

Fiscal Year Ending		**December 31, 2021**		**December 31, 2020**
Employer Actuarial Required Contribution[3]				
Employer Normal Cost including Administrative Expenses	$	75,113,745	$	74,111,433
Amortization of Unfunded Actuarial Accrued Liability (Surplus)		475,306,346		462,844,125
Employer Actuarial Required Contribution	$	550,420,091	$	536,955,558

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

[2]Rate of return Provided by the CCPF.

[3]As of the date of the actuarial valuation without adjustment.

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
Total	**$ 7,448,854,638**	**$ 535,033,679**	**$ 7,983,888,317**	**$ 8,017,310,836**
2. Retired Members and Beneficiaries Receiving Benefits	9,684,357,475	649,464	9,685,006,939	9,050,032,658
3. Inactive Members with Deferred Benefits	727,509,634	23,834,994	751,344,628	748,001,561
4. Total Present Value of Projected Benefits (1.+ 2.+ 3.)	**$ 17,860,721,747**	**$ 559,518,137**	**$ 18,420,239,884**	**$ 17,815,345,055**
5. Present Value of Future Normal Costs	1,156,983,132	322,049,184	1,479,032,316	1,500,956,008
6. Total Actuarial Accrued Liability	**$ 16,703,738,615**	**$ 237,468,953**	**$ 16,941,207,568**	**$ 16,314,389,047**

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. Administrative Expenses	3,749,223	0.33%	1,590,494	0.33%	5,339,717	0.33%	5,443,293	0.34%
Total	**$ 168,882,950**	**14.98%**	**$ 42,955,476**	**9.03%**	**$ 211,838,426**	**13.20%**	**$ 211,420,654**	**13.11%**
2. Expected Member Contributions	**$ 96,026,552**	**8.52%**	**$ 40,698,129**	**8.51%**	**$ 136,724,682**	**8.52%**	**$ 137,309,221**	**8.51%**
3. Employer Normal Cost (1.- 2.)	**$ 72,856,398**	**6.46%**	**$ 2,257,347**	**0.47%**	**$ 75,113,745**	**4.68%**	**$ 74,111,433**	**4.60%**

Actuarial Valuation – Pension Benefits (continued)

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. Total	$ 6,504,856,001	$ 6,516,354,828
b. Retired Members and Beneficiaries Receiving Benefits	$ 9,685,006,939	$ 9,050,032,658
c. Inactive Members with Deferred Benefits	751,344,628	748,001,561
d. Total (2a. + 2b. + 2c.)	$ 16,941,207,568	$ 16,314,389,047
3. Actuarial Value of Assets	10,983,364,279	10,512,756,514
4. Unfunded Actuarial Accrued Liability (UAAL) (2d. - 3.)	$ 5,957,843,289	$ 5,801,632,533
5. Funded Ratio (3. / 2d.)	64.83%	64.44%
6. UAAL as a Percent of Annual Payroll (4. / 1.)	371.12%	359.76%

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	$ 475,306,346	$ 462,844,125
b. As a % of pay (7a. / 1.)	29.61%	28.70%
8. Employer Normal Cost		
a. Amount	$ 75,113,745	$ 74,111,433
b. As a % of pay (8a. / 1.)	4.68%	4.60%
9. Employer Actuarial Required Contribution		
a. Amount (8a. + 7a.)	$ 550,420,091	$ 536,955,558
b. As a % of pay (9a. / 1.)	34.29%	33.30%

* Amount needed to fund the CEABF in an actuarially responsible manner. These amounts have not been adjusted to account for the difference in Valuation Date and Fiscal Year End.

Calculation of Actuarial (Gain)/Loss

Development of Actuarial (Gain) / Loss		**Amount**
1. Expected Actuarial Accrued Liability		
a. Actuarial Accrued Liability at December 31, 2018	$	16,314,389,047
b. Normal Cost at December 31, 2018		205,977,361
c. Interest on a. + b. to End of Year		1,197,726,565
d. Benefit Payments and Refunds, with Interest to End of Year		891,397,114
e. Expected Actuarial Accrued Liability Before Changes (a. + b. + c. - d.)	$	16,826,695,859
f. Change in Actuarial Accrued Liability at December 31, 2019 due to:		
i. Change in Actuarial Assumptions		-
ii. Change in Actuarial Methods		-
g. Expected Actuarial Accrued Liability at December 31, 2019 (e. + f.i. + f.ii.)	$	16,826,695,859
2. Actuarial Accrued Liability at December 31, 2019		16,941,207,568
3. Liability (Gain) / Loss (2. – 1.g.)	**$**	**114,511,709**
4. Expected Actuarial Value of Assets		
a. Actuarial Value of Assets at December 31, 2018	$	10,512,756,514
b. Interest on a. to End of Year		762,174,847
c. Contributions Paid During 2019		629,117,008
d. Interest on c. to End of Year		22,406,480
e. Benefit Payments, Refunds and Administrative Expenses, with Interest to End of Year		896,663,681
f. Change in Actuarial Value of Assets at December 31, 2019 due to:		
i. Change in Asset Method		-
g. Expected Actuarial Value of Assets at December 31, 2019 (a. + b. + c. + d. – e. – f.i.)	$	11,029,791,168
5. Actuarial Value of Assets as of December 31, 2019		10,983,364,279
6. Actuarial Asset (Gain) / Loss (4.g. - 5.)	**$**	**46,426,889**
7. Actuarial (Gain) / Loss (3. + 6.)	**$**	**160,938,599**

Actuarial Valuation – Pension Benefits (continued)

Analysis of Experience

Type of (Gain) or Loss	Year Ending December 31, 2019	As a % of Last Year's AAL
1. (Gain) or Loss During the Year from Experience:		
a. Salary	$ (21,547,203)	-0.13%
b. Investment	46,426,889	0.28%
c. Retiree Mortality	10,619,523	0.07%
d. Other (turnover, retirement ages, service purchase, etc.)	125,439,389	0.77%
e. Total Experience (Gain) or Loss (a. + b. + c. + d.)	$ 160,938,599	0.99%
2. Assumption and Method Changes	-	0.00%
3. Total (Gain) or Loss During Year (1.e. + 2.)	$ 160,938,599	0.99%

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	954,596,509
b. Employer Normal Cost	524,435,807
c. Total	$ 1,479,032,316
3. Unfunded Actuarial Accrued Liability/(Reserve)	$ 5,957,843,289
4. Total Assets [1. + 2.c. + 3.]	$ 18,420,239,884

Benefit Obligations	December 31, 2019
1. Present Value of Future Benefits	
a. Active Members	$ 7,983,888,317
b. Retirees and Beneficiaries	9,685,006,939
c. Inactive Members	751,344,628
d. Total	$ 18,420,239,884

History 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	$ 12,023,222,885	$ 7,982,368,659	66.39%	$ 4,040,854,226
December 31, 2011	12,628,274,561	7,897,102,116	62.54%	4,731,172,445
December 31, 2012	13,418,486,943	7,833,882,926	58.38%	5,584,604,017
December 31, 2013	13,636,576,177	8,381,444,287	61.46%	5,255,131,890
December 31, 2014	14,140,547,353	8,810,509,070	62.31%	5,330,038,283
December 31, 2015	14,936,591,336	8,991,018,918	60.19%	5,945,572,418
December 31, 2016	15,456,773,985	9,488,223,349	61.39%	5,968,550,636
December 31, 2017	15,671,756,443	10,148,203,833	64.75%	5,523,552,610
December 31, 2018	16,314,389,047	10,512,756,514	64.44%	5,801,632,533
December 31, 2019	16,941,207,568	10,983,364,279	64.83%	5,957,843,289

Reconciliation of Change un Unfunded Actuarial Liability

Development of Unfunded Actuarial Liability	Amount
1. Unfunded Actuarial Accrued Liability as of December 31, 2018	$ 5,801,632,533
2. Normal Cost December 31, 2018	74,111,433
3. Interest on 1. and 2.	425,991,438
4. Employer Contribution Requirement of Normal Cost Plus Interest on Unfunded Liability for Period January 1, 2019 to December 31, 2019	$ 500,102,871
5. Actual Employer Contribution for the Year*	488,003,692
6. Interest on 5.	17,380,622
7. Increase/(Decrease) in Unfunded Liability Due to Employer Contribution Plus Interest Being Greater Than Normal Cost Plus Interest on Unfunded Liability (4. - (5.+6.))	$ (5,281,443)
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	-
d. Other Sources	136,612,512
9. Net Increase/(Decrease) in Unfunded Liability for the Year (7. + 8a. + 8b. + 8c. + 8d.)	156,210,756
10. Unfunded Actuarial Accrued Liability as of December 31, 2019 (1. + 9.)	$ 5,957,843,289

* Includes an additional $320.3 million in supplemental contribution from the employer.

Actuarial Valuation – Pension Benefits (continued)

Summary of Fair Value of Assets

Asset Category	Fair Value as of December 31, 2019 Amount	%	Fair Value as of December 31, 2018 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	689,481,138	5.81%	644,564,162	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	212,862,900		237,249,598	
d. Total	$ 372,441,197		$ 301,351,378	
6. Payables				
a. Investments Purchased	$ 135,043,608		$ 60,991,248	
b. Securities Lending Collateral	596,473,697		942,725,617	
c. Other Payables	8,693,505		12,634,128	
d. Total	$ 740,210,810		$ 1,016,350,993	
7. Net Position for Pension Benefits [4. + 5.d – 6.d.]	**$ 11,490,959,220**		**$ 9,862,023,782**	

Changes in Fair Value of Assets

Transactions	December 31, 2019	December 31, 2018
Additions		
1. Contributions		
a. Contributions from Employers	$ 488,003,692	$ 549,437,252
b. Contributions from Plan Members	134,837,512	134,159,171
c. Total	$ 622,841,204	$ 683,596,423
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	3,308,560	5,155,500
d. Total	$ 1,902,472,721	$ (388,033,547)
e. Less Investment Expense	36,827,682	36,754,398
f. Net Investment Income (Loss)	$ 1,865,645,039	$ (424,787,945)
g. Miscellaneous	6,023,398	5,678,102
h. Employee Transfers	252,406	182,511
3. Total Additions (1c. + 2f. + 2g. + 2.h)	$ 2,494,762,047	$ 264,669,091
Deductions		
4. Benefits and Expenses		
a. Retirement Benefits	$ 822,995,213	$ 771,732,184
b. Refund of Contributions	37,745,951	33,662,521
c. Administrative Expenses	5,085,445	5,134,047
5. Total Deductions	$ 865,826,609	$ 810,528,752
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

Actuarial Valuation – Pension Benefits (continued)

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		488,003,692
c. Miscellaneous contributions		6,275,804
d. Total	$	629,117,008
5. Distributions		
a. Benefit payments	$	822,995,213
b. Refund of contributions		37,745,951
c. Administrative expenses		5,085,445
d. Total	$	865,826,609
6. Expected Return at 7.25% on		
a. Item 1.	$	762,174,847
b. Item 2.		(47,178,123)
c. Item 4.d.		22,406,480
d. Item 5.d.		30,837,072
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

Schedule of Funding Progress

The liabilities and assets resulting from the last ten actuarial valuations are as follows:

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL) (Actuarial Value)	Funded Ratio (Actuarial Value)	Covered Payroll	Percentage of Covered Payroll (Fair Value)
	(a)	(b)	(b-a)	(a/b)	(c)	(b-a)/(c)
2010	$ 7,982,368,659	$ 12,023,222,885	$ 4,040,854,226	66.39%	$ 1,494,093,569	270.5%
2011	7,897,102,116	12,628,274,561	4,731,172,445	62.54%	1,456,444,123	324.8%
2012	7,833,882,926	13,418,486,943	5,584,604,017	58.38%	1,478,253,368	377.8%
2013	8,381,444,287	13,636,576,177	5,255,131,890	61.46%	1,484,269,715	354.1%
2014	8,810,509,070	14,140,547,353	5,330,038,283	62.31%	1,514,550,023	351.9%
2015	8,991,018,918	14,936,591,336	5,945,572,418	60.19%	1,572,417,298	378.1%
2016	9,488,223,349	15,456,773,985	5,968,550,636	61.39%	1,580,251,254	377.7%
2017	10,148,203,834	15,671,756,443	5,523,552,609	64.75%	1,567,480,401	352.4%
2018	10,512,756,514	16,314,389,047	5,801,632,533	64.44%	1,533,721,507	378.3%
2019	10,983,364,279	16,941,207,568	5,957,843,289	64.83%	1,553,498,503	383.5%

Schedule of Employer Contributions

The required contributions and actual percentages contributed over the last ten years are as follows:

Fiscal year Ended December 31,	Actuarially Determined Contribution (ADC)	Employer Contribution	Percentage Contributed
2010	$ 283,892,734	$ 144,539,577	50.91%
2011	352,850,988	160,652,118	45.53%
2012	454,327,461	152,734,539	33.62%
2013	493,724,370	147,720,014	29.92%
2014	540,218,287	146,075,414	27.04%
2015	595,370,046	136,075,504	22.86%
2016	519,642,931	414,703,155	79.81%
2017	514,888,487	511,750,985	99.39%
2018	562,815,816	549,437,252	97.62%
2019	523,625,965	488,003,692	93.20%

GASB 67 Schedule of Changes in Net Pension Liability

	2019	2018	2017	2016	2015
Total Pension Liability					
Service Cost	367,986,188	440,682,868	478,904,097	559,176,234	496,161,454
Interest	1,078,970,836	1,027,348,255	1,082,982,064	1,002,950,495	994,674,970
Benefit changes	0	0	0	0	0
Difference between expected					
and actual experience	1,775,621	(278,982,116)	(152,859,373)	318,014,746	(126,330,351)
Changes of assumptions	2,760,713,592	(1,601,212,188)	(950,493,320)	(1,893,474,930)	1,329,087,966
Benefit payments, including refund of contributions	(860,741,164)	(805,394,705)	(757,930,854)	(709,560,225)	(676,470,215)
Net change in Total Pension Liability	3,348,705,073	(1,217,557,886)	(299,397,386)	(722,893,680)	2,017,123,824
Total Pension Liability - beginning	21,723,236,738	22,940,794,624	23,240,192,010	23,963,085,690	21,945,961,866
Total Pension Liability - ending (a)	25,071,941,811	21,723,236,738	22,940,794,624	23,240,192,010	23,963,085,690
Plan Fiduciary Net Position					
Contributions – employer	488,003,692	549,437,252	511,750,985	414,703,166	136,075,504
Contributions – member	134,837,512	134,159,171	138,826,184	139,355,592	137,707,719
Net investment income	1,865,645,039	(424,787,945)	1,399,625,874	629,442,470	(21,896,696)
Benefit payments, including refund of contributions	(860,741,164)	(805,394,705)	(757,930,854)	(709,560,225)	(676,470,215)
Administrative expense	(5,085,445)	(5,134,047)	(5,406,034)	(5,373,555)	(5,151,110)
Other	6,275,804	5,860,613	5,359,418	4,046,147	4,380,293
Net change in Plan Fiduciary Net Position	1,628,935,438	(545,859,661)	1,292,225,573	472,613,595	(425,354,505)
Plan Fiduciary Net Position – beginning	9,862,023,782	10,407,883,443	9,115,657,870	8,643,044,275	9,068,398,780
Plan Fiduciary Net Position - ending (b)	11,490,959,220	9,862,023,782	10,407,883,443	9,115,657,870	8,643,044,275
Net Pension Liability - ending (a) - (b)	13,580,982,591	11,861,212,956	12,532,911,181	14,124,534,140	15,320,041,415

GASB 67 Net Pension Liability (Asset)

	2019	2018	2017	2016	2015
Total Pension Liability	25,071,941,811	21,723,236,738	22,940,794,624	23,240,192,010	23,963,085,690
Plan Fiduciary Net Position	11,490,959,220	9,862,023,782	10,407,883,443	9,115,657,870	8,643,044,275
Net Pension Liability	13,580,982,591	11,861,212,956	12,532,911,181	14,124,534,140	15,320,041,415
Ratio of Plan Fiduciary Net Position to Total Pension Liability	45.83%	45.40%	45.37%	39.22%	36.07%
Covered-employee payroll	1,553,498,503	1,533,721,507	1,567,480,401	1,580,251,254	1,572,417,298
Net Pension Liability as a percentage of covered-employee payroll	874.22%	773.36%	799.56%	893.82%	974.30%

GASB 67 Sensitivity of Net Pension Liability

	1% Decrease (3.14%)	Current Discount Rate (4.14%)	1% Increase (5.14%)
Total Pension Liability	$29,076,186,212	$25,071,941,811	$21,837,811,659
Fiduciary Net Position	11,490,959,220	11,490,959,220	11,490,959,220
Net Pension Liability	$17,585,226,992	$13,580,982,591	$10,346,852,439

The discount rate used to measure the total pension liability was 4.14%. The discount rate used to measure the total pension liability at December 31, 2018 was 4.98%. The projection of cash flows used to determine the discount rate assumed that CEABF contributions will continue to follow the current funding policy, which 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. Based on this assumption, the Fund's fiduciary net position was projected to be insufficient to make all projected future benefit payments of current Fund members. A municipal bond rate of 2.75% was used in the development of the blended GASB discount rate after that point. The 2.75% rate is based on the S&P Municipal Bond 20 Year High Grade Rate Index as of December 31, 2019. The rate used for this purpose is the monthly average of the Bond Buyers General Obligation 20-year Municipal Bond Index Rate (formerly published monthly by the Board of Governors of the Federal Reserve System). Based on the long-term rate of return of 7.25% and the municipal bond rate of 2.75%, the blended GASB discount rate would be 4.14%. Please see the supporting exhibits for additional detail.

GASB 67 AND 68 Actuarial Assumptions and Methods

Actuarial Assumptions and Methods:

Measurement Date:	**December 31, 2019**	**December 31, 2018**
Valuation Date (VD):	December 31, 2018	December 31, 2017
Membership Data:		
Retirees	15,820	15,488
Beneficiaries	2,782	2,729
Inactive Vested Members	14,898	14,624
Active Employees	19,671	20,349
Total	53,171	53,190
Single Equivalent Interest Rate (SEIR):		
Long-Term Expected Rate of Return	7.25%	7.25%
Municipal Bond Index Rate at Measurement Date	2.75%	4.13%
Fiscal Year in which Fiduciary Net Position is Projected to be Depleted	2043	2038
Single Equivalent Interest Rate at Measurement Date	4.14%	4.98%
Actuarial Assumptions:		
- Projected Salary Increases	3.50%-8.00%	3.50%-8.00%
- Inflation Assumption	2.75%	2.75%

The projection of cash flows used to determine the discount rate assumed that CEABF contributions will continue to follow the current funding policy based on the tax levy. Based on this assumption, the Fund's fiduciary net position is projected to be insufficient to make all projected future benefit payments of current fund members. A municipal bond rate of 2.75% was used in the development of the blended GASB discount rate after that point. The 2.75% rate is based on the 20-year tax-exempt municipal bond (rating AA/Aa or higher) rate (Municipal Bond Index Rate). The rate used for this purpose is the monthly average of the Bond Buyers General Obligation 20-year Municipal Bond Index Rate (formerly published monthly by the Board of Governors of the Federal Reserve System). Based on the long-term rate of return of 7.25% and the municipal bond rate of 2.75%, the blended GASB discount rate would be 4.14%. See the preceding exhibits for more detail.

GASB 67 AND 68 Actuarial Assumptions and Methods (continued)

Investment Rate of Return Detail

The long-term expected rate of return on the Fund's investments was determined based on the results of an experience review. The results of the experience review were presented to the Board at the Board's March 2018 Meeting and adopted at a subsequent meeting. The rate of return assumption was based on the target asset allocation of the fund. In the experience review, best estimate ranges of expected future real rates of return (net of inflation) for the portfolio were developed, based on the expected returns of each major asset class and their weights in the portfolio. An econometric model that forecasts a variety of economic environments and then calculates asset class returns based on functional relationships between the economic variables and the asset classes was then used. Expected Investment expenses were subtracted and expected inflation was added to arrive at the long term expected nominal return. A value for the expected long term expected return was selected for the portfolio such that there was a better than 50% likelihood of the emerging returns exceeding the expected return.

Best estimates of arithmetic real rates of return (net of inflation) for each major asset class included in the Fund's target asset allocation as of December 31, 2019 are listed in the table below:

Asset Category	Target Allocation	Long-Term Expected Real Rate of Return
Domestic Equities	33.00%	5.45%
International Equities	21.00%	5.65%
Fixed Income	26.00%	1.75%
Real Estate Funds	9.00%	4.25%
Private Equity	4.00%	7.25%
Hedge Funds	6.00%	3.25%
Short-term Investment	1.00%	0.60%
Total	100.00%	

Summary of Benefit Provisions

Participant. A person employed by Cook County whose salary or wages is paid in whole or in part by the Cook 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 - 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.

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.

Summary of Benefit Provisions (continued)

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.

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.

Summary of Benefit Provisions (continued)

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, he 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.

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.

Summary of Benefit Provisions (continued)

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.

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.

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.

Summary of Benefit Provisions (continued)

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.

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.

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 Funds.

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

Summary of Actuarial Assumptions

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 of1.0%.

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

	Age at Entry							
	Male				Female			
Attained Age	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

Summary of Actuarial Assumptions (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:

	Male		Female	
Age	**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%

Summary of Actuarial Assumptions (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:

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

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

Interest Rate. 7.25% per year, compounded annually.

Inflation Rate. 2.75% per year, compounded annually.

Summary of Actuarial Assumptions (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%

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.

Glossary of Terms

Actuarial Accrued Liability	Total accumulated cost to fund pension benefits arising from service in all prior years.
Actuarial Cost Method	Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension Fund for a group of Fund members to the years of service that give rise to that cost.
Actuarial Present Value of Future Benefits	Amount which, together with future interest, is expected to be sufficient to pay all future benefits.
Actuarial Valuation	Study of probable amounts of future pension benefits and the necessary amount of contributions to fund those benefits.
Actuary	Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.
Annual Determined Contribution	Disclosure measure of annual pension cost.
GASB 67	Governmental Accounting Standards Board Statement Number 67
Maturity Ratio	The ratio of the actuarial accrued liability for members who are no longer active to the total actuarial accrued liability. A ratio of over 50% indicates a mature Fund. The higher the maturity ratio, the more volatile the contribution rate will be from year to year given actuarial gains and losses.
Normal Cost	That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the Fund as a whole.
Vested Benefits	Benefits which are unconditionally guaranteed regardless of employment status.

Actuarial Certification – Postemployment Healthcare

June 4, 2020

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

Ladies and Gentlemen:

Presented in this report is information to assist the County Employees' and Officers' Annuity and Benefit Fund of Cook County ("CEABF" or "the Fund" or "the Plan") in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statements No. 74 and 75 for the December 31, 2019 Measurement Date. The calculations in this report have been made on a basis that is consistent with our understanding of this accounting standard (GASB 74 and 75). Please note that the discount rate used to determine the Total OPEB Liability (TOL) changed from 4.13% at the Prior Measurement Date to 2.75% at the current Measurement Date.

The information is based on an actuarial valuation performed by Cavanaugh Macdonald (CMC) as of December 31, 2019, with plan asset information provided by CEABF for its fiscal year ended December 31, 2019. CMC performs the actuarial valuation annually.

The valuation was based upon data, furnished by CEABF staff, concerning active, inactive and retired members along with pertinent financial information. This information was reviewed for completeness and internal consistency, but was not audited by us. The valuation results depend on the integrity of the data. If any of the information is inaccurate or incomplete our results may be different and our calculations may need to be revised. Please see the actuarial valuation for additional details on the funding requirements for CEABF including actuarial assumptions and methods and the funding policy.

To the best of our knowledge, the information contained in this report is complete and accurate. The calculations were performed by qualified actuaries according to generally accepted actuarial principles and practices, as well as in conformity with Actuarial Standards of Practice issued by the Actuarial Standards Board. The calculations are based on the current provisions of CEABF, and on actuarial assumptions that are internally consistent and individually reasonable based on the actual experience of CEABF. In addition, the calculations were completed in compliance with applicable law and, in our opinion, meet the requirements of GASB 74 and 75.

These results are only for financial reporting and may not be appropriate for funding purposes or other types of analysis. Calculations for purposes other than satisfying the requirements of GASB 74 and 75 may produce significantly different results. Future actuarial results may differ significantly from the current results presented in this report due to such factors as changes in plan experience or changes in economic or demographic assumptions.

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

- Changes in the GASB 74/75 Total OPEB Liability (TOL)
- GASB 74 Components of the Net OPEB Liability
- GASB 74 Schedule of Employer Contributions
- GASB 74 Schedule of Changes in Net OPEB Liability
- GASB 74 Schedule of Net OPEB Liability
- GASB 74 Sensitivity of Net OPEB Liability
- Membership Data
- Solvency Test
- Summary of Substantive Plan Provisions
- Summary of Assumptions and Methods
- Description of Actuarial Methods

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.

We, Larry F. Langer, ASA, Wendy T. Ludbrook, FSA, and Bradley R. Wild, ASA are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein. We are available to answer any questions on the material contained in this report or to provide explanations or further details as may be appropriate.

Respectfully submitted,

Larry Langer, ASA, EA, FCA, MAAA Principal and Consulting Actuary	Wendy T. Ludbrook, FSA, EA, FCA, MAAA Senior Actuary
Bradley R. Wild, ASA, FCA, MAAA Senior Actuary	Ryan Gundersen Senior Consultant

Actuarial Valuation – Postemployment Healthcare

Overview

The County Employees' and Officers' Annuity and Benefit Fund of Cook County ("CEABF" or "the Fund" or "the Plan") offers health benefits to retired employees of Cook County and their eligible dependents. This report presents the results of the actuarial valuation of the Fund benefits as of the valuation date of December 31, 2019.

Purpose

This report had been prepared at the request of the Fund for use in financial reporting of CEABF under GASB 74 and GASB 75. It may not be appropriate for other purposes, such as analyzing proposed design alternatives, funding, pricing or option evaluation. Use of this report for any other purpose may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies or inapplicability of the report for that purpose. No one may make any representations or warranties based on any statements or conclusions contained in this report without the written consent of Cavanaugh Macdonald.

Membership

Summary of Membership Data	Year Ended December 31, 2019	2018
Annuitants Currently Receiving Benefits	9,210	9,085
Covered Spouses of Annuitants Currently Receiving Benefits	2,743	2,724
Separated Employees Entitled To Benefits But Not Yet Receiving Them	1,510	1,592
Active Employees	19,551	19,671
Total Number of Members	33,014	33,072

Changes in Plan Provisions

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

- 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.

Changes in Actuarial Assumptions, Methods, or Procedures

The following changes in the actuarial assumptions or valuation procedures in the Retiree Health Insurance actuarial valuation have been made since the last valuation performed as of December 31, 2018:

- The per capita plan costs were updated to reflect the most recent year of claims experience, drug rebates and Employer Group Waiver Plan (EGWP) subsidies. Additionally, working premium rates were updated for 2020.
- The assumption pertaining to health care cost trend rates was reset to begin in fiscal year 2020.

The discount rate used to measure the Total OPEB Liability was changed from 4.13% as of the December 31, 2018 valuation to 2.75% as of the December 31, 2019 valuation, based on the Municipal Bond 20-year Index Rate as of December 31, 2019. The 2.75% rate is based on the S&P Municipal Bond 20 Year High Grade Rate Index as of December 31, 2019. The rate used for this purpose is the monthly average of the Bond Buyers General Obligation 20-year Municipal Bond Index Rate (formerly published monthly by the Board of Governors of the Federal Reserve System).

Changes in the GASB 74/75 Total OPEB Liability (TOL)

	TOL	% Change
December 31, 2018	**$ 1,534,053,569**	
Expected Growth Due to Passage of Time	72,947,966	4.8%
Demographic Experience	42,617,681	2.8%
Updated Per Capita Health Plan Experience	(52,084,714)	-3.4%
Change in Participant Contributions	(81,634,771)	-5.3%
Change in Trend Assumption	16,191,546	1.1%
Change in Discount Rate	368,898,093	24.0%
Total Change in TOL	**$ 366,935,801**	**23.9%**
December 31, 2019	**$ 1,900,989,370**	**23.9%**

GASB 74 Components of the Net OPEB Liability

Valuation Date (VD):	December 31, 2019
Prior Measurement Date:	December 31, 2018
Measurement Date (MD):	December 31, 2019
Membership Data:	
Retirees and Beneficiaries	9,210
Inactive Members Eligible for Allowances	1,510
Active Employees	19,551
Total	30,271
Single Equivalent Interest Rate (SEIR):	
Long-Term Expected Rate of Return	7.25%
Municipal Bond Index Rate at Prior Measurement Date	4.13%
Municipal Bond Index Rate at Measurement Date	2.75%
Year in which Fiduciary Net Position is Projected to be Depleted	2019
Single Equivalent Interest Rate at Prior Measurement Date	4.13%
Single Equivalent Interest Rate at Measurement Date	2.75%
Net OPEB Liability:	
Total OPEB Liability (TOL)	$ 1,900,989,370
Fiduciary Net Position (FNP)	-
Net OPEB Liability (NOL = TOL – FNP)	$ 1,900,989,370
FNP as a percentage of TOL	0.00%

Fiscal Year Ending December 31, 2019

Total OPEB Liability	$ 1,900,989,370
Fiduciary Net Position	-
Net OPEB Liability	$ 1,900,989,370
Ratio of Fiduciary Net Position to Total OPEB Liability	0.00%

Actuarial Valuation – Postemployment Healthcare (continued)

GASB 74 Schedule of Employer Contributions

	2019	2018	2017
Actuarially determined employer contribution	$ 157,705,345	$ 133,228,086	$ 187,348,423
Actual employer contributions	38,237,172	38,310,969	47,454,621
Annual contribution deficiency (excess)	$ 119,468,173	$ 94,917,117	$ 139,893,802
Covered employee payroll	$1,603,347,918	$1,576,658,158	$1,602,986,483
Actual contributions as a percentage of covered payroll	2.38%	2.43%	2.96%

GASB 74 Schedule of Changes in Net OPEB Liability

	2019	2018	2017
Total OPEB Liability			
Service Cost	$ 46,682,354	$ 40,557,095	$ 82,344,830
Interest	64,502,784	68,565,681	84,911,522
Benefit changes	(81,634,771)	(292,725,744)	(79,293,990)
Difference between expected and actual experience	(9,467,033)	(92,253,919)	(55,814,160)
Changes of assumptions	385,089,639	(300,028,016)	(66,330,809)
Benefit payments	(38,237,172)	(38,310,969)	(47,454,621)
Net change in Total OPEB Liability	$ 366,935,801	$ (614,195,872)	$ (81,637,228)
Total OPEB Liability - beginning	$1,534,053,569	$2,148,249,441	$2,229,886,669
Total OPEB Liability - ending (a)	$1,900,989,370	$1,534,053,569	$2,148,249,441
Plan Fiduciary Net Position			
Employer contributions	$ 38,237,172	$ 38,310,969	$ 47,454,621
Net investment income	-	-	-
Net Benefit payments	(38,237,172)	(38,310,969)	(47,454,621)
Administrative expense	-	-	-
Other	-	-	-
Net change in Plan Fiduciary Net Position	$ -	$ -	$ -
Plan Fiduciary Net Position – beginning	$ -	$ -	$ -
Plan Fiduciary Net Position - ending (b)	$ -	$ -	$ -
Net OPEB Liability - ending (a) - (b)	$1,900,989,370	$1,534,053,569	$2,148,249,441

GASB 74 Schedule of the Net OPEB Liability

	2019	2018	2017
Total OPEB Liability	$1,900,989,370	$1,534,053,569	$2,148,249,441
Plan Fiduciary Net Position	-	-	-
Net OPEB Liability	$1,900,989,370	$1,534,053,569	$2,148,249,441
Ratio of Plan Fiduciary Net Position to Total OPEB Liability	0.00%	0.00%	0.00%
Covered employee payroll	$1,603,347,918	$1,576,658,158	$1,602,986,483
Net OPEB Liability as a percentage of covered employee payroll	118.56%	97.30%	134.02%

GASB 74 Sensitivity of the Net OPEB Liability

Sensitivity of the Net OPEB Liability to changes in the discount rate. The following presents the Net OPEB Liability as of December 31, 2019, calculated using the discount rate of 2.75%, as well as what the Plan's Net OPEB Liability would be if it were calculated using a discount rate that is 1-percentage-point lower (1.75%) or 1-percentage-point higher (3.75%) than the current rate:

	1% Decrease (1.75%)	Current Discount Rate (2.75%)	1% Increase (3.75%)
Total OPEB Liability	$ 2,252,215,661	$ 1,900,989,370	$ 1,622,569,147
Fiduciary Net Position	-	-	-
Net OPEB Liability	$ 2,252,215,661	$ 1,900,989,370	$ 1,622,569,147

Sensitivity of the Net OPEB Liability to changes in the healthcare cost trend rates. The following presents the Net OPEB Liability as of December 31, 2019, calculated using the healthcare cost trend rates as summarized in this report, as well as what the Plan's Net OPEB Liability would be if it were calculated using trend rates that are 1-percentage-point lower or 1-percentage-point higher than the current healthcare cost trend rates:

	1% Decrease	Current Trend Rate	1% Increase
Total OPEB Liability	$ 1,589,836,565	$ 1,900,989,370	$ 2,306,985,201
Fiduciary Net Position	-	-	-
Net OPEB Liability	$ 1,589,836,565	$ 1,900,989,370	$ 2,306,985,201

Summary of Substantive Plan Provisions

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, with the same copays as the commercial prescription plan.

Summary of Substantive Plan Provisions (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

Summary of Assumptions and Methods

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

Measurement Date. December 31, 2019

Discount Rate. 2.75% at December 31, 2019 (Municipal Bond Index Rate)
4.13% at December 31, 2018 (Municipal Bond Index Rate)

Benefit payments are funded on a pay-as-you-go basis. The discount rate is the single equivalent rate which results in the same present value as discounting future benefit payments made from assets at the long term expected rate of return and discounting future benefit payments funded on a pay-as-you-go basis on the Municipal Bond 20-year Index Rate.

Summary of Assumptions and Methods (continued)

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:

	Age at Entry							
	Male				Female			
Attained Age	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

Summary of Assumptions and Methods (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:

	Male		Female	
Age	**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%

Summary of Assumptions and Methods (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:

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

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

Inflation Rate. 2.75% per year, compounded annually.

Summary of Assumptions and Methods (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%

Disability Rates. Included in termination and retirement rates.

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, five percent 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.

Summary of Assumptions and Methods (continued)

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.

	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

Summary of Assumptions and Methods (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%

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.

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.

IBNR.

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

Summary of Assumptions and Methods (continued)

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.

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.

Description of Actuarial Methods

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 plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily the annual contribution to the plan is comprised of (1) the normal cost and (2) an amortization payment on the unfunded actuarial accrued liability.

Description of Actuarial Methods (continued)

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 Plan 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 Plan.

The **Actuarial Accrued Liability** under this method at any point in time is the theoretical amount of funding 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 Plan Assets actually on hand on the valuation date. The Unfunded Actuarial Accrued Liability is amortized as a level dollar amount 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.

Glossary of Terms

Actuarially determined contribution

A target or recommended contribution to a defined benefit OPEB plan for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

Actuarial present value of projected benefit payments

Projected benefit payments discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.

Actuarial valuation

The determination, as of a point in time (the actuarial valuation date), of the service cost, total OPEB liability, and related actuarial present value of projected benefit payments for OPEB performed in conformity with Actuarial Standards of Practice unless otherwise specified by the GASB.

Actuarial valuation date

The date as of which an actuarial valuation is performed.

Ad hoc postemployment benefit changes

Postemployment benefit changes that require a decision to grant by the authority responsible for making such decisions.

Glossary of Terms (continued)

Automatic hoc postemployment benefit changes

Postemployment benefit changes that occur without a requirement for a decision to grant by a responsible authority.

Covered-employee payroll

The payroll for employees that are provided with OPEB through the OPEB plan.

Discount rate

The single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the total of the following:

a. The actuarial present value of benefit payments projected to be made in future periods in which (1) the amount of the OPEB plan's fiduciary net position is projected (under the requirements of this Statement) to be greater than the benefit payments that are projected to be made in that period and (2) OPEB plan assets up to that point are expected to be invested using a strategy to achieve the long-term expected rate of return, calculated using the long-term expected rate of return on OPEB plan investments.

b. The actuarial present value of projected benefit payments not included in (a), calculated using a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another rating scale).

Entry age actuarial cost method

A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age(s). The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is called the Actuarial accrued liability.

Healthcare cost trend rates

The rates of change in per capita health claims costs over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.

Inactive employees

Individuals no longer employed by an employer in the OPEB plan, or the beneficiaries of those individuals. Inactive employees include individuals who have accumulated benefits under the terms of an OPEB plan but are not yet receiving benefit payments.

Measurement period

The period between the prior and the current measurement dates.

Glossary of Terms (continued)

Net OPEB liability

The liability of employers and non-employer contributing entities to employees for benefits provided through a defined benefit OPEB plan that meets the criteria in paragraph 4 of GASB Statement Nos. 74 and 75. Other postemployment benefits (OPEB) (such as death benefits, life insurance, disability, and long-term care) that are paid in the period after employment and that are provided separately from a pension plan, as well as healthcare benefits paid in the period after employment, regardless of the manner in which they are provided. OPEB does not include termination benefits or termination payments for sick leave.

Projected benefit payments

All benefits estimated to be payable through the OPEB plan (including amounts to be paid by employers or non-employer contributing entities as the benefits come due) to current active and inactive employees as a result of their past service and their expected future service.

Real rate of return

The rate of return on an investment after adjustment to eliminate inflation.

Service costs

The portions of the actuarial present value of projected benefit payments that are attributed to valuation years.

Total OPEB liability

The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service.

Additional Actuarial Tables

Schedule of Active Member Valuation Data - Pension Benefits

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Increase In Average Pay
12/31/2010	23,165	$ 1,494,093,569	$ 64,498	1.5%
12/31/2011	22,037	1,456,444,123	66,091	2.5%
12/31/2012	21,447	1,478,253,368	68,926	4.3%
12/31/2013	21,287	1,484,269,715	69,727	1.2%
12/31/2014	21,656	1,514,550,023	69,937	0.3%
12/31/2015	21,596	1,572,417,298	72,811	4.1%
12/31/2016	20,969	1,580,251,254	75,361	3.5%
12/31/2017	20,349	1,567,480,401	77,030	2.2%
12/31/2018	19,671	1,533,721,507	77,969	1.2%
12/31/2019	19,551	1,553,498,503	79,459	1.9%

Membership Data

Schedule of Retirees and Beneficiaries Added To and Removed From Rolls - Pension Benefits

	Added-To-Rolls		Removed-From-Rolls		Rolls-End-of-Year		Average	% Increase in Average
Year Ended	Number	Annual Benefits	Number	Annual Benefits	Number	Annual Benefits	Annual Benefit	Annual Benefit
2010	917	$ 40,259,064	538	$ 10,616,859	14,854	$ 437,140,622	$ 29,429	4.5%
2011	1,158	55,308,088	580	12,124,191	15,432	480,324,519	31,125	5.8%
2012	1,374	58,601,319	632	14,697,753	16,174	524,228,085	32,412	4.1%
2013	992	52,564,737	489	10,006,848	16,677	566,785,974	33,986	4.9%
2014	929	52,208,075	530	11,628,617	17,076	607,365,432	35,568	4.7%
2015	1,323	69,890,199	802	22,262,895	17,597	654,992,736	37,222	4.7%
2016	968	58,252,392	656	18,067,979	17,909	695,177,149	38,817	4.3%
2017	902	57,971,733	594	16,538,820	18,217	736,610,062	40,435	4.2%
2018	1,109	68,372,858	724	22,268,886	18,602	782,714,034	42,077	4.1%
2019	1,223	78,654,100	682	20,981,568	19,143	840,386,566	43,900	4.3%

Schedule of Retirees and Beneficiaries Added To and Removed From Rolls - Postemployment Healthcare

	Added-To-Rolls		Removed-From-Rolls		Rolls-End-of-Year		Average	% Increase in Average
Year Ended	Number	Annual Benefits	Number	Annual Benefits	Number	Annual Benefits	Annual Benefit	Annual Benefit
2010	539	$ 6,120,411	352	$ 2,652,832	7,554	$ 44,900,801	$ 5,944	5.7%
2011	752	4,513,262	381	2,509,723	7,925	46,904,340	5,919	-0.4%
2012	640	3,715,909	386	6,655,532	8,179	43,964,717	5,375	-9.2%
2013	703	3,970,847	346	3,986,309	8,536	43,949,255	5,149	-4.2%
2014	556	6,767,482	501	2,229,694	8,591	48,487,043	5,644	9.6%
2015	631	8,261,563	439	2,119,662	8,783	54,628,944	6,220	10.2%
2016	570	989,701	399	1,962,607	8,954	53,656,038	5,992	-3.7%
2017	540	(3,945,464) *	497	2,255,953	8,997	47,454,621	5,275	-12.0%
2018	567	(6,942,823) *	479	2,200,829	9,085	38,310,969	4,217	-20.10%
2019	591	1,748,045	466	1,821,842	9,210	38,237,172	4,152	-1.50%

**Employer contribution decreased, resulting in reduction of employer paid benefits from the level in prior years.*

Solvency Test - Pension Benefits

Fiscal Year	Accrued Liabilities For: (1) Active and Inactive Member Accumulated Contributions	(2) Member Currently Receiving Benefits	(3) Active and Inactive Member Employer Portion	Actuarial Value of Assets	Percent of Accrued Liabilities Covered By Assets (1)	(2)	(3)
2010	$ 1,824,472,753	$ 5,373,790,587	$ 4,824,959,545	$ 7,982,368,659	100%	100%	16%
2011	1,662,273,117	5,902,779,764	5,063,221,680	7,897,102,116	100%	100%	7%
2012	1,821,792,594	6,431,295,762	5,168,398,587	7,833,882,926	100%	93%	0%
2013	1,854,155,647	6,822,552,230	4,959,868,300	8,381,444,287	100%	96%	0%
2014	1,897,951,260	7,295,515,219	4,947,080,874	8,810,509,070	100%	95%	0%
2015	1,914,569,837	7,864,534,443	5,157,487,056	8,991,018,918	100%	90%	0%
2016	1,967,965,799	8,305,339,574	5,183,468,612	9,488,223,349	100%	91%	0%
2017	2,001,714,112	8,583,373,041	5,086,669,289	10,148,203,834	100%	95%	0%
2018	2,020,570,657	9,050,032,658	5,243,785,732	10,512,756,514	100%	94%	0%
2019	2,016,337,278	9,685,006,939	5,239,863,351	10,983,364,279	100%	93%	0%

Solvency Test - Postemployment Heathcare

Fiscal Year	Accrued Liabilities For: (1) Active and Inactive Member Accumulated Contributions	(2) Member Currently Receiving Benefits	(3) Active and Inactive Member Employer Portion	Actuarial Value of Assets	Percent of Accrued Liabilities Covered By Assets (1)	(2)	(3)
2010	$ -	$ 606,821,210	$ 1,117,801,252	$ -	0%	0%	0%
2011	-	605,375,403	1,073,195,985	-	0%	0%	0%
2012	-	776,395,244	1,069,213,888	-	0%	0%	0%
2013	-	818,201,554	1,160,565,936	-	0%	0%	0%
2014	-	826,052,274	1,154,036,343	-	0%	0%	0%
2015	-	879,319,447	1,254,787,260	-	0%	0%	0%
2016	-	825,328,625	1,132,476,063	-	0%	0%	0%
2017	-	811,486,860	1,075,129,583	-	0%	0%	0%
2018	-	701,048,505	833,005,063	-	0%	0%	0%
2019	-	898,168,059	1,002,821,312	-	0%	0%	0%

Statistical Section

This section contains additional schedules that are designed to supplement the information in the Comprehensive Annual Financial Report:

Statements of Changes in Plan Net Position - Pension and Postemployment Healthcare provide details on the specific sources and uses of funds.

Schedules of Retired Members by Benefit Type - Pension and Postemployment Healthcare provide details on the monthly pension amounts for retirement and survivor members, including those with postemployment healthcare.

Schedules of Average Benefit Payments - Pension and Postemployment Healthcare provide details on years of credited service, average monthly pension, average monthly final average salary, and number of new retirees, including those with postemployment healthcare.

Schedule of Principal Participating Employers - Pension and Postemployment Healthcare provides details on employers who participate in the Plan.

Additional schedules Required by Employer provide details on historical financial, investment and actuarial performance.

Statement of Changes in Pension Plan Fiduciary Net Position

For year ended December 31, 2019, with comparative totals for 9 years

	2019	2018	2017	2016	2015
Additions:					
Employer contributions	$ 488,003,692	$ 549,437,252	$ 511,750,985	$ 414,703,155	$ 136,075,504
Employee contributions	134,837,512	134,159,171	138,826,184	139,355,592	137,707,719
Net investment and net securities lending income (loss)	1,865,645,039	(424,787,945)	1,399,625,874	629,442,470	(21,896,696)
Other	6,275,804	5,860,613	5,359,418	4,046,158	4,380,293
Total additions	2,494,762,047	264,669,091	2,055,562,461	1,187,547,375	256,266,820
Deductions:					
Benefits					
Retirement	751,788,339	704,246,643	661,594,080	624,231,419	587,861,744
Survivors	60,115,798	55,983,104	51,874,102	47,919,324	45,002,859
Disability	11,091,076	11,502,437	11,467,308	10,707,260	10,332,441
Refunds					
Death	4,884,365	3,961,280	4,511,674	2,792,846	4,983,186
Separation	17,610,985	16,909,520	16,792,901	13,967,392	14,486,833
Other	15,250,601	12,791,721	11,690,790	9,941,984	13,803,152
Net adminstrative and miscellaneous expenses	5,085,445	5,134,047	5,406,034	5,373,555	5,151,110
Total deductions	865,826,609	810,528,752	763,336,888	714,933,780	681,621,325
Net increase (decrease)	1,628,935,438	(545,859,661)	1,292,225,573	472,613,595	(425,354,505)
Net Position:					
Beginning of period	9,862,023,782	10,407,883,443	9,115,657,870	8,643,044,275	9,068,398,780
End of period	$ 11,490,959,220	$ 9,862,023,782	$ 10,407,883,443	$ 9,115,657,870	$ 8,643,044,275

Statement of Changes in Pension Plan Fiduciary Net Position (continued)

For year ended December 31, 2019, with comparative totals for 9 years (continued)

	2014	2013	2012	2011	2010
Additions:					
Employer contributions	$ 146,075,414	$ 147,720,014	$ 152,734,539	$ 162,667,160	$ 141,326,266
Employee contributions	129,325,318	127,593,220	128,869,508	127,577,473	129,449,866
Net investment and net securities lending income (loss)	488,890,897	1,179,440,119	887,687,519	82,701,033	832,882,639
Other	3,753,960	4,041,145	4,212,209	3,380,437	8,248,307
Total additions	768,045,589	1,458,794,498	1,173,503,775	376,326,103	1,111,907,078
Deductions:					
Benefits					
Retirement	543,274,840	507,494,409	469,398,775	429,527,599	393,525,707
Survivors	41,865,298	38,761,919	35,762,286	33,003,057	30,307,794
Disability	10,515,760	10,909,478	12,265,257	13,961,631	13,789,106
Refunds					
Death	3,187,363	3,461,166	4,636,647	3,036,462	5,569,966
Separation	13,082,086	15,180,523	16,740,836	15,813,775	12,704,374
Other	10,077,912	11,231,341	11,704,243	10,315,098	6,767,478
Net adminstrative and miscellaneous expenses	5,010,206	4,324,634	4,303,353	4,078,843	4,074,955
Total deductions	627,013,465	591,363,470	554,811,397	509,736,465	466,739,380
Net increase (decrease)	141,032,124	867,431,028	618,692,378	(133,410,362)	645,167,698
Net Position:					
Beginning of period	8,927,366,656	8,059,935,628	7,441,243,250	7,574,653,612	6,929,485,914
End of period	$ 9,068,398,780	$ 8,927,366,656	$ 8,059,935,628	$ 7,441,243,250	$ 7,574,653,612

Statement of Changes in Postemployment Healthcare Plan Net Position

For year ended December 31, 2019, with comparative totals for 9 years

	2019	2018	2017	2016	2015
Additions:					
Employer contributions	$ 38,237,172	$ 38,310,969	$ 47,454,641	$ 49,565,249	$ 50,756,817
Annuitant healthcare benefits contributions*	-	-	-	41,650,333	37,635,349
Other	28,882,910	21,618,592	17,962,395	9,973,182	7,077,550
Total additions	67,120,082	59,929,561	65,417,036	101,188,764	95,469,716
Deductions:					
Healthcare Benefits	67,120,082	59,929,561	65,417,036	101,188,764	95,469,716
Net increase (decrease)	-	-	-	-	-
Net Position:					
Beginning of period	-	-	-	-	-
End of period	$ -	$ -	$ -	$ -	$ -

* Beginning 2017, the annuitants Healthcare contribution is netted against Healthcare benefits expense.

Statement of Changes in Postemployment Healthcare Plan Net Position (continued)

For year ended December 31, 2019, with comparative totals for 9 years

	2014	2013	2012	2011	2010
Additions:					
Employer contributions	$ 43,957,458	$ 40,097,630	$ 37,986,237	$ 32,670,461	$ 40,183,057
Annuitant healthcare benefits contributions*	37,358,502	35,927,206	33,948,728	33,236,282	30,108,884
Other	5,988,102	4,506,584	5,978,480	14,233,879	4,717,744
Total additions	87,304,062	80,531,420	77,913,445	80,140,622	75,009,685
Deductions:					
Healthcare Benefits	87,304,062	80,531,420	77,913,445	80,140,622	75,009,685
Net increase (decrease)	-	-	-	-	-
Net Position:					
Beginning of period	-	-	-	-	-
End of period	$ -	$ -	$ -	$ -	$ -

Schedule of Retired Members by Benefit Type - Pension Benefits

As of December 31, 2019

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit 1	Type of Pension Benefit 2	Benefit Payment Form 1	Benefit Payment Form 2	Benefit Payment Form 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	1114	108	692	530	0
4,501 – 5,000	1040	996	44	520	520	0
5,001 – 5,500	1050	1013	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*

Schedule of Retired Members by Benefit Type - Postemployment Healthcare

As of December 31, 2019

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension 1	Type of Pension 2	Benefit Payment Form 1	Benefit Payment Form 2	Benefit Payment Form 3
$ 1 – 500	111	42	69	88	19	4
501 – 1,000	275	108	167	222	49	4
1,001 – 1,500	400	238	162	302	98	0
1,501 – 2,000	522	371	151	366	156	0
2,001 – 2,500	601	473	128	417	184	0
2,501 – 3,000	745	631	114	506	239	0
3,001 – 3,500	729	594	135	493	236	0
3,501 – 4,000	846	759	87	552	294	0
4,001 – 4,500	760	691	69	497	263	0
4,501 – 5,000	647	611	36	382	265	0
5,001 – 5,500	664	634	30	373	291	0
5,501 – 6,000	615	607	8	305	310	0
6,001 – 6,500	438	430	8	210	228	0
6,501 – 7,000	542	537	5	237	305	0
7,001 – 7,500	382	378	4	186	196	0
7,501 – 8,000	228	227	1	118	110	0
8,001 – 8,500	193	191	2	88	105	0
8,501 – 9,000	151	148	3	58	93	0
9,001 – 9,500	79	79	0	32	47	0
9,501 – 10,000	41	39	2	14	27	0
10,001 – 10,500	18	15	3	9	9	0
10,501 – 11,000	25	23	2	10	15	0
11,001 – 11,500	16	16	0	2	14	0
11,501 – 12,000	10	9	1	2	8	0
12,001 – 12,500	13	13	0	3	10	0
12,501 – 13,000	19	17	2	6	13	0
13,001 – 13,500	12	12	0	5	7	0
13,501 – 14,000	11	11	0	3	8	0
14,001 – 14,500	10	10	0	4	6	0
14,501 – 15,000	9	9	0	1	8	0
Over $15,000	98	97	1	24	74	0
Totals	**9,210**	**8,020**	**1,190**	**5,515**	**3,687**	**8**

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

Schedule of Average Benefit Payments - Pension Benefits

		Years of Credited Service						
		0-4	5-9	10-14	15-19	20-24	25-29	30+
2010	Average Monthly Pension	$335	$1,144	$1,855	$2,598	$3,349	$3,968	$4,278
	Average Monthly Final Average Salary	$5,927	$6,780	$5,616	$5,512	$5,319	$5,466	$5,408
	Number of New Retirees	74	38	92	122	153	72	176
2011	Average Monthly Pension	$439	$955	$1,931	$2,705	$3,686	$4,316	$4,537
	Average Monthly Final Average Salary	$6,747	$6,114	$6,090	$5,667	$5,948	$6,123	$5,712
	Number of New Retirees	74	30	138	157	212	131	267
2012	Average Monthly Pension	$432	$982	$1,828	$2,579	$3,273	$4,273	$4,578
	Average Monthly Final Average Salary	$7,369	$6,598	$5,733	$5,475	$5,391	$5,882	$5,795
	Number of New Retirees	97	35	110	167	210	113	287
2013	Average Monthly Pension	$469	$1,150	$1,864	$2,567	$3,334	$4,864	$4,813
	Average Monthly Final Average Salary	$7,331	$7,653	$5,999	$5,419	$5,597	$6,609	$6,087
	Number of New Retirees	60	44	113	123	168	132	275
2014	Average Monthly Pension	$421	$1,336	$1,767	$2,643	$3,770	$4,620	$4,829
	Average Monthly Final Average Salary	$6,611	$8,364	$5,943	$5,968	$6,296	$6,447	$6,131
	Number of New Retirees	53	33	104	119	155	135	246
2015	Average Monthly Pension	$485	$1,153	$1,756	$2,683	$3,696	$4,796	$5,011
	Average Monthly Final Average Salary	$8,264	$7,364	$6,060	$6,286	$6,382	$6,770	$6,363
	Number of New Retirees	73	43	106	110	180	165	329
2016	Average Monthly Pension	$466	$1,255	$2,105	$2,838	$3,683	$4,772	$4,977
	Average Monthly Final Average Salary	$7,292	$8,242	$6,926	$6,393	$6,256	$6,887	$6,339
	Number of New Retirees	44	31	101	108	131	128	233
2017	Average Monthly Pension	$431	$1,315	$2,133	$2,875	$3,796	$4,577	$5,106
	Average Monthly Final Average Salary	$7,456	$7,640	$6,952	$6,696	$6,670	$6,508	$6,518
	Number of New Retirees	49	35	84	100	136	173	261
2018	Average Monthly Pension	$524	$1,151	$2,236	$2,813	$3,701	$4,561	$5,028
	Average Monthly Final Average Salary	$8,557	$7,697	$7,602	$6,616	$6,414	$6,583	$6,457
	Number of New Retirees	34	31	91	111	134	175	312
2019	Average Monthly Pension	$482	$1,424	$2,266	$2,961	$3,639	$4,846	$5,379
	Average Monthly Final Average Salary	$7,968	$9,015	$7,718	$7,201	$6,481	$6,916	$6,902
	Number of New Retirees	38	39	83	112	140	210	379

Schedule of Average Benefit Payments - Postemployment Healthcare

		Years of Credited Service						
		0-4	5-9	10-14	15-19	20-24	25-29	30+
2010	Average Monthly Pension	$199	$1,468	$1,931	$2,784	$3,273	$4,141	$4,239
	Average Monthly Final Average Salary	$2,747	$7,743	$5,740	$5,673	$5,151	$5,639	$5,361
	Number of New Retirees	1	5	41	72	110	58	118
2011	Average Monthly Pension	$239	$783	$1,839	$2,852	$3,787	$4,056	$4,574
	Average Monthly Final Average Salary	$4,669	$5,044	$5,376	$5,729	$5,991	$5,710	$5,750
	Number of New Retirees	2	7	58	89	144	96	196
2012	Average Monthly Pension	$635	$1,127	$1,767	$2,746	$3,462	$4,572	$4,479
	Average Monthly Final Average Salary	$5,149	$7,880	$5,489	$5,552	$5,457	$6,193	$5,672
	Number of New Retirees	2	4	36	88	142	82	197
2013	Average Monthly Pension	$607	$868	$2,014	$2,674	$3,562	$4,739	$4,705
	Average Monthly Final Average Salary	$5,833	$4,857	$6,140	$5,441	$5,737	$6,441	$5,952
	Number of New Retirees	1	5	48	76	110	87	190
2014	Average Monthly Pension	$0	$609	$1,786	$2,682	$3,631	$4,768	$4,781
	Average Monthly Final Average Salary	$0	$4,183	$5,834	$5,718	$6,035	$6,521	$6,062
	Number of New Retirees	0	4	31	63	104	97	162
2015	Average Monthly Pension	$2,419	$1,150	$1,915	$3,078	$3,881	$4,965	$4,860
	Average Monthly Final Average Salary	$26,180	$8,620	$6,239	$6,854	$6,375	$6,890	$6,175
	Number of New Retirees	1	5	37	60	101	95	232
2016	Average Monthly Pension	$257	$1,148	$2,236	$3,009	$3,860	$5,242	$4,893
	Average Monthly Final Average Salary	$4,469	$6,816	$7,156	$6,548	$6,363	$7,282	$6,219
	Number of New Retirees	1	5	36	54	72	80	154
2017	Average Monthly Pension	$0	$1,693	$2,013	$2,873	$4,136	$4,729	$5,047
	Average Monthly Final Average Salary	$0	$13,707	$6,838	$6,506	$7,098	$6,615	$6,441
	Number of New Retirees	0	3	18	41	77	106	157
2018	Average Monthly Pension	$0	$1,247	$2,543	$3,098	$3,813	$4,941	$4,967
	Average Monthly Final Average Salary	$0	$7,320	$8,545	$7,260	$6,338	$6,943	$6,343
	Number of New Retirees	0	2	33	52	70	105	189
2019	Average Monthly Pension	$0	$1,268	$2,302	$3,753	$3,762	$5,010	$5,482
	Average Monthly Final Average Salary	$0	$6,491	$7,534	$9,032	$6,538	$7,060	$7,004
	Number of New Retirees	0	2	26	44	67	114	223

Schedule of Principal Participating Employers - Pension Benefits and Postemployment Healthcare Combined

As of December 31, 2019 and 2010

Participating Employer	2019 Covered Employees	2019 Percentage of Total Covered Employees	2010 Covered Employees	2010 Percentage of Total Covered Employees
Cook County	19,523	99.86%	23,138	99.88%
County Employees' and Officers' Annuity and Benefit Fund of Cook County	27	0.14%	27	0.12%
Total	**19,550**	**100.00%**	**23,165**	**100.00%**

Additional Schedules Required by Employer

Schedule of Investment Rate of Return -
Pension and Postemployment Healthcare Benefits Combined

Year Ended December 31,	Investment Rate of Return (Net of Fees)
2010	12.4%
2011	1.2%
2012	12.5%
2013	15.1%
2014	5.9%
2015	-0.1%
2016	7.7%
2017	15.4%
2018	-3.8%
2019	19.1%

Schedule of Actuarial Value of Assets vs. Fair Value of Assets -
Pension And Postemployment Healthcare Benefits Combined

Year Ended December 31,	Actuarial Value of Assets	Fair Value of Assets	Actuarial Value as a Percentage of Fair Value
2010	$ 7,982,368,659	$ 7,574,653,612	105.4%
2011	7,897,102,116	7,441,243,250	106.1%
2012	7,833,882,926	8,059,935,628	97.2%
2013	8,381,444,287	8,927,366,656	93.9%
2014	8,810,509,070	9,068,398,780	97.2%
2015	8,991,018,918	8,643,044,275	104.0%
2016	9,488,223,349	9,115,657,870	104.1%
2017	10,148,203,834	10,407,883,443	97.5%
2018	10,512,756,514	9,862,023,782	106.6%
2019	10,983,364,279	11,490,959,220	95.6%

Schedule of Employer Contributions -
Pension And Postemployment Healthcare Benefits Combined

Year Ended December 31,	Actuarially Required Contribution (ARC)	Tax Levy Requested	Actual Employer Contribution	Percentage of ARC Contributed
2010	$ 468,181,943	$ 186,523,677	$ 184,722,634	39.5%
2011	572,318,384	192,234,211	198,837,424	34.7%
2012	613,952,848	196,139,483	190,720,776	31.1%
2013	655,800,100	192,969,505	187,817,644	28.6%
2014	719,890,057	194,668,229	190,032,872	26.4%
2015	634,722,132	192,786,468	186,832,321	29.4%
2016	639,794,759	195,653,930	464,268,404 *1*	72.6%
2017	696,007,249	208,226,206	559,205,626 *1*	80.3%
2018	691,620,570	211,449,244	587,748,221 *1*	85.0%
2019	643,433,440	209,506,965	526,240,864 *1*	81.8%

1. Includes supplemental employer contribution.

Additional Schedules Required by Employer (continued)

Schedule of Financial Condition - Pension and Postemployment Healthcare Benefits Combined

For year ended December 31, 2019, with comparative totals for 9 years

	2019	2018	2017	2016	2015
Beginning Net Position (Fair Value)	$ 9,862,023,782	$ 10,407,883,443	$ 9,115,657,870	$ 8,643,044,275	$ 9,068,398,780
Additions:					
Employer contributions	526,240,864	587,748,221	559,205,626	464,268,404	186,832,321
Employee contributions	134,837,512	134,159,171	138,826,184	139,355,592	137,707,719
Annuitant Health Benefit Contributions	- *	- *	- *	41,650,333	37,635,349
Net investment income (loss)	1,865,645,039	(424,787,945)	1,399,625,874	629,442,470	(21,896,696)
Other	35,158,714	27,479,205	23,321,813	14,019,340	11,457,843
Total additions	2,561,882,129	324,598,652	2,120,979,497	1,288,736,139	351,736,536
Deductions:					
Benefits	890,115,295	831,661,745	790,352,526	784,046,767	738,666,760
Refunds	37,745,951	33,662,521	32,995,364	26,702,222	33,273,171
Administrative Expenses	5,085,445	5,134,047	5,406,034	5,373,555	5,151,110
Total deductions	932,946,691	870,458,313	828,753,924	816,122,544	777,091,041
Ending Net Position (Fair Value)	$ 11,490,959,220	$ 9,862,023,782	$ 10,407,883,443	$ 9,115,657,870	$ 8,643,044,275
Actuarial Value of Assets	10,983,364,279	10,512,756,514	10,148,203,834	9,488,223,349	8,991,018,918
Actuarial Accrued Liabilities (AAL)	17,949,663,806	17,303,773,833	16,889,499,662	16,726,457,108	16,232,185,534
Unfunded AAL (UAAL) (Fair Value)	6,458,704,586	7,441,750,051	6,481,616,219	7,610,799,238	7,589,141,259
Unfunded AAL (UAAL) (Actuarial Value)	6,966,299,527	6,791,017,319	6,741,295,828	7,238,233,759	7,241,166,616
Funded Ratio (Fair Value)	64.0%	57.0%	61.6%	54.5%	53.2%
Funded Ratio (Actuarial Value)	61.2%	60.8%	60.1%	56.7%	55.4%

* Beginning 2017, the annuitants Healthcare contribution is netted against Healthcare benefits expense.

Schedule of Financial Condition - Pension and Postemployment Healthcare Benefits Combined

For year ended December 31, 2019, with comparative totals for 9 years

	2014	2013	2012	2011	2010
Beginning Net Position (Fair Value)	$ 8,927,366,656	$ 8,059,935,628	$ 7,441,243,250	$ 7,574,653,612	$ 6,929,485,914
Additions:					
Employer contributions	190,032,872	187,817,644	190,720,776	195,337,621	181,509,323
Employee contributions	129,325,318	127,593,220	128,869,508	127,577,473	129,449,866
Annuitant Health Benefit Contributions	37,358,502	35,927,206	33,948,728	33,236,282	30,108,884
Net investment income (loss)	488,890,897	1,179,440,119	887,687,519	82,701,033	833,052,844
Other	9,742,062	8,547,729	10,190,689	17,614,316	12,795,846
Total additions	855,349,651	1,539,325,918	1,251,417,220	456,466,725	1,186,916,763
Deductions:					
Benefits	682,959,960	637,697,226	595,339,763	556,632,909	512,632,292
Refunds	26,347,361	29,873,030	33,081,726	29,165,335	25,041,818
Administrative Expenses	5,010,206	4,324,634	4,303,353	4,078,843	4,074,955
Total deductions	714,317,527	671,894,890	632,724,842	589,877,087	541,749,065
Ending Net Position (Fair Value)	$ 9,068,398,780	$ 8,927,366,656	$ 8,059,935,628	$ 7,441,243,250	$ 7,574,653,612
Actuarial Value of Assets	8,810,509,070	8,381,444,287	7,833,882,926	7,897,102,116	7,982,368,659
Actuarial Accrued Liabilities (AAL)	15,318,790,688	14,812,087,677	14,630,250,955	13,724,012,399	13,142,137,175
Unfunded AAL (UAAL) (Fair Value)	6,250,391,908	5,884,721,021	6,570,315,327	6,282,769,149	5,567,483,563
Unfunded AAL (UAAL) (Actuarial Value)	6,508,281,618	6,430,643,390	6,796,368,029	5,826,910,283	5,159,768,516
Funded Ratio (Fair Value)	59.2%	60.3%	55.1%	54.2%	57.6%
Funded Ratio (Actuarial Value)	57.5%	56.6%	53.5%	57.5%	60.7%

Additional Schedules Required by Employer (continued)

Schedule of Funding Progress - Pension and Postemployment Healthcare Benefits Combined

Year Ended December 31,	Actuarial Accrued Liabilities (AAL)*	Actuarial Value of Assets	Fair Value of Net Position	Unfunded AAL (UAAL) (Actuarial Value)	Unfunded AAL (UAAL) (Fair Value)
2010	$ 13,142,137,175	$ 7,982,368,659	$ 7,574,653,612	$ 5,159,768,516	$ 5,567,483,563
2011	13,724,012,399	7,897,102,116	7,441,243,250	5,826,910,283	6,282,769,149
2012	14,630,250,955	7,833,882,926	8,059,935,628	6,796,368,029	6,570,315,327
2013	14,812,087,677	8,381,444,287	8,927,366,656	6,430,643,390	5,884,721,021
2014	15,318,790,688	8,810,509,070	9,068,398,780	6,508,281,618	6,250,391,908
2015	16,232,185,534	8,991,018,918	8,643,044,275	7,241,166,616	7,589,141,259
2016	16,726,457,108	9,488,223,349	9,115,657,870	7,238,233,759	7,610,799,238
2017	16,889,499,662	10,148,203,834	10,407,883,443	6,741,295,828	6,481,616,219
2018	17,303,773,833	10,512,756,514	9,862,023,782	6,791,017,319	7,441,750,051
2019	17,949,663,806	10,983,364,279	11,490,959,220	6,966,299,527	6,458,704,586

Schedule of Funding Progress - Pension Benefits

Year Ended December 31,	Actuarial Accrued Liabilities (AAL)*	Actuarial Value of Assets	Fair Value of Net Position	Unfunded AAL (UAAL) (Actuarial Value)	Unfunded AAL (UAAL) (Fair Value)
2010	$ 12,023,222,885	$ 7,982,368,659	$ 7,574,653,612	$ 4,040,854,226	$ 4,448,569,273
2011	12,628,274,561	7,897,102,116	7,441,243,250	4,731,172,445	5,187,031,311
2012	13,418,486,943	7,833,882,926	8,059,935,628	5,584,604,017	5,358,551,315
2013	13,636,576,177	8,381,444,287	8,927,366,656	5,255,131,890	4,709,209,521
2014	14,140,547,353	8,810,509,070	9,068,398,780	5,330,038,283	5,072,148,573
2015	14,936,591,336	8,991,018,918	8,643,044,275	5,945,572,418	6,293,547,061
2016	15,456,773,985	9,488,223,349	9,115,657,870	5,968,550,636	6,341,116,115
2017	15,671,756,443	10,148,203,834	10,407,883,443	5,523,552,609	5,263,873,000
2018	16,314,389,047	10,512,756,514	9,862,023,782	5,801,632,533	6,452,365,265
2019	16,941,207,568	10,983,364,279	11,490,959,220	5,957,843,289	5,450,248,348

**These amounts are determined using the assumed discount rate for the actuarial funding calculations. These discount rates differ from the GASB accounting rates assumptions utilized in the AAL detailed in the OPEB tables on pages 166 and 167.*

Schedule of Funding Progress - Pension and Postemployment Healthcare Benefits Combined (continued)

Unfunded AAL (UAAL) (Fair Value)	Funded Ratio (Actuarial Value)	Funded Ratio (Fair Value)	Covered Payroll	UAAL as a Percentage of Covered Payroll (Actuarial Value)	UAAL as a Percentage of Covered Payroll (Fair Value)
$ 5,567,483,563	60.7%	57.6%	$ 1,494,093,569	345.3%	372.6%
6,282,769,149	57.5%	54.2%	1,456,444,123	400.1%	431.4%
6,570,315,327	53.5%	55.1%	1,478,253,368	459.8%	444.5%
5,884,721,021	56.6%	60.3%	1,484,269,715	433.3%	396.5%
6,250,391,908	57.5%	59.2%	1,514,550,023	429.7%	412.7%
7,589,141,259	55.4%	53.2%	1,572,417,298	460.5%	482.6%
7,610,799,238	56.7%	54.5%	1,580,251,254	458.0%	481.6%
6,481,616,219	60.1%	61.6%	1,567,480,401	430.1%	413.5%
7,441,750,051	60.8%	57.0%	1,533,721,507	442.8%	485.2%
6,458,704,586	61.2%	64.0%	1,553,498,503	448.4%	415.8%

Schedule of Funding Progress - Pension Benefits (continued)

Unfunded AAL (UAAL) (Fair Value)	Funded Ratio (Actuarial Value)	Funded Ratio (Fair Value)	Covered Payroll	UAAL as a Percentage of Covered Payroll (Actuarial Value)	UAAL as a Percentage of Covered Payroll (Fair Value)
$ 4,448,569,273	66.4%	63.0%	$ 1,494,093,569	270.5%	297.7%
5,187,031,311	62.5%	58.9%	1,456,444,123	324.8%	356.1%
5,358,551,315	58.4%	60.1%	1,478,253,368	377.8%	362.5%
4,709,209,521	61.5%	65.5%	1,484,269,715	354.1%	317.3%
5,072,148,573	62.3%	64.1%	1,514,550,023	351.9%	334.9%
6,293,547,061	60.2%	57.9%	1,572,417,298	378.1%	400.2%
6,341,116,115	61.4%	59.0%	1,580,251,254	377.7%	401.3%
5,263,873,000	64.8%	66.4%	1,567,480,401	352.4%	335.8%
6,452,365,265	64.4%	60.4%	1,533,721,507	378.3%	420.7%
5,450,248,348	64.8%	67.8%	1,553,498,503	383.5%	350.8%

Additional Schedules Required by Employer (continued)

Schedule of Funding Progress - Postemployment Healthcare

Year Ended December 31,	Actuarial Accrued Liabilities (AAL)	Actuarial Value of Assets	Fair Value of Net Position	Unfunded AAL (UAAL) (Actuarial Value)
2010	$ 1,724,622,462	$ -	$ -	$ 1,724,622,462
2011	1,678,571,388	-	-	1,678,571,388
2012	1,845,609,132	-	-	1,845,609,132
2013	1,978,767,490	-	-	1,978,767,490
2014	1,980,088,617	-	-	1,980,088,617
2015	2,134,106,707	-	-	2,134,106,707
2016	1,957,804,688	-	-	1,957,804,688
2017	1,886,616,443	-	-	1,886,616,443
2018	1,534,053,569	-	-	1,534,053,569
2019	1,900,989,370	-	-	1,900,989,370

Schedule of Components of Change in Unfunded AAL -
Pension Benefits and Postemployment Healthcare Combined

Year Ended December 31,	Salary Increase Higher / (Lower) than Assumed	Investment Returns (Higher) / Lower than Assumed	Employer Contributions Higher / (Lower) than Normal Cost Plus Interest	Legislative Amendments
2010	$ (185,530,277)	$ 364,312,504	$ 349,354,012	$ -
2011	(138,554,686)	459,875,129	371,793,485	-
2012	34,073,219	376,601,751	252,886,106	-
2013	(184,385,510)	(586,433,767)	513,419,056	-
2014	(148,871,075)	(161,124,113)	423,103,748	-
2015	164,977,011	61,964,372	431,124,367	-
2016	2,613,304	14,518,350	196,813,036	-
2017	(78,486,650)	(59,718,736)	93,692,715	-
2018	(144,455,926)	245,808,320	13,181,699	-
2019	(21,547,203)	46,426,889	48,781,707	-

Schedule of Funding Progress - Postemployment Healthcare (continued)

Unfunded AAL (UAAL) (Fair Value)	Funded Ratio (Actuarial Value)	Funded Ratio (Fair Value)	Covered Payroll	UAAL as a Percentage of Covered Payroll (Actuarial Value)	UAAL as a Percentage of Covered Payroll (Fair Value)
$ 1,724,622,462	0.0%	0.0%	$ 1,494,093,569	115.4%	115.4%
1,678,571,388	0.0%	0.0%	1,456,444,123	115.3%	115.3%
1,845,609,132	0.0%	0.0%	1,478,253,368	124.9%	124.9%
1,978,767,490	0.0%	0.0%	1,484,269,715	133.3%	133.3%
1,980,088,617	0.0%	0.0%	1,514,550,023	130.7%	130.7%
2,134,106,707	0.0%	0.0%	1,597,597,077	133.6%	133.6%
1,957,804,688	0.0%	0.0%	1,609,559,234	121.6%	121.6%
1,886,616,443	0.0%	0.0%	1,602,986,483	117.7%	117.7%
1,534,053,569	0.0%	0.0%	1,576,658,158	97.3%	97.3%
1,900,989,370	0.0%	0.0%	1,603,347,918	118.6%	118.6%

Schedule of Components of Change in Unfunded AAL -
Pension Benefits and Postemployment Healthcare Combined (continued)

Changes in Actuarial Assumptions	Plan Changes	Other Sources (1)	Total Change in Unfunded AAL
$ -	$ -	$ 1,683,624.00	$ 529,819,863
-	-	(25,972,161)	667,141,767
-	-	305,896,670	969,457,746
-	-	(108,324,418)	(365,724,639)
-	-	(35,470,332)	77,638,228
-	-	74,819,248	732,884,998
-	-	(216,877,547)	(2,932,857)
(323,327,660)	(50,292,826)	(78,804,774)	(496,937,931)
(24,987,447)	(164,731,446)	124,906,290	49,721,490
10,343,906	(49,424,951)	140,701,859	175,282,207

(1) Includes but is not limited to health insurance, optional retirement experience and death, retirement and withdrawal experience.

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COUNTY EMPLOYEES' AND OFFICERS'
ANNUITY AND BENEFIT FUND OF COOK COUNTY
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