Forest Preserve District Employees' Annuity and Benefit Fund of Cook County

A Component Unit of the Forest Preserve District of Cook County, Illinois

COMPREHENSIVE ANNUAL FINANCIAL REPORT

For the Fiscal Years Ended December 31, 2018 and 2017

Forest Preserve District Employees’
Annuity and Benefit Fund of Cook County

A Component Unit of the Forest Preserve District of Cook County, Illinois

COMPREHENSIVE ANNUAL FINANCIAL REPORT

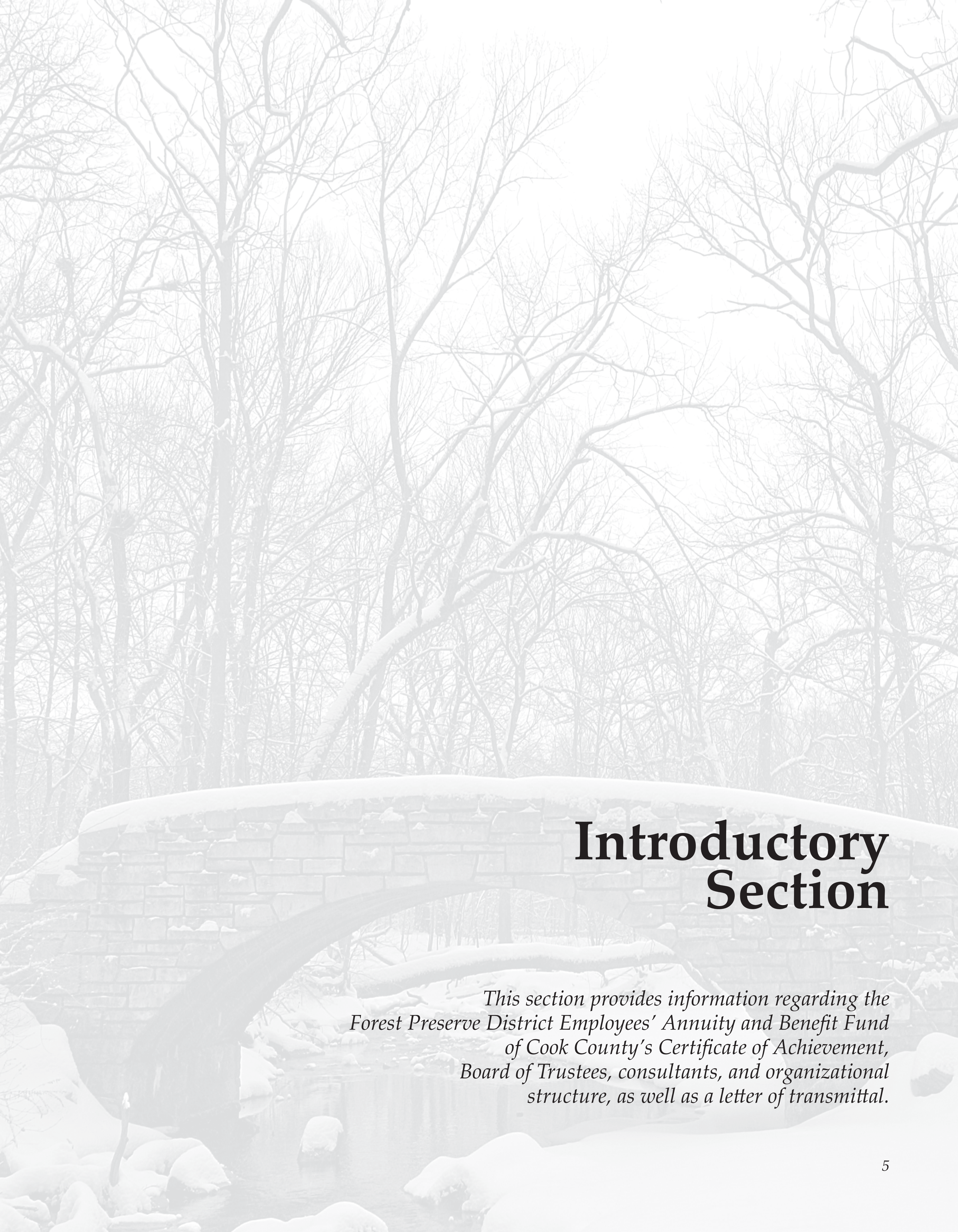
For the Fiscal Years Ended December 31, 2018 and 2017

Prepared by the staff of the
Forest Preserve District Employees’ Annuity and Benefit Fund of Cook County

This page is intentionally left blank.

Table of Contents

This page is intentionally left blank.



Introductory Section

This section provides information regarding the Forest Preserve District Employees' 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

Forest Preserve District

Employees' Annuity and Benefit Fund

of Cook County, Illinois

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

December 31, 2017

Christopher P. Morrill

Executive Director/CEO

Principal Officials

Retirement Board

Lawrence L. Wilson, CPA
President
Ex Officio Cook County Comptroller

Dennis White
Vice-President
Elected Forest Preserve District Employee

Diahann Goode
Secretary
Elected Cook County Employee

Robert DeGraff
Elected Cook County Employee

Joseph Nevius
Elected Forest Preserve District Annuitant

Kevin Ochalla
Elected Cook County Employee

John E. Fitzgerald
Elected Cook County Annuitant

Bill Kouruklis
Ex Officio Cook County Treasurer (Designee)

Patrick J. McFadden
Elected Cook County Annuitant

Professional Consultants

Legal Counsel
Burke Burns & Pinelli, Ltd.

Auditor
Legacy Professionals, LLP

Investment Consultant
Callan Associates, Inc.

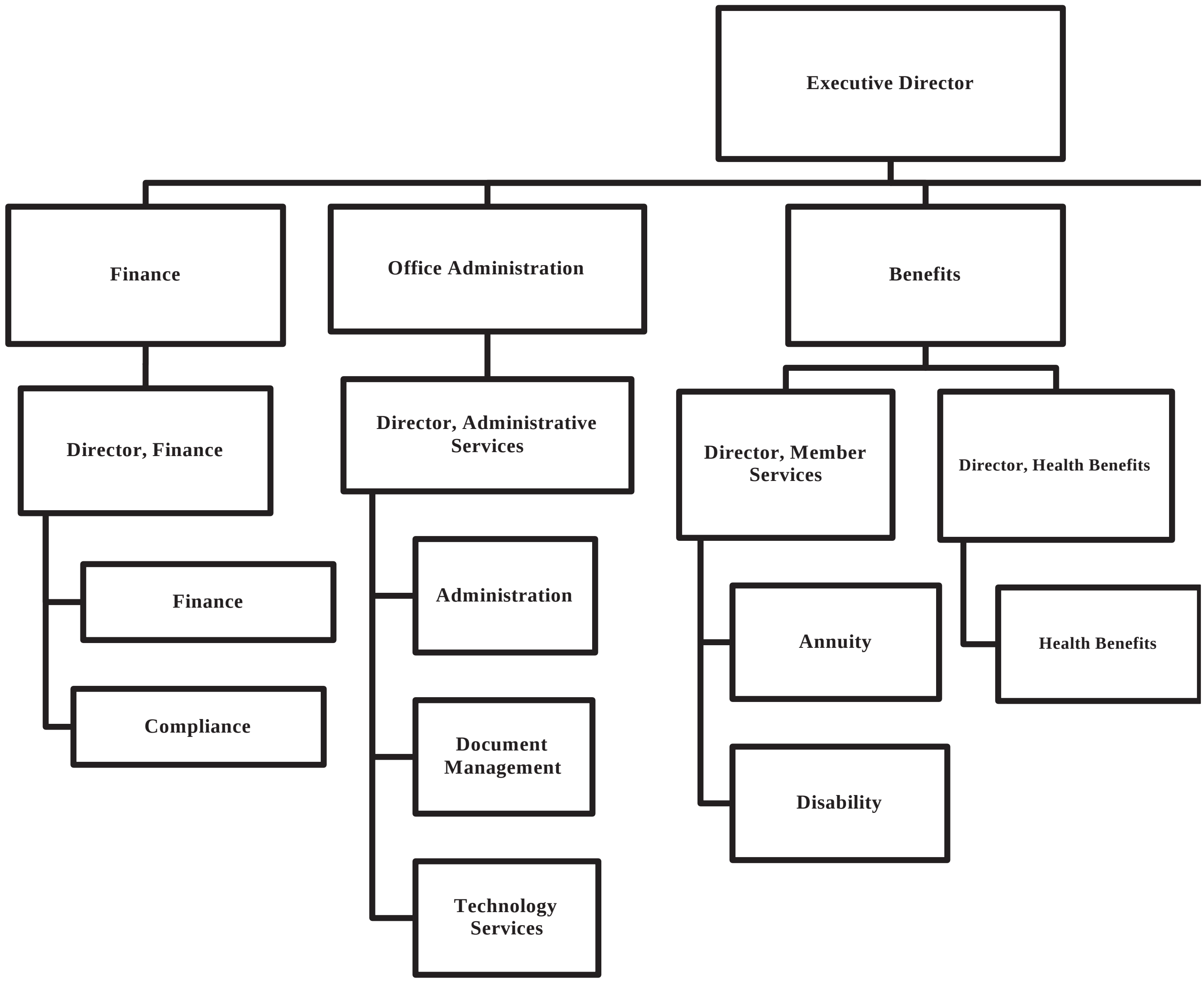
Consulting Actuary
Cavanaugh Macdonald Consulting, LLC

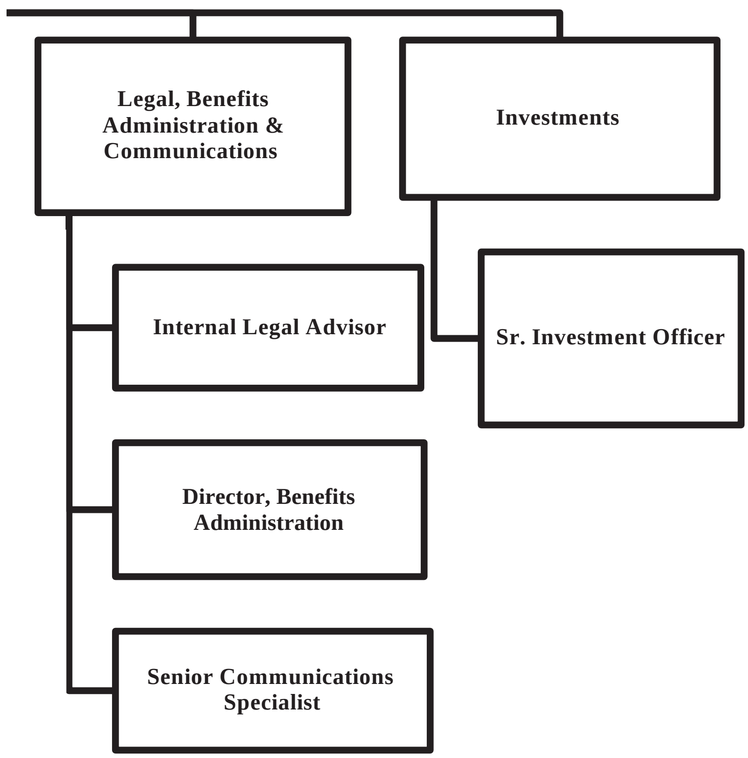
Master Custodian
BNY Mellon

Custodian
Cook County Treasurer

Investment Managers are listed on pages 81.
Brokers used by Investment Managers are listed on pages 82-83.

Organizational Chart




Legal, Benefits Administration & Communications
Investments
Internal Legal Advisor
Sr. Investment Officer
Director, Benefits Administration
Senior Communications Specialist

This page is intentionally left blank.

Letter of Transmittal

June 18, 2019

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, 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 Forest Preserve District Employees' Annuity and Benefit Fund of Cook County ("the Fund") for the calendar year ended December 31, 2018. 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. 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 1931 by an act of the Illinois General Assembly, the Fund is a defined benefit public pension fund governed by 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 the Forest Preserve District of Cook County, Illinois (the Forest Preserve District). It is considered a component unit of the Forest Preserve District and is included in the Forest Preserve District's financial statements as a pension trust fund. As of December 31, 2018, the Fund consisted of 536 active employees, 387 retiree annuitants, 144 survivor annuitants, and 1,410 inactive members.

The Fund is governed by a nine-member Retirement Board ("Board"). The Retirement Board of the County Employees' and Officers' Annuity and Benefit Fund of Cook County (CEABF) is *ex officio* the Retirement Board for the Forest Preserve District Employees' Annuity and Benefit Fund of Cook County. The nine Trustees are elected as follows: three are elected by the employees of Cook County; one is elected by the 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, 2018, and December 31, 2017 (numbers in millions):

Change in Net Position	2018	2017	$ Change	% Change
Total additions	$ (0.3)	$ 37.9	$ (38.2)	-101%
Total deductions	$ 19.7	$ 18.8	$ 0.9	5%
Change in net position from prior year	$ (20.0)	$ 19.1	$ (39.1)	204.7%

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

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.

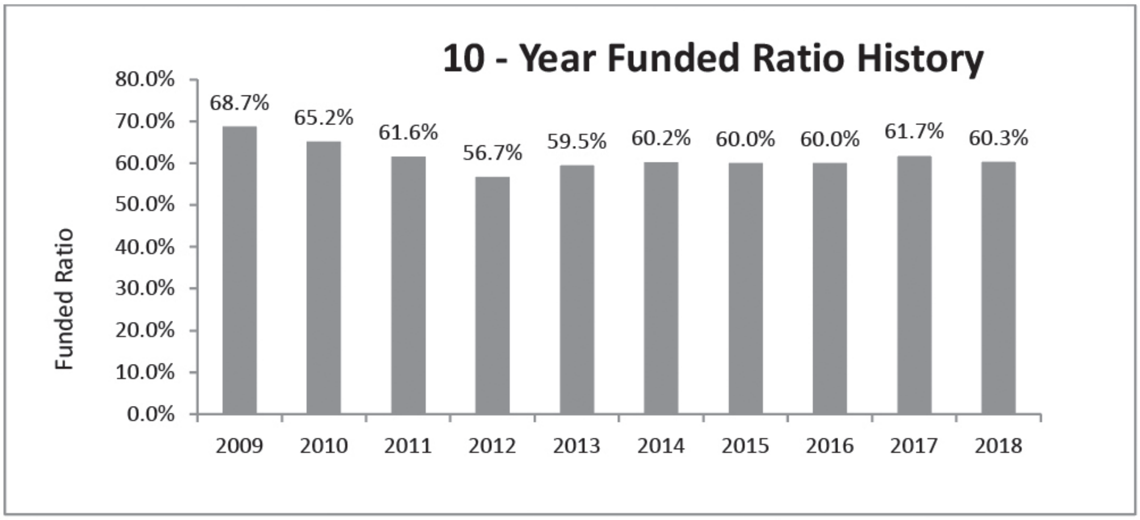
As of December 31, 2018, the Fund's combined actuarial accrued liability for pension and retiree health benefits was $336.7 million and the actuarial value of assets was $202.9 million, resulting in an unfunded actuarial accrued liability of $133.8 million. The funded ratio (the ratio of assets to liabilities) for pension benefits and retiree health benefits combined was 60.26%, a slight decrease from prior year's funded ratio of 61.73%.

The Fund's actuarial accrued liability for solely pension benefits was $313.0 million and the actuarial value assets was $202.9 million, resulting in an unfunded liability of $110.1 million and a funded ratio of 64.82%. The Fund's actuarial liability for retiree health benefits was $35.9 million. As there are no dedicated funding assets, the actuarial value of assets was $0 for the retiree health benefits, resulting in an unfunded liability of $35.9 million.

While the Board continuously works to identify and implement strategies that help the Fund manage costs while administering pension and health benefits, the Fund continues to face a long-term funding shortfall. As employer contributions did not meet the Fund's actuarial needs in 2018 and active membership continued to decline, the actuary projected an earlier solvency date of 2037, compared with the projection of 2040 in the year prior.

The employer contribution is determined as a multiple of employee contributions from two years earlier. Based on the most recent actuarial valuation, an actuarially-determined tax multiple of 4.07 is needed to adequately finance the Fund as compared with the current tax multiple of 1.30, which has been less than the actuarially-determined contribution requirement for more than 20 years. This methodology currently represents less than 32% of the actuarially-required contribution. According to the actuary, without legislative action that establishes an actuarially based funding policy, the Fund's assets will be depleted in 19 years.

The following chart depicts historical funding ratios for the Fund.



A detailed discussion of funding is provided in the Actuarial Section of this report.

Investments

The Board's authority to invest the Fund's assets is governed by 40 ILCS 5/1-101 et seq. and 40 ILCS 5/10-101 et seq. The Board works to maintain a diversified asset allocation designed to exceed the Fund's 7.25% actuarial rate of return within acceptable risk parameters. 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 $186.6 million compared with $207.1 million at the end of 2018, a decrease of approximately $20.5 million. Although investment returns were positive for much of 2018, volatile market conditions at the end of 2018 resulted in unfavorable investment returns for many public retirement systems, including the Fund. The Fund's investment portfolio's net rate of return for the year ended December 31, 2018 was -4.31%, which was more favorable than many other broad indices. While the domestic and international equities as well as fixed income holdings delivered negative returns, the Fund's investment in real estate and hedge funds contributed positive returns to the portfolio. The Board continues to work to maintain a diversified asset allocation within acceptable risk parameters.

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

2018 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 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 910 retirement applications in the past year for both the Fund and CEABF. The Employer implemented a new payroll module in 2018, and the Fund worked efficiently 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 three issues of a health benefits digest newsletter in 2018. The Fund has been drafting and will soon be issuing a communications survey to members in an upcoming pension newsletter to active and retired members.

Beginning January 1, 2017, Medicare eligible members began receiving a comparable prescription drug benefit at a lower cost through the Center for Medicare & Medicaid Services (CMS) Medicare Part D Employer Group Waiver Plan (EGWP), which allows the Fund to take advantage of the Federal Government’s competitive drug prices. With the EGWP program fully implemented in 2018, additional reimbursements were received. The EGWP program resulted in a continued cost reduction for the health benefit plan when compared to the prior two years.

Effective January 1, 2019, the Fund implemented a mandated Medicare enrollment for all Health Plan members 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.

To assist retired members with Medicare enrollment and the related transition, the Fund held two Medicare education programs in 2018 which received maximum participation. These two programs were designed to educate members on critical information regarding Medicare eligibility, enrollment considerations including timing, coordination with the Fund’s Health Plan, and other helpful information.

In 2018, the Fund initiated an Out-of-State member information verification project. In April 2018, the Fund sent verification letters to all of the out-of-state annuitant members (totaling 2,676) of the Fund and CEABF. 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 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 October 2018, the Fund implemented a rebalancing strategy with a total notional value of approximately $15.3 million. The objective of the rebalancing was to increase liquidity options within fixed income, mitigate small and mid-cap domestic equity overweight, and increase the allocation to passive large cap and international equity investments.

The rebalancing plan was the culmination of two years of extensive research, planning and discussions conducted between the Fund's investment consultant, Fund staff and the Investment Committee. The Board then reviewed and approved individual components of the plan during 2017 and 2018. The rebalancing involved two managers across three asset classes and was coordinated with all parties to occur simultaneously during the first part of the fourth quarter 2018. After a competitive bid process, Penserra Capital Management, LLC. was selected from the Fund's transition manager pool to conduct the transition.

As a result of the rebalancing, one investment manager and its related mandate was removed from the portfolio. These assets were then redistributed according to the target asset allocation plan. Garcia Hamilton & Associates and State Street Global Advisors were added to the portfolio as part of the rebalancing.

Legislation

The following Public Acts were enacted in calendar year 2018:

Public Act 100-0794 Provisions

- Amended 5-9/228 to allow payments to be directed to a member's certified and licensed nursing home under limited conditions when they are legally disabled.
- The act requires the nursing home to notify the Fund in the event of the disabled member's death or any other relevant change in their status.

Public Act 100-0902 Provisions

- Amended 5-1/109.1(5) requiring all Illinois pension funds to make best efforts to ensure the racial and ethnic makeup of its senior staff represents the racial and ethnic make up of its membership.

Accounting System & 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, 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 unqualified opinion for calendar year ended December 31, 2018. A copy of their report is contained in the Financial Section of this report.

Administration

In December of 2018, I began my responsibilities as the Executive Director of the Fund. I am truly pleased and honored to serve in this very important position and am fortunate to follow a long history of dedicated and talented prior Executive Directors. I am thankful for this very special opportunity and welcome the privilege to serve such a diverse, hard-working, and diligent group of members who provide vital services to the Forest Preserve District and Cook County.

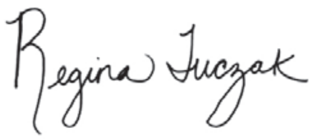
Awards

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, 2017. This was the ninth 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.

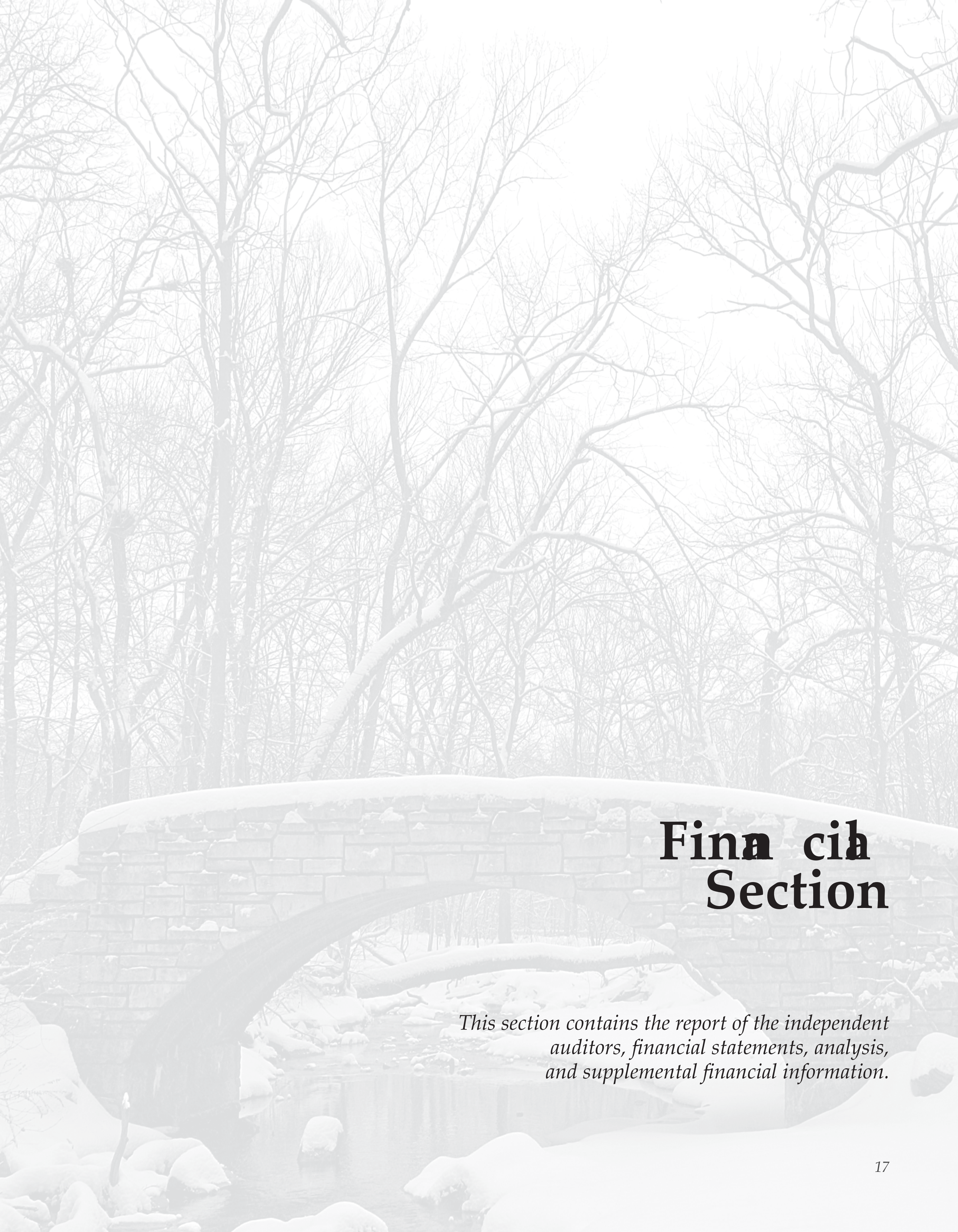
Acknowledgments

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, Executive Director



Financial Section

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

Report of Independent Auditors

LEGACY
PROFESSIONALS LLP
CERTIFIED PUBLIC ACCOUNTANTS

REPORT OF INDEPENDENT AUDITORS

To the Board of Trustees of
Forest Preserve District Employees' Annuity
and Benefit Fund of Cook County

Report on the Financial Statements

We have audited the accompanying financial statements of Forest Preserve District Employees' Annuity and Benefit Fund of Cook County (the Plan), a fiduciary fund of Forest Preserve District 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, 2018 and 2017, 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 from material misstatement.

An audit involves 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 the 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 net position of Forest Preserve District Employees' Annuity and Benefit Fund of Cook County as of December 31, 2018 and 201 7, and the changes in 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 and the required supplementary information, consisting of the 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 accompanying supplementary information, consisting of the schedules of administrative expenses and professional and consulting fees, schedules of investment expenses, additions by source, deductions by type, and schedule of employer contributions receivable, is presented for purposes of additional analysis and is 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.

Previously Audited Information

We also have previously audited the basic financial statements for the years ended December 31, 2016, 2015, 2014, and 2013 (which are not presented herein), and we expressed unmodified opinions on those financial statements. In our opinion, the previously audited information presented on 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 17, 2019

Management's Discussion and Analysis (Unaudited)

This section presents Management's Discussion and Analysis of the financial position and performance of the Forest Preserve District Employees' Annuity and Benefit Fund of Cook County (the Plan) for the years ended December 31, 2018 and 2017. 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 basic 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 provides 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, employer contributions and investment returns.

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

Financial Highlights

Net position decreased by $19,972,870 or 9.5% from $210,370,946 at December 31, 2017 to $190,398,076 at December 31, 2018. Comparatively, net position increased by $19,168,548 or 10.0% from $191,202,398 at December 31, 2016 to $210,370,946 at December 31, 2017. The change in net position for both years was primarily due to the fluctuation in the fair value of the investments.

Rate of return of the Plan's investment portfolio was (4.31%) for 2018, 16.58% for 2017 and 5.67% for 2016.

Net Position

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

Net Position as of December 31,

				Current Year (Decrease) in	
	2018	**2017**	**2016**	**Dollars**	**Percent**
Total assets	$ 193,723,543	$ 217,178,394	$ 207,496,922	$ (23,454,851)	-10.8%
Total liabilities	3,325,467	6,807,448	16,294,524	(3,481,981)	-51.1%
Net position	$ 190,398,076	$ 210,370,946	$ 191,202,398	$ (19,972,870)	-9.5%

Changes in Plan Net Position

The condensed Combining Statements of Changes in Pension Plan Fiduciary Net Position and Postemployment Healthcare Plan Net Position reflect 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,

				Current Year Increase/ (Decrease) in	
	2018	**2017**	**2016**	**Dollars**	**Percent**
Additions:					
Employer contributions	$ 4,087,391	$ 3,544,707	$ 3,391,381	$ 542,684	15.3%
Employee contributions	3,127,980	3,300,222	3,184,051	(172,242)	-5.2%
Net investment income (loss)(includes security lending activities)	(8,422,851)	30,500,015	10,477,792	(38,922,866)	-127.6%
Other	946,166	598,522	317,217	347,644	58.1%
Total additions	(261,314)	37,943,466	17,370,441	(38,204,780)	-100.7%
Deductions:					
Benefits	18,286,045	18,002,969	17,458,251	283,076	1.6%
Refunds	1,083,510	554,417	740,586	529,093	95.4%
Employee transfers to the Cook County Fund	182,512	54,257	133,999	128,255	236.4%
Administrative expenses	159,489	163,275	157,577	(3,786)	-2.3%
Total deductions	19,711,556	18,774,918	18,490,413	936,638	5.0%
Net increase (decrease)	(19,972,870)	19,168,548	(1,119,972)	(39,141,418)	-204.2%
Net position					
Beginning of year	210,370,946	191,202,398	192,322,370	19,168,548	10.0%
End of year	$ 190,398,076	$ 210,370,946	$ 191,202,398	$ (19,972,870)	-9.5%

Additions to Plan Net Position

Total additions were ($261,314) in 2018, $37,943,466 in 2017 and $17,370,441 in 2016. Employer contributions increased to $4,087,391 in 2018 from $3,544,707 in 2017 and were $3,391,381 in 2016. Employer contributions are statutorily set at 1.30 times employee contributions collected two years prior.

Employee contributions, including permissive service credit purchases, decreased slightly to $3,127,980 in 2018 from $3,300,222 in 2017 and were $3,184,051 in 2016. Employees contribute 8.5% of covered wages.

Net investment loss totaled ($8,422,851) for 2018 compared to net investment income $30,500,015 for 2017. Comparatively, net investment income totaled $10,477,792 for 2016. Investment earnings fluctuate primarily from the overall performance of the financial markets from year to year.

Deductions to Plan Net Position

Total deductions were $19,711,556 in 2018, $18,774,918 in 2017 and $18,490,413 in 2016.

Benefits increased to $18,286,045 in 2018 from $18,002,969 in 2017 and $17,458,251 in 2016 primarily due to the 3% annual cost of living increases for annuitants.

Refunds increased to $1,083,510 in 2018 from $554,417 in 2017 and from $740,586 in 2016. These changes are due to fluctuations in refund applications.

Employee transfers to the Cook County Fund resulted from Forest Preserve District employees transferring employment to Cook County. The accrued pension benefit obligation is transferred to the Forest Preserve Fund from the Cook County Fund.

The cost to administer the Plan slightly decreased to $159,489 in 2018 from $163,275 in 2017. Comparatively, the cost to administer the Plan increased to $163,275 in 2017 from $157,577 in 2016.

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,

	2018	2017	2016
Total pension liability	$ 415,400,193	$ 430,452,619	$ 438,859,466
Plan fiduciary net position	(190,398,076)	(210,370,946)	(191,202,398)
Employer's net pension liability	$ 225,002,117	$ 220,081,673	$ 247,657,068
Plan fiduciary net position as a percentage of the total pension liability	45.83%	48.87%	43.57%

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 Postemployment Healthcare Benefits
For the Years Ended December 31,

	2018	2017	2016
Total other postemployment benefits liability	$ 35,850,239	$ 49,170,148	$ 50,517,660
Plan fiduciary net position	—	—	—
Employer's net other postemployement benefits liability	$ 35,850,239	$ 49,170,148	$ 50,517,660

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,

	2018	2017	2016
Unfunded actuarial accrued liability	$ 133,789,965	$ 126,639,668	$ 131,962,737
Funded ratio	60.26%	61.73%	60.04%

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:

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

This page is intentionally left blank.

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

December 31, 2018

ASSETS	Total	Pension	Postemployment Healthcare
Receivables			
Employer contributions less allowance of $111,748 in 2018	$ 4,027,518	$ 4,027,518	-
Employee contributions	3,780	3,780	-
Accrued investment income	330,951	330,951	-
Receivable for securities sold	272,015	272,015	-
EGWP/Medicare Part D subsidy	480,851	157,804	323,047
Prescription rebates	28,071	28,071	-
Imprest balance receivable	62,000	-	62,000
Total receivables	5,205,186	4,820,139	385,047
Investments			
U.S. and international equities	83,356,704	83,356,704	-
U.S. Government and government agency obligations	5,477,851	5,477,851	-
Corporate bonds	3,352,396	3,352,396	-
Collective international equity fund	24,019,014	24,019,014	-
Commingled fixed income fund	28,910,652	28,910,652	-
Exchange traded funds	907,930	907,930	-
Hedge funds	22,287,105	22,287,105	-
Real estate funds	14,157,365	14,157,365	-
Short-term investment	4,140,867	4,140,867	-
Total investments	186,609,884	186,609,884	-
Collateral held for securities on loan	1,908,473	1,908,473	-
Total assets	193,723,543	193,338,496	385,047
LIABILITIES			
Accounts payable	52,419	52,419	-
Healthcare & other benefits payable	385,047	-	385,047
Due to County Employees' and Officers' Annuity and Benefit Fund of Cook County	381,010	381,010	-
Payable for securities purchased	598,518	598,518	-
Securities lending collateral	1,908,473	1,908,473	-
Total liabilities	3,325,467	2,940,420	385,047
Net position			
Net position restricted for pensions	190,398,076	190,398,076	-
Net position held in trust for postemployment healthcare benefits	-	-	-
Total	$ 190,398,076	$ 190,398,076	$ -

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

December 31, 2017			
ASSETS	**Total**	**Pension**	**Postemployment Healthcare**
Receivables			
Employer contributions less allowance of $119,262 in 2017	$ 3,486,512	$ 3,486,512	$ -
Employee contributions	3,787	3,787	-
Accrued investment income	198,409	198,409	-
Receivable for securities sold	320,866	320,866	-
EGWP/Medicare Part D subsidy	88,472	-	88,472
Prescription rebates	63,217	-	63,217
Imprest balance receivable	56,000	-	56,000
Total receivables	4,217,263	4,009,574	207,689
Investments			
U.S. and international equities	112,414,952	112,414,952	-
U.S. Government and government agency obligations	-	-	-
Corporate and foreign government obligations	-	-	-
Collective international equity fund	14,607,348	14,607,348	-
Commingled fixed income fund	35,051,663	35,051,663	-
Exchange traded funds	4,315,663	4,315,663	-
Hedge funds	21,691,553	21,691,553	-
Real estate funds	13,440,254	13,440,254	-
Short-term investment	5,574,696	5,574,696	-
Total investments	207,096,129	207,096,129	-
Collateral held for securities on loan	5,865,002	5,865,002	-
Total assets	217,178,394	216,970,705	207,689
LIABILITIES			
Accounts payable	86,570	86,570	-
Healthcare & other benefits payable	207,689	-	207,689
Due to County Employees' and Officers' Annuity and Benefit Fund of Cook County	359,334	359,334	-
Payable for securities purchased	288,853	288,853	-
Securities lending collateral	5,865,002	5,865,002	-
Total liabilities	6,807,448	6,599,759	207,689
Net position			
Net position restricted for pensions	210,370,946	210,370,946	-
Net position held in trust for postemployment healthcare benefits	-	-	-
Total	$ 210,370,946	$ 210,370,946	$ -

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

December 31, 2018

	Total	Pension	Postemployment Healthcare
Additions			
Employer contributions	$ 4,087,391	$ 4,087,391	$ -
Allocation to postemployment healthcare	-	(606,110)	606,110
Total employer contributions	4,087,391	3,481,281	606,110
Employee contributions			
Salary deductions	2,944,223	2,944,223	-
Refund repayments	153,890	153,890	-
Former and miscellaneous service payments	9,759	9,759	-
Deductions in lieu of disability	20,108	20,108	-
Total employee contributions	3,127,980	3,127,980	-
Investment income			
Net appreciation (depreciation) in fair value of investments	(10,507,657)	(10,507,657)	-
Dividends	2,352,977	2,352,977	-
Interest	361,539	361,539	-
	(7,793,141)	(7,793,141)	-
Less investment expenses	(650,342)	(650,342)	-
Net investment income (loss)	(8,443,483)	(8,443,483)	-
Securities lending			
Income	24,346	24,346	-
Expenses	(3,714)	(3,714)	-
Net securities lending income	20,632	20,632	-
Other			
EGWP/Medicare Part D subsidy	847,647	-	847,647
Prescription plan rebates	98,519	-	98,519
Miscellaneous	-	-	-
Total other additions	946,166	-	946,166
Total additions	(261,314)	(1,813,590)	1,552,276

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

December 31, 2017

	Total	Pension	Postemployment Healthcare
Additions			
Employer contributions	$ 3,544,707	$ 3,544,707	$ -
Allocation to postemployment healthcare	-	(1,302,218)	1,302,218
Total employer contributions	3,544,707	2,242,489	1,302,218
Employee contributions			
Salary deductions	3,046,960	3,046,960	-
Refund repayments	160,917	160,917	-
Former and miscellaneous service payments	56,614	56,614	-
Deductions in lieu of disability	35,731	35,731	-
Total employee contributions	3,300,222	3,300,222	-
Investment income			
Net appreciation (depreciation) in fair value of investments	28,746,514	28,746,514	-
Dividends	2,077,606	2,077,606	-
Interest	325,469	325,469	-
	31,149,589	31,149,589	-
Less investment expenses	(674,299)	(674,299)	-
Net investment income (loss)	30,475,290	30,475,290	-
Securities lending			
Income	29,075	29,075	-
Expenses	(4,350)	(4,350)	-
Net securities lending income	24,725	24,725	-
Other			
EGWP/Medicare Part D subsidy	352,868	-	352,868
Prescription plan rebates	231,404	-	231,404
Miscellaneous	14,250	14,250	-
Total other additions	598,522	14,250	584,272
Total additions	37,943,466	36,056,976	1,886,490

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

December 31, 2018			
	Total	**Pension**	**Postemployment Healthcare**
Deductions			
Benefits			
Annuity			
Employee	$ 13,844,830	$ 13,844,830	$ -
Spouse and children	2,761,444	2,761,444	-
Disability			
Ordinary	123,514	123,514	-
Duty	3,981	3,981	-
Healthcare less annuitant contributions of $1,398,987 in 2018 and $1,321,187 in 2017	1,552,276	-	1,552,276
Total benefits	18,286,045	16,733,769	1,552,276
Refunds	1,083,510	1,083,510	-
Employee transfers to County Employees' and Officers' Annuity and Benefit Fund of Cook County	182,512	182,512	-
Administrative expenses	159,489	159,489	-
Total deductions	19,711,556	18,159,280	1,552,276
Net increase (decrease)	(19,972,870)	(19,972,870)	-
Net position			
Beginning of year	210,370,946	210,370,946	-
End of year	$ 190,398,076	$ 190,398,076	$ -

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

December 31, 2017

	Total	Pension	Postemployment Healthcare
Deductions			
Benefits			
Annuity			
Employee	$ 13,253,194	$ 13,253,194	$ -
Spouse and children	2,630,286	2,630,286	-
Disability			
Ordinary	230,363	230,363	-
Duty	2,636	2,636	-
Healthcare less annuitant contributions of $1,398,987 in 2018 and $1,321,187 in 2017	1,886,490	-	1,886,490
Total benefits	18,002,969	16,116,479	1,886,490
Refunds	554,417	554,417	-
Employee transfers to County Employees' and Officers' Annuity and Benefit Fund of Cook County	54,257	54,257	-
Administrative expenses	163,275	163,275	-
Total deductions	18,774,918	16,888,428	1,886,490
Net increase (decrease)	19,168,548	19,168,548	-
Net position			
Beginning of year	191,202,398	191,202,398	-
End of year	$ 210,370,946	$ 210,370,946	$ -

Notes to Financial Statements

Note 1: Summary of Significant Accounting Policies

The Forest Preserve District Employees' Annuity and Benefit Fund of Cook County (the Plan) is administered in accordance with Chapter 40, Article 5/10 of the Illinois Compiled 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 Forest Preserve District of Cook County, Illinois (the Forest Preserve District) and is included in the Forest Preserve District'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 County Employees' and Officers' Annuity and Benefit Fund of Cook County (the Cook County Fund). These expenses are allocated between the Cook County Fund and the Plan 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, 2018 and 2017, the Plan does not have any capital assets.

Estimates - The preparation of 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.

Reclassifications - Certain prior year amounts have been reclassified to conform to the current year presentation.

Subsequent Events - Subsequent events have been evaluated through June 17, 2019, which is the date the financial statements were available to be issued.

Note 2: Plan Description

The Plan was established on July 1, 1931, and is governed by legislation contained in the Illinois Compiled Statutes (the Statutes), particularly Chapter 40, Article 5/10 (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 Forest Preserve District and the dependents of such employees. The Plan is considered to be a fiduciary fund of Forest Preserve District of Cook County, Illinois and is included in the Forest Preserve District'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 Forest Preserve District 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% 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 Forest Preserve District'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 1.30. The source of funds for the Forest Preserve District's contributions has been designated by State Statute as the Forest Preserve District's annual property tax levy. The Forest Preserve District's payroll for employees covered by the Plan for the years ended December 31, 2018 and 2017 was $34,071,319 and $35,078,173 respectively.

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.

Note 2: Plan Description (continued)

Participants should refer to the applicable State Statutes for more complete information.
At December 31, 2018 and 2017, participants consisted of the following:

	2018	2017
Active members	536	548
Retired members	387	381
Beneficiaries	144	146
Inactive members	1,410	1,365
Total	2,477	2,440

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, 2018 and 2017 are as follows:

	2018	2017
Total pension liability	$ 415,400,193	$ 430,452,619
Plan fiduciary net position	190,398,076	210,370,946
Employer's net pension liability	$ 225,002,117	$ 220,081,673
Plan fiduciary net position as a percentage of the total pension liability	45.83%	48.87%

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)

The net pension liability was determined by actuarial valuations performed as of December 31, 2018 and 2017 using the following actuarial methods and assumptions:

Actuarial valuation date	**December 31, 2018**	**December 31, 2017**
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 8.0%, based on age;	3.50% to 8.0%, 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 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 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, 2018 and 2017 valuations were based on the results of an actuarial experience study conducted by Conduent, Inc. (formerly Buck Consultants, LLC) dated February 2018. The Fund engaged Cavanaugh Macdonald Consulting to prepare the December 31, 2018 valuation.

Discount Rate

The discount rate used to measure the total pension liability at December 31, 2018 and 2017 was 4.91% and 4.45% 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 4.13% and 3.16% at December 31, 2018 and 2017, respectively, and the long term investment rate of return of 7.25% at December 31, 2018 and 2017 were used in the development of the blended discount rate after that point. 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 4.13% at December 31, 2018 and 3.16% at December 31, 2017, the blended discount rate would be 4.91% at December 31, 2018 and 4.45% at December 31, 2017.

Note 3: Employer's Pension Liability (continued)

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, 2018 and 2017. 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 3.91%	Current Discount Rate 4.91%	1% Increase 5.91%
Net Pension Liability - December 31, 2018	$ 286,005,393	$ 225,002,117	$ 175,465,785

	1% Decrease 3.45%	Current Discount Rate 4.45%	1% Increase 5.45%
Net Pension Liability - December 31, 2017	$ 287,353,111	$ 220,081,673	$ 166,170,214

Note 4: Summary of Employer Funding Policies

Employer contributions are funded primarily through a tax levied by the Forest Preserve District of 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 1.30.

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, 2018 and 2017, there were no significant changes to the investment policy.

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

Asset Class	Target Allocation %	Long-term Expected Real Rate of Return
Domestic equities	32.00%	11.17%
International equities	27.00%	9.51%
Fixed income	21.00%	4.77%
Real estate funds	9.00%	9.77%
Hedge Funds	10.00%	7.31%
Cash	1.00%	3.98%
Total investments	100.00%	

Long-Term Expected Rate of Return

The long-term expected rate of return on the Plan's investments was determined based on the results of an experience study performed by Conduent, Inc. The results of the experience study were adopted by the Board in April 2018. The investment return assumption was based on the current asset allocation of the Plan. In the experience study, Conduent developed best estimate ranges of expected future real rates of return (net of pension plan investment expense and inflation) for each major asset class. These ranges were combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates or arithmetic real rates of return for each major asset class included in the Plan's target asset allocation as of December 31, 2018 are listed in the previous table.

Note 5: Investments (continued)

Annual Money-Weighted Rate of Return

The annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was (4.31%) and 16.58% for the years ended December 31, 2018 and 2017, respectively. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

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, 2018 and 2017 as valued by Moody's Investors Service, Standard & Poor's and/or Fitch:

Type of Investment	Rating	2018	2017
U.S. Government and government agency obligations	Aaa/AAA	$ 5,477,851	$ -
Corporate Bonds	A/A	2,500,570	-
	Aa/AA	360,313	-
	A/BBB	259,147	-
	Baa/A	232,366	-
		$ 3,352,396	$ -
Commingled fixed income fund	Not Rated	$ 28,910,652	$ 35,051,663
Short-term investment	Not Rated	$ 4,140,867	$ 5,574,696

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 held for longer periods are subject to increased risk of adverse interest rate changes. The Plan's investment policy for duration for each manager's total fixed income portfolio is within plus or minus 30% of the duration for the fixed income performance benchmark (*Bloomberg Barclays US Aggregate Fixed Income*, which was 5.87 years at December 31, 2018 and 5.98 years at December 31, 2017). The following table presents a summarization of the Plan's debt investments at December 31, 2018 and 2017 using the segmented time distribution method:

Type of Investment	Maturity	2018	2017
U.S. Government and government agency obligations	< 1 year	$ 3,550,082	$ -
	1 - 5 years	1,927,769	-
		$ 5,477,851	$ -
Corporate bonds	1 - 5 years	$ 3,352,396	$ -
Commingled fixed income fund	5 - 10 years	$ 28,910,652	$ 35,051,663
Short-term investment	< 1 year	$ 4,140,867	$ 5,574,696

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, 2018 and 2017 is as follows:

Type of Investment	Fair Value (USD) 2018	Fair Value (USD) 2017
U.S. and international equities		
British pound sterling	$ 5,106,861	$ 9,619,912
Canadian dollar	2,772,307	3,381,223
Danish krone	766,110	1,016,739
European euro	5,706,269	12,030,897
Hong Kong dollar	797,997	-
Israeli shekel	342,047	1,255,544
Japanese yen	2,882,240	8,982,474
New Zealand dollar	361,097	832,118
Norwegian krone	386,528	1,009,225
Singapore dollar	557,923	903,704
Swedish krona	1,211,736	2,220,062
Swiss franc	964,774	1,491,797
U.S. dollar	61,500,814	69,671,257
Total U.S. and international equities	$ 83,356,704	$ 112,414,952

For the years ended December 31, 2018 and 2017, net realized gain on investments sold, reflecting the difference between the proceeds received and cost value of securities sold, was $17,527,925 and $9,887,995 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 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 in plan assets being reported in both the current year and the previous years.

Derivatives

A derivative instrument is an instrument or contract whose value is derived from that of other financial instruments such as stock, bonds and commodities, interest rates or a market index. The Plan's investments in derivative instruments are immaterial to the financial statements. The Plan also holds interests in collective funds, hedge funds, and private equity funds, which may engage in derivative transactions.

Note 6: 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:

<u>Basis of Fair Value Measurement</u>

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, 2018 and 2017:

		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	$ 83,356,704	$ 83,356,704	$ -	$ -
U.S. Government and government agency obligations	5,477,851	-	5,477,851	-
Corporate bonds	3,352,396	-	3,352,396	-
Exchange traded funds	907,930	907,930	-	-
Total investments by fair value level	93,094,881	$ 84,264,634	$ 8,830,247	$ -
Investments measured at net asset value	93,515,003			
Total investments at fair value	$ 186,609,884			

Note 6: Fair Value Measurements (continued)

		Fair Value Measurements at 12/31/2017 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	$ 112,414,952	$ 112,414,952	$ -	$ -
Exchange traded funds	4,315,663	4,315,663	-	-
Total investments by fair value level	116,730,615	$ 116,730,615	$ -	$ -
Investments measured at net asset value	90,365,514			
Total investments at fair value	$ 207,096,129			

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 bonds 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 6: Fair Value Measurements (continued)

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

	Fair Value		Unfunded	Redemption Frequency	Redemption Notice
	12/31/2018	12/31/2017	Commitments	(If Eligible)	Period
Investments measured at net asset value:					
Collective international equity fund (1)					
Lazard/Wilmington Emerging Markets Sudan Free Portfolio	$ 7,369,714	$ 14,607,348	-	Daily	N/A
State Street Global Advisory MCSI ACWI EX	16,649,300	-	-	Bi-monthly	N/A
Commingled fixed income fund (2)					
EB DV Non-SL Aggregate Bond Index Fund	28,910,652	35,051,663	-	Daily	N/A
Hedge funds (3)					
Burnham Harbor Fund Ltd.	22,287,105	21,691,553	-	Monthly	95 days
Real estate funds (4)					
JPMCB Strategic Property Fund	7,380,780	7,105,673	-	Quarterly	45 days
PRISA Separate Account	6,776,585	6,334,581	-	Quarterly	90 days
Short-term investment (5)					
BNY Mellon EB Temporary Investment Fund	4,410,867	5,574,696	-	Daily	N/A
Total investments measured at net asset value	$ 93,515,003	$ 90,365,514			

Note 6: Fair Value Measurements (continued)

(1) Collective international equity funds - The funds' investment objectives are 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 international and emerging market countries. The fair values of the investments in the funds have 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) Hedge fund - The fund was organized for the primary purpose of developing and actively managing an investment portfolio of non-traditional portfolio managers. The fair value of the investment in the fund has been determined using the NAV per share of the investment.

(4) Real estate funds - These investments include a commingled pension trust fund and an insurance company separate account that are both 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.

(5) 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 7: 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 96 days for 2018 and 102 days for 2017; however, any loan may be terminated on demand by either the Plan or the borrower. Cash collateral is invested in a separately managed portfolio, which had an average weighted maturity at December 31, 2018 and 2017 of 1 and 2 days, respectively.

As of December 31, 2018 and 2017, the fair value (carrying amount) of loaned securities was $6,293,648 and $10,775,607 respectively. As of December 31, 2018 and 2017, the fair value (carrying amount) of cash collateral received by the Plan was $1,908,473 and $5,865,002 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, 2018 and 2017, the fair value (carrying amount) of noncash collateral received by the Plan was $4,574,747 and $5,178,759 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 7: Securities Lending (continued)

A summary of securities loaned at fair value as of December 31, 2018 and 2017 is as follows:

	2018	2017
Securities loaned - backed by cash collateral		
U.S. and international equities	$ 1,210,993	$ 2,265,059
Exchange traded funds	602,013	3,462,160
Total securities loaned -backed by cash collateral	1,813,006	5,727,219
Securities loaned - backed by non-cash collateral		
U.S. and international equities	4,480,642	5,048,388
Total securities loaned - backed by non-cash collateral	4,480,642	5,048,388
Total	$ 6,293,648	$ 10,775,607

Note 8: 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. The PGHBP provides a healthcare benefit to annuitants of the Forest Preserve District of Cook County, Illinois (the employer) who elect to participate in the PGHBP.

At December 31, 2018 and 2017, participants consisted of the following:

	2018	2017
Active members	536	548
Inactive plan members or beneficiaries currently receiving benefit payments	356	349
Inactive plan members entitled to but not yet receiving benefit payments	33	30
Total	925	927

Note 8: Employer's Postemployment Healthcare Liability (continued)

Plan Description (continued)

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 38% - 48% and 51% - 61% 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, 2018 and 2017 were as follows:

	2018	2017
Total postemployment healthcare liability	$ 35,850,239	$ 49,170,148
Plan fiduciary net position	-	-
Employer's net postemployment healthcare liability	35,850,239	49,170,148
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 8: Employer's Postemployment Healthcare Liability (continued)

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

Actuarial valuation date	December 31, 2018	December 31, 2017
Actuarial cost method	Entry Age Normal	Entry Age Normal
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	2017 - RP-2014 Blue Collar Mortality Table, base year 2006, Buck Modified MP-2017 projection scale	2017 - RP-2014 Blue Collar Mortality Table, base year 2006, Buck Modified MP-2017 projection scale

The actuarial assumptions used in the December 31, 2018 and 2017 valuation were based on the results of an actuarial experience study conducted by Buck (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, 2018 and 2017 was 4.13% and 3.16% 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 4.13% and 3.16% at December 31, 2018 and 2017, 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 8: 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, 2018 and 2017. 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	Current Discount Rate	1% Increase
	3.13%	4.13%	5.13%
Net postemployment healthcare liability as of December 31, 2018	$ 41,863,281	$ 35,850,239	$ 31,047,940

	1% Decrease	Current Discount Rate	1% Increase
	2.16%	3.16%	4.16%
Net postemployment healthcare liability as of December 31, 2017	$ 57,652,626	$ 49,170,148	$ 42,430,686

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, 2018 and 2017. 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, 2018	$ 30,416,653	$ 35,850,239	$ 42,881,818

	1% Decrease	Health Care Cost Trend Rate	1% Increase
Net postemployment healthcare liability as of December 31, 2017	$ 41,718,370	$ 49,170,148	$ 58,862,959

Note 9: Related Party Transactions

The Plan has common Trustees and shares office space with the Cook County Fund. The Plan reimburses the Cook County Fund for shared administrative services provided by the Cook County Fund. During the years ended December 31, 2018 and 2017, the Cook County Fund allocated administrative expenditures of $99,627 and 109,430 respectively.

As of December 31, 2018 and 2017, the Plan owes the Cook County Fund $381,010 and $359,334 respectively. These amounts include plan transfers of Plan members transferring from one plan to another.

Note 10: Pronouncements Issued Not Yet Effective

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, 2019.

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, 2019.

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, 2020.

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, 2019.

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, 2020.

Note 10: Pronouncements Issued Not Yet Effective (continued)

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, 2019.

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, 2021.

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

Note 11: Subsequent Event

The Cook County Fund 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 Cook County Fund, 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 Cook County Fund. The Cook County Fund has not yet determined what, if any, further legal action it intends to take and no reasonable estimate of the financial impact arising out of the decision can be made on the Fund at this time.

Required Supplementary Information - Pension

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

	2018
Total pension liability	
Service cost	$ 9,426,212
Interest	19,182,488
Difference between expected and actual experience	608,525
Changes of assumptions	(26,452,372)
Expected benefit payments, including refunds of employee contributions	(17,817,279)
Net change in total pension liability	(15,052,426)
Total pension liability	
Beginning of year	430,452,619
End of year	$ 415,400,193
Plan fiduciary net position	
Contributions - employer	$ 3,481,281
Contributions - employee	3,127,980
Net investment income	(8,422,851)
Expected benefit payments, including refunds of employee contributions	(17,817,279)
Administrative expenses	(159,489)
Other	(182,512)
Net change in plan fiduciary net position	(19,972,870)
Plan fiduciary net position	
Beginning of year	210,370,946
End of year	$ 190,398,076
Employer's net pension liability	$ 225,002,117
Plan fiduciary net position as a percentage of the total pension liability	45.83%
Covered payroll	$ 34,071,319
Employer's net pension liability as a percentage of covered payroll	660.39%

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

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

	2017
Total pension liability	
Service cost	$ 10,698,297
Interest	20,384,471
Difference between expected and actual experience	(1,344,952)
Changes of assumptions	(21,473,767)
Expected benefit payments, including refunds of employee contributions	(16,670,896)
Net change in total pension liability	(8,406,847)
Total pension liability	
Beginning of year	438,859,466
End of year	$ 430,452,619
Plan fiduciary net position	
Contributions - employer	$ 2,239,632
Contributions - employee	3,300,222
Net investment income	30,500,015
Expected benefit payments, including refunds of employee contributions	(16,670,896)
Administrative expenses	(160,418)
Other	(40,007)
Net change in plan fiduciary net position	19,168,548
Plan fiduciary net position	
Beginning of year	191,202,398
End of year	$ 210,370,946
Employer's net pension liability	$ 220,081,673
Plan fiduciary net position as a percentage of the total pension liability	48.87%
Covered payroll	$ 35,078,173
Employer's net pension liability as a percentage of covered payroll	627.40%

Note:

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

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

	2016
Total pension liability	
Service cost	$ 11,224,976
Interest	19,482,189
Difference between expected and actual experience	(6,776,942)
Changes of assumptions	(26,186,535)
Expected benefit payments, including refunds of employee contributions	(16,462,185)
Net change in total pension liability	(18,718,497)
Total pension liability	
Beginning of year	457,577,963
End of year	$ 438,859,466
Plan fiduciary net position	
Contributions - employer	$ 1,971,946
Contributions - employee	3,184,051
Net investment income	10,477,792
Expected benefit payments, including refunds of employee contributions	(16,462,185)
Administrative expenses	(157,577)
Other	(133,999)
Net change in plan fiduciary net position	(1,119,972)
Plan fiduciary net position	
Beginning of year	192,322,370
End of year	$ 191,202,398
Employer's net pension liability	$ 247,657,068
Plan fiduciary net position as a percentage of the total pension liability	43.57%
Covered payroll	$ 34,509,011
Employer's net pension liability as a percentage of covered payroll	717.66%

Note:

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

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

	2015
Total pension liability	
Service cost	$ 9,656,955
Interest	19,471,424
Difference between expected and actual experience	(270,033)
Changes of assumptions	28,495,220
Expected benefit payments, including refunds of employee contributions	(15,920,776)
Net change in total pension liability	41,432,790
Total pension liability	
Beginning of year	416,145,173
End of year	$ 457,577,963
Plan fiduciary net position	
Contributions - employer	$ 1,763,345
Contributions - employee	2,771,533
Net investment income	2,549,975
Expected benefit payments, including refunds of employee contributions	(15,920,776)
Administrative expenses	(143,953)
Other	(6,928)
Net change in plan fiduciary net position	(8,986,804)
Plan fiduciary net position	
Beginning of year	201,309,174
End of year	$ 192,322,370
Employer's net pension liability	$ 265,255,593
Plan fiduciary net position as a percentage of the total pension liability	42.03%
Covered payroll	$ 32,007,657
Employer's net pension liability as a percentage of covered payroll	828.73%

Note:

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

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

		2014
Total pension liability		
Service cost	$	9,575,195
Interest		18,880,782
Difference between expected and actual experience		-
Changes of assumptions		-
Expected benefit payments, including refunds of employee contributions		(15,805,217)
Net change in total pension liability		12,650,760
Total pension liability		
Beginning of year		403,494,413
End of year	$	416,145,173
Plan fiduciary net position		
Contributions - employer	$	1,520,316
Contributions - employee		2,645,164
Net investment income		13,525,606
Expected benefit payments, including refunds of employee contributions		(15,805,217)
Administrative expenses		(142,067)
Other		(175,370)
Net change in plan fiduciary net position		1,568,432
Plan fiduciary net position		
Beginning of year		199,740,742
End of year	$	201,309,174
Employer's net pension liability	$	214,835,999
Plan fiduciary net position as a percentage of the total pension liability		48.37%
Covered payroll	$	29,811,912
Employer's net pension liability as a percentage of covered payroll		720.64%

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

Schedule of Employer Contributions and Related Notes

Last Ten Fiscal Years

	2018	2017	2016	2015	2014
Actuarially determined contribution	$ 10,678,782	$ 10,230,872	$ 10,166,661	$ 10,921,946	$ 9,608,247
Contributions in relation to the actuarially determined contribution	(3,481,281)	(2,242,489)	(1,971,946)	(1,763,345)	(1,520,316)
Contribution deficiency	$ 7,197,501	$ 7,988,383	$ 8,194,715	$ 9,158,601	$ 8,087,931
Covered payroll	$ 34,071,319	$ 35,078,173	$ 34,509,011	$ 32,007,657	$ 29,811,912
Contributions as a percentage of covered payroll	10.22%	6.39%	5.71%	5.51%	5.10%

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, 2018
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	3.5% to 8.0%, 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.

Schedule of Employer Contributions and Related Notes (continued)

Last Ten Fiscal Years

	2013	2012	2011	2010	2009
Actuarially determined contribution	$ 8,590,721	$ 7,626,778	$ 4,498,036	$ 3,329,502	$ 2,809,494
Contributions in relation to the actuarially determined contribution	(1,403,628)	(2,117,976)	(2,457,405)	(1,333,140)	(1,282,642)
Contribution deficiency	$ 7,187,093	$ $5,508,802	$ 2,040,631	$ 1,996,362	$ 1,526,852
Covered payroll	$ 29,485,857	$ 26,252,071	$ 22,678,566	$ 24,397,376	$ 24,967,115
Contributions as a percentage of covered payroll	4.76%	8.07%	10.84%	5.46%	5.1%

Schedule of Investment Returns

	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expense	-4.31%	16.58%	5.67%	1.50%	7.10%

Note:

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

Required Supplementary Information - Postemployment Healthcare

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

	2018	2017
Total postemployment healthcare liability		
Service cost	$ 2,197,459	$ 2,349,531
Interest	1,613,714	1,937,384
Changes in benefit terms	(7,184,763)	(1,738,947)
Difference between expected and actual experience	(2,029,921)	(611,268)
Changes of assumptions	(7,310,288)	(1,979,137)
Benefit payments	(606,110)	(1,305,075)
Net change in total postemployment healthcare liability	(13,319,909)	(1,347,512)
Total postemployment healthcare liability		
Beginning of year	49,170,148	50,517,660
End of year	$ 35,850,239	$ 49,170,148
Plan fiduciary net position		
Contributions - employer	$ 606,110	$ 1,305,075
Benefit payments - net	(606,110)	(1,305,075)
Net change in plan fiduciary net position	-	-
Plan fiduciary net position		
Beginning of year	-	-
End of year	$ -	$ -
Employer's net postemployment healthcare liability	$ 35,850,239	$ 49,170,148
Plan fiduciary net position as a percentage of the total postemployment healthcare liability	0.00%	0.00%
Covered payroll	$ 34,071,319	$ 35,078,173
Employer's net postemployment healthcare liability as a percentage of covered payroll	105.22%	140.17%

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

Schedule of Employer Contributions and Related Notes

Last Ten Fiscal Years

	2018	2017	2016	2015	2014
Actuarially determined contribution	$ 3,353,628	$ $4,681,598	$ 5,099,567	$ 4,637,519	$ 4,641,151
Contributions in relation to the actuarially determined contribution	(606,110)	(1,305,075)	(1,419,435)	(1,698,692)	(1,616,436)
Contribution deficiency	$ 2,747,518	$ 3,376,523	$ 3,680,132	$ 2,938,827	$ 3,024,715
Covered payroll	$ 34,071,319	$ 35,078,173	$ 34,512,652	$ 32,007,657	$ 29,811,912
Contributions as a percentage of covered payroll	1.78%	3.72%	4.11%	5.31%	5.42%

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, 2018
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	3.5 % to 8.0%, 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	0RP-2014 Blue Collar Mortality Table, base year 2006, Buck Modified MP-2017 projection scale

Schedule of Employer Contributions and Related Notes (continued)

Last Ten Fiscal Years

	2013	2012	2011	2010	2009
Actuarially determined contribution	$ 4,234,545	$ 3,541,064	$ $3,830,933	$ 3,876,537	$ 3,490,173
Contributions in relation to the actuarially determined contribution	(1,459,517)	(991,000)	(798,204)	(1,326,894)	(1,261,052)
Contribution deficiency	$ 2,775,028	$ 2,550,064	$ 3,032,729	$ 2,549,643	$ 2,229,121
Covered payroll	$ 29,485,857	$ 26,252,071	$ 22,678,566	$ 24,397,376	$ 24,967,115
Contributions as a percentage of covered payroll	4.95%	3.77%	3.52%	5.44%	5.05%

Supplementary Information

Schedules of Net Administrative Expenses and Professional and Consulting Fees

Years Ended December 31, 2018 and 2017

	2018	2017
Administrative expenses		
Administrative expenses allocated from County Employees' and Officers' Annuity and Benefit Fund of Cook County	$ 99,627	$ 109,430
Affordable care insurance fee	857	2,857
Bank charges	10,156	9,911
Election expense	-	2,296
Membership	1,435	435
Professional and consulting fees	39,414	30,346
Regulatory filing fees	8,000	8,000
Total	$ 159,489	$ 163,275
Professional and consulting fees		
Actuarial service	$ 3,104	$ 2,300
Audit	27,930	21,100
Consulting	2,736	2,045
Legal	4,712	3,989
Lobbyist	932	912
Total	$ 39,414	$ 30,346

Schedules of Investment Expenses

Years Ended December 31, 2018 and 2017

	2018	2017
Investment manager expense		
Blackstone Alternative Asset Management	$ 223,907	$ 213,582
Channing Capital Management	68,194	85,300
Garcia Hamilton & Associates, L.P.	11,251	-
J.P. Morgan Asset Management	58,004	60,197
Lazard Asset Management, LLC	98,891	110,586
LM Capital Group, LLC	-	10,073
Mellon Capital	7,360	7,102
Prudential Real Estate Investors	52,615	49,186
RhumbLine Advisers	3,426	3,178
State Street Global Advisors	2,213	-
William Blair & Company	106,791	118,898
Total investment manager expenses	632,652	658,102
Investment consulting fees		
Callan Associates Inc.	8,689	8,997
Investment custodian fees		
BNY Mellon	9,001	7,200
Total investment expenses	$ 650,342	$ 674,299

Additions by Source

Year Ended December 31,	Employer Contributions	Employee Contributions	Net Investment and Net Securities Lending Income (1)	Other (2)	Total Additions
2013	$ 2,863,145	$ 2,687,211	$ 30,383,512	$ 159,383	$ 36,093,251
2014	$ 3,136,752	$ 2,645,164	$ 13,525,606	$ 204,853	$ 19,512,375
2015	$ 3,462,037	$ 2,771,533	$ $2,549,975	$ 240,278	$ 9,023,823
2016	$ 3,391,381	$ 3,184,051	$ 10,477,792	$ 317,217	$ 17,370,441
2017	$ 3,544,707	$ 3,300,222	$ 30,500,015	$ 598,522	$ 37,943,466
2018	$ 4,087,391	$ 3,127,980	$ (8,422,851)	$ 946,166	$ (261,314)

Deductions by Type

Year Ended December 31,	Benefits	Refunds	Employee Transfers to (from) Cook County Fund	Administrative Expenses	Total Deductions
2013	$ 15,668,207	$ 958,707	$ (106,012)	$ 119,019	$ 16,639,921
2014	$ 16,664,869	$ 961,637	$ 175,370	$ 142,067	$ 17,943,943
2015	$ 17,212,396	$ 635,908	$ 18,370	$ 143,953	$ 18,010,627
2016	$ 17,458,251	$ 740,586	$ 133,999	$ 157,577	$ 18,490,413
2017	$ 18,002,969	$ 554,417	$ 54,257	$ 163,275	$ 18,774,918
2018	$ 18,286,045	$ 1,083,510	$ 182,512	$ 159,489	$ 19,711,556

1 - Includes realized and unrealized net gain or loss on investments and net securities lending income.
2 - Includes EGWP/Medicare Part D, prescription plan rebates and miscellaneous income.

Schedule of Employer Contributions Receivable

December 31, 2018

Contribution Year	Contributions Receivable	Uncollected Balance	Reserved	Net Contributions Receivable
2017	$ -	$ -	$ -	$ -
2018	$ 4,139,266	$ 4,139,266	$ 111,748	$ 4,027,518
		$ 4,139,266	$ 111,748	$ 4,027,518

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

This page is intentionally left blank.

Investment Section

This section includes an investment report, Investment Consultant's Commentary, the Master Custodian's Certification, a summary of investment policy, and summary tables of investment data.

Investment Report

June 17, 2019

To the Retirement Board and Our Members:

As an institutional investor, the Forest Preserve District Employees' 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 Associates, the Retirement Board oversees the investment strategy through ongoing study of the portfolio structure, return assumptions, and projected funding needs.

In 2018, the Fund experienced a challenging investment year, returning -4.31% and trailing its custom benchmark, net of investment management fees. During that period, investments lost $8.3 million for the Fund and reduced plan assets by 9.9% to $186.6 million by December 31, 2018. A volatile financial market in the fourth quarter led active management and asset allocation to detract from performance. However, the Fund's longer term investments in real estate, and hedge funds all contributed positively to the full year return.

In the absence of a sustainable funding solution to ensure the Fund's viability, $12.2 million in investment earnings were liquidated in 2018 to help fund $18.3 million in benefit payments for that period.

The Consultant's Commentary; Master Custodian's certification letter; a summary of the Fund's goals, objectives, and guidelines; 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

120 North LaSalle Street
Suite 2400
Chicago, IL 60602

Main 312.346.3536
Fax 312.346.1356

www.callan.com

June 17, 2019

Board of Trustees
Forest Preserve District Employees' 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 Forest Preserve District Employees' Annuity and Benefit Fund of Cook County ("Fund") results for fiscal year ended December 31, 2018. As of year-end, the Fund reported a fair value of $186.6 million, a decrease of approximately $20.5 million since December 31, 2017. This decrease included approximately $12.2 million in net withdrawals.

Investors' appetite for risk, while elevated for much of 2018, evaporated as the year drew to a close and wiped out positive returns for the year across broad asset classes (T-bills being a notable exception). U.S Equity markets as measured by the S&P 500 Index experienced the first negative year since 2008. Concerns over tighter monetary policy and the global withdrawal of stimulus measures, unresolved trade disputes, falling oil prices, slower global growth, and softer data in some U.S. indicators overshadowed other robust aspects of the domestic economy. U.S. Treasury prices rose, expectations for Fed hikes in 2019 dissipated, and the S&P 500 had its worst December since 1931. Market sentiment clearly reflected the "glass half empty" viewpoint, with the S&P 500 at one point falling nearly 20% from a record level hit only a few months earlier. Meanwhile, the "safe haven" status of U.S. Treasuries attracted investors and pushed yields lower—the yield of the 10-year Treasury dropped 55 bps from a multi-year high of 3.24% reached in early November to close the year at 2.69%.

For the year, the stock market reached new highs and gave it all back by the end of December. As spring approached, growth in equities began to pick up steam, leading to record highs in several of the benchmark indexes during the summer months. However, volatility reemerged in the fall, followed by a brief respite, and resumed in December. Larger capitalization securities outperformed smaller capitalization securities by a substantial margin. For the year, the S&P 500 Index fell (-4.4%) while small cap stocks experienced a greater downturn (-11.0%). Non-U.S. developed equity market investments also suffered as measured by the MSCI EAFE Index (-13.8%). U.S. investors were hurt by a strengthening dollar that detracted from $USD returns. Emerging markets were also negative for the year (-14.6%).

The negative total return of US 10-year Treasuries reflected the increase in the yield, which rose from 2.41% to 2.69% between the start of the year and the end of December. Strong growth, wage inflation, rate hikes and a seemingly more hawkish Federal Reserve chair all contributed to persistent upward pressure on yields. The significant 3% yield level was broken in September and remained above that level until early December when risk aversion returned. The return on the Bloomberg Barclays U.S. Aggregate Bond Index was flat for the year as the Fed increased the short-term rate four times, but took on a more dovish tone in December.

Callan

Real Estate returns were steady once again in 2018 as the NCREIF Open End Diversified Core Equity Index (ODCE value weighted net) produced a +7.36% return. U.S. core real estate returns continue to shift toward income with limited appreciation.

As noted in the Schedule of Investment Results, the Fund generated a total return of -4.31% net-of-fees for the year ended December 31, 2018, which trailed the -4.17% return of the Fund's target benchmark (the Policy Benchmark). In aggregate, the Fund's allocation to non-U.S. equity exceeded its benchmark, while domestic equity, fixed income, real estate, and hedge fund investments trailed. For the last five years, the Fund return exceeded that of the target benchmark.

Sincerely,

John P. Jackson

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

Master Custodian's Certification

BNY MELLON

Asset Servicing

Michael J. Beggy
Vice President

June 17, 2019

To the Board of Trustees and the Executive Director of the Forest Preserve District Employees Annuity and Benefit Fund:

BNY Mellon as custodian of the Forest Preserve District Employees Annuity And Benefit Fund (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, 2018 through December 31, 2018.

In addition, in accordance with the terms of the Custody Agreement dated, October 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
Relationship Executive

Summary of Investment Policy

Overview

Under the guidance and direction of the Board and governed by the "prudent man rule," it is the mission of the Forest Preserve District Employees' Annuity and Benefit Fund ("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.

To accomplish this mission, the Board and Investment Staff understand and accept their fiduciary obligations to the members of the Fund. These obligations are legal in nature and are outlined in the Illinois Pension Code [40 ILCS 5]. 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.

Investment Objectives

The primary return objectives of the Fund are to:

- Preserve the safety of principal.
- Exceed, after investment management fees, a customized blended benchmark consistent with prudent levels of risk.
- Create a stream of investment returns to ensure the systematic and adequate funding of actuarially determined benefits through contributions and professional management of Fund assets.

To achieve these objectives, the assets of the Fund have been allocated to meet its actuarial assumed rate of return of 7.25%. To evaluate success, the Board compares the performance of the Fund to the actuarial assumed rate of return and its custom benchmark. This benchmark represents a passive implementation of the historical investment policy targets and it is rebalanced regularly.

While achieving the return objectives, the Fund is able to tolerate certain levels of risk, which are:

- To accept prudent levels of short-term and long-term volatility consistent with the near-term cash flow needs, funding level, and long-term liability structure of the Fund.
- To tolerate appropriate levels of downside risk relative to the Fund's actuarial assumed rate of return of 7.25%. In doing so, the Board will attempt to minimize the probability of underperforming the Fund's actuarial assumed rate of return over the long term and to minimize the shortfall in the event such underperformance occurs.
- To accept certain variances in the asset allocation structure of the Fund relative to the broad financial markets and peer groups.
- To tolerate certain levels of short-term underperformance by the Fund's Investment Managers.

The investment objectives of the Fund are constrained by applicable law, time, taxes and liquidity. The Fund will operate in accordance with applicable law, as amended. The Fund has a long-term time horizon as the assets are used to pay qualified participant pension benefits. The Fund is a tax-exempt entity, but can be subject to taxes involving unrelated business taxable income ("UBTI"). UBTI is income earned by a tax-exempt entity that does not result from tax-exempt activities. The Fund will attempt to minimize or to avoid incurring UBTI. The liquidity needs of the Fund are to meet the regular cash flow requirements of the Fund.

Asset Allocation and Rebalancing Procedures

The Board reviews the target asset allocation of the Fund at least once every three years. It will take into consideration applicable statutes, the actuarial rate of return of the Fund, the long term nature of the asset pool, the cash flow needs of the Fund and the general asset allocation structure of the Fund's peers. It will make assumptions on the capital markets over the long term and optimize the asset allocation to best meet the actuarial and cash flow needs of the Fund at prudent levels of risk.

The Board establishes the asset allocation targets and ranges and reviews them periodically. To ensure that the allocations meet the risk/return objectives of the Fund, the target allocations will be reviewed annually for reasonableness relative to significant economic market changes or changes to the long-term goals and objectives. Proper implementation of this guideline may require that a periodic adjustment or rebalancing be made to ensure conformance with asset allocation targets. Rebalancing requirements shall be reviewed on a continual basis. Rebalancing may also occur in the event of a change in the allocation percentages by asset class by the Board or as a result of extraordinary market events. Rebalancing shall take place as soon as practical after said change or amendment has been approved.

Schedule of Investment Results

	For the Year End December 31, 2018	Annualized Returns 3 Years	5 Years
Total Fund	-4.31%	5.64%	5.04%
Target Benchmark *	-4.17%	6.05%	4.89%
Domestic Equity	-5.93%	8.38%	7.62%
Russell 3000	-5.24%	9.07%	7.73%
International Equity	-11.50%	4.69%	2.65%
MSCI ACWI ex. U.S.	-14.20%	4.48%	0.68%
Fixed Income	-0.11%	1.89%	2.45%
BloomBarc Aggregate	0.01%	2.06%	2.52%
Real Estate	6.28%	6.95%	7.89%
NFI-ODCE Value Weight Net	7.36%	7.27%	9.41%
Hedge Funds	3%	4.19%	4.79%
Libor-3 Month+4%	6.35%	5.45%	4.97%

**The Policy Benchmark is as follows:*

-As of December 31, 2016, 2017 & 2018: 32.0% Russell 3000 Index, 27.0% MSCI ACWI ex. U.S., 21.0% BloomBarc Aggregate Index, 10.0% LIBOR-3 Month+4.0%, 9.0% NFI-ODCE Value Weight Net and 1.0% 3-month Treasury Bill.

-As of December 31, 2014 & 2015: 29% Barclays Aggregate, 23% MSCI ACWI ex. U.S., 21% S&P 500, 9% Russell 2500, 9% Libor-3 Month+4% and 9% NCREIF.

Notes: Returns are calculated using time and asset-weighted returns.
Returns are calculated net of investment manager fees.

Schedule of Investment Summary and Asset Allocation

	For Year Ended December 31, 2018				For Year Ended December 31, 2017			
Asset Class		Fair Value	Percent of Total	Target		Fair Value	Percent of Total	Target
Domestic Equity	$	61,500,814	33%	32%	$	69,671,257	37%	32%
International Equity		45,874,904	25%	27%		57,351,043	31%	27%
Fixed Income		37,740,899	20%	21%		35,051,663	19%	21%
Real Estate		15,065,295	8%	9%		17,755,917	10%	9%
Hedge Funds of Funds		22,287,105	12%	10%		21,691,553	12%	10%
Short-term investments		4,140,867	2%	1%		5,574,696	3%	1%
Total Investments	$	186,609,884	100%	100%	$	207,096,129	111%	100%

Schedule of Top Ten Largest Holdings (Excludes Commingled Funds)

For year ended December 31, 2018

Top 10 Domestic Equity Holdings	Sector	Shares	Fair Value	% of Total
Microsoft Corp.	Technology	17,064	$ 1,733,190	2.8%
Apple Inc.	Technology	9,977	1,573,772	2.6%
Alphabet Inc.	Technology	1,339	1,392,853	2.3%
Amazon.com Inc.	Technology	908	1,363,789	2.2%
Berkshire Hathaway Inc	Insurance	4,295	876,953	1.4%
Johnson & Johnson	Pharmaceuticals	5,921	764,105	1.2%
Accenture	Technology	5,330	751,583	1.2%
JP Morgan Chase & Co.	Financial Services	7,345	717,019	1.2%
Facebook Inc.	Technology	5,302	695,039	1.1%
Medtronic PLC	Pharmaceuticals	7,010	637,630	1.0%
Total Top 10 Domestic Equity Holdings		64,491	$ 10,505,933	17.1%
Total Domestic Equity			$ 61,500,814	100.0%

Top 10 International Equity Holdings	Sector	Shares	Fair Value	% of Total
Sampo OYJ (Finland)	Insurance	18,132	$ 796,147	1.7%
Vivendi SA (France)	Media	30,994	753,967	1.6%
Informa PLC (United Kingdom)	Publishing	89,316	716,871	1.6%
Diageo Plc. (United Kingdom)	Food and Beverages	19,662	699,911	1.5%
Relx Plc (United Kingdom)	Professional Services	32,166	662,225	1.4%
CAE Inc. (Canada)	Aero and Aircraft	35,970	660,776	1.4%
Novartis (Switzerland)	Pharmaceuticals	7,391	630,087	1.4%
Wolters Kluwer (Netherlands)	Media	10,551	623,091	1.4%
Rogers Communications (Canada)	Telecommunications	11,440	585,988	1.3%
Rio Tinto (United Kingdom)	Mining	11,807	560,895	1.2%
Total Top 10 International Equity Holdings		267,429	$ 6,689,957	14.6%
Total International Equity			$ 21,855,890	100.0%

Schedule of Top Ten Largest Holdings
(Excludes Commingled Funds) (continued)

For year ended December 31, 2018				
Top 10 Fixed Income Holdings	**Sector**	**Par**	**Fair Value**	**% of Total**
U.S Treasury Note 2.000 % 10/31/2022	U.S. Government	1,435,000	1,409,557	3.7%
Federal Home Loan 2.633% 7/5/2019	Federal Agencies	935,000	934,935	2.5%
Federal Home Loan 2.616% 6/12/2019	Federal Agencies	820,000	820,189	2.2%
Federal Farm Credit 2.434% 5/24/2019	Federal Agencies	820,000	819,951	2.2%
Federal Home Loan 2.630% 7/5/2019	Federal Agencies	815,000	815,008	2.2%
U.S Treasury Note 2.000 % 11/15/2021	U.S. Government	525,000	518,212	1.4%
Berkshire Hathaway Finance Corporation 3.478% 3/15/2019	Financial Services	360,000	360,313	1.0%
Branch Banking and Trust Co. 3.237% 1/15/2020	Banks	360,000	359,798	1.0%
JP Morgan Change and Co. 4.218% 3/1/2021	Financial Services	350,000	354,487	0.9%
Total Top 10 Fixed Income Holdings		8,440,410	$ 6,392,450	93.5%
Total Fixed Income			$ 8,830,247	100.0%

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

Schedule of Investment Manager Fees and Assets Under Management

For year ended December 31, 2018

Asset Category		Investment Manager Fees		Assets Under Management
U.S. and International Equity				
Channing Capital Management	$	68,194	$	6,575,028
Lazard Asset Management, LLC		98,891		31,418,794
RhumbLine Advisers		3,426		46,463,967
State Street Global Advisors		2,213		16,649,300
William Blair & Company		106,791		6,268,629
Total U.S. and International Equity	$	279,515	$	107,375,718
Fixed Income				
Garcia Hamilton & Associates, L.P.	$	11,251	$	8,830,247
Mellon Capital (Commingled)		7,360		28,910,652
Total Fixed Income		18,611		37,740,899
Real Estate				
J.P. Morgan Asset Management	$	58,004	$	7,380,780
Prudential Real Estate Investors		52,615		6,776,585
Total Real Estate	$	110,619	$	14,157,365
Exchange Traded Funds				
Russell Implementation Services Inc.*	$	-	$	907,930
Total Exchange Trade Funds	$	-	$	907,930
Hedge Funds of Funds				
Blackstone Alternative Asset Management	$	223,907	$	22,287,105
Total Hedge Fund	$	223,907	$	22,287,105
Short-Term Investments				
BNY Mellon*	$	-	$	4,140,867
Total	$	632,652	$	186,609,884

**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, 2018

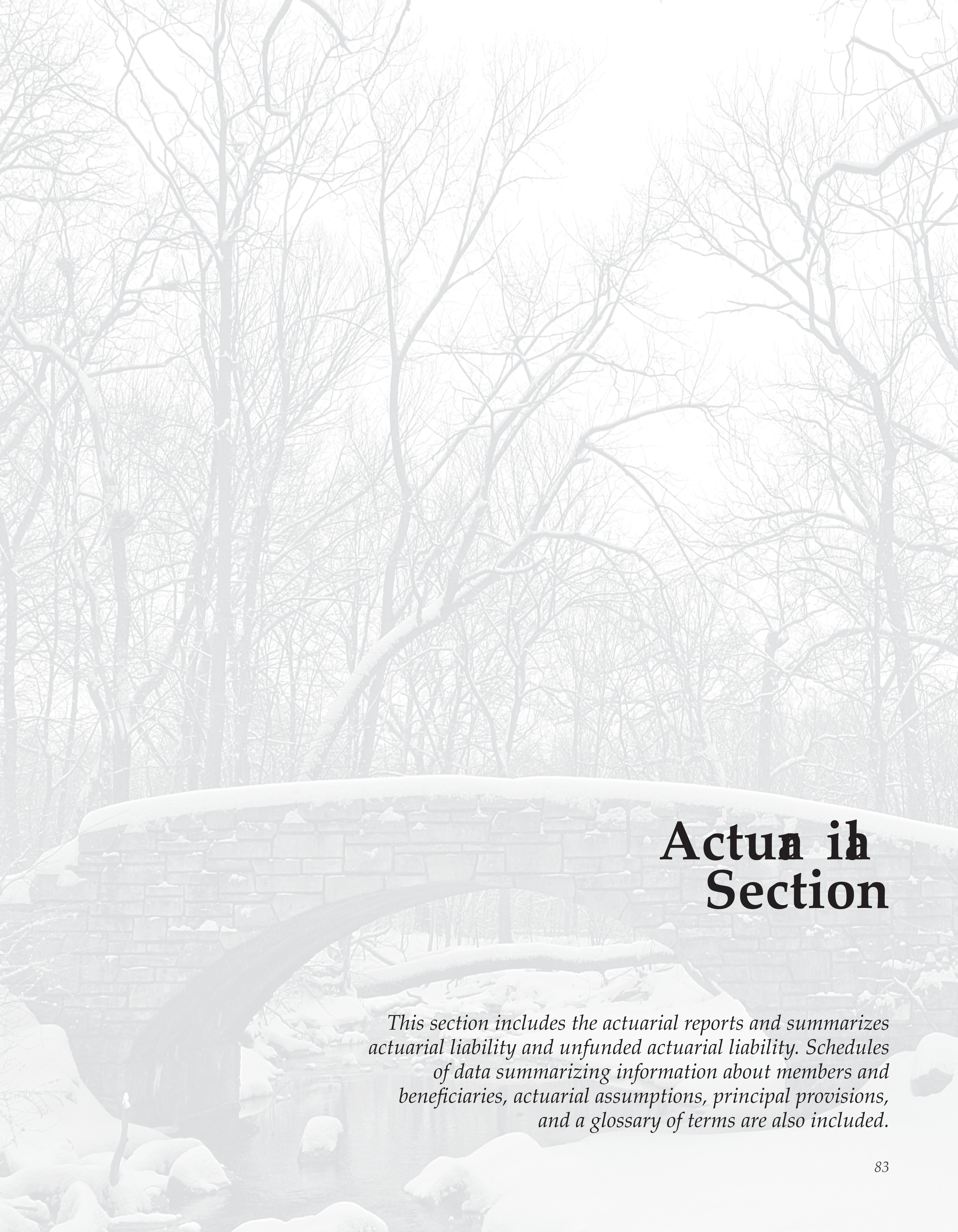
Broker Name	Number of Shares	Commissions	Cost per Share
Domestic Equity Commissions			
Mischler Financial Group, Inc.*	64,790	$ 1,878	$ 0.029
Penserra Securities*	62,692	1,376	0.022
Loop Capital Markets, LLC*	59,778	1,352	0.023
Baird, Robert W & Co Inc.	37,558	1,237	0.033
Williams Capital Group LP*	41,197	895	0.022
Goldman Sachs & Co.	21,870	747	0.034
Bernstein Sanford C & Co	17,809	538	0.030
JP Morgan Securities Inc.	18,242	503	0.028
UBS Securities, LLC	16,278	500	0.031
Credit Suisse	13,699	469	0.034
Liquidnet Inc.	19,733	468	0.024
Seaport Group Securities, LLC.	14,527	436	0.030
Instinet Clearing Ser Inc.	20,536	406	0.020
Brokers with <$400 of Commissions	123,502	3,230	0.026
Total Domestic Equity Commissions	532,211	$ 14,035	$ 0.026

** Women/minority-owned brokerage firm. The Retirement Board's brokerage policy encourages investment manager, 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, 2018			
	Number of Shares	Commissions	Cost per Share
International Equity Commissions			
HSBC Bank PLC	3,644	$ 3,473	$ 0.953
Barclays Capital	439,362	2,581	0.006
Credit Suisse	92,618	2,266	0.024
Deutsche Bank Securities, Inc.	200,070	2,251	0.011
Loop Capital Markets, LLC*	131,251	2,155	0.016
Morgan Stanley & Co Inc.	94,360	2,142	0.023
Goldman Sachs & Co.	93,657	1,690	0.018
RBC Dominion Security Services	168,620	1,662	0.010
Merrill Lynch Securities	91,873	1,583	0.017
Citigroup Global Markets, LTD	212,199	1,582	0.007
Instinet Europe Limited	185,072	1,325	0.007
Penserra Securities*	49,510	1,061	0.021
JP Morgan Securities Inc.	36,312	1,035	0.028
Brokers with <$1,000 of Commissions	324,103	8,135	0.025
Total International Equity Commissions	2,122,651	$ 32,942	$ 0.016

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

This page is intentionally left blank.



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, principal provisions, and a glossary of terms are also included.

Actuarial Certification – Pension Benefits

June 6, 2019

Board of Trustees
Forest Preserve District Employees' Annuity and Benefit Fund of Cook County
Chicago, Illinois

RE: December 31, 2018 Actuarial Valuation

Ladies and Gentlemen:

In accordance with your request, we have completed an actuarial valuation of the Forest Preserve District Employees' Annuity and Benefit Fund of Cook County ("FPEABF" or "the Fund") as of December 31, 2018. 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 FPEABF'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 Plan, the FPEABF was established on July 1, 1931 and is governed by legislation contained in the Illinois Compiled statutes, particularly Chapter 40, as amended and restated effective December 31, 2018. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All exhibits, except Summary of Fair Value of Assets and Change 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 FPEABF's funded status); and changes in plan 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 FPEABF is funded by Employer and Member Contributions. The Forest Preserve 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 1.30. This funding mechanism is insufficient to meet the needs of the FPEABF. We project that the FPEABF will become insolvent in 2037. We recommend that a funding policy be legislated that is sufficient to pay the Normal Costs of active Plan members, Plan 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 established practice is to review the experience of the FPEABF at least once every five 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 115.

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, 2018, based on valuation dates of December 31, 2017 and December 31, 2018.

The actuary prepared, or assisted in preparing, the following supporting information for the Comprehensive Annual Financial Reporting:

- Comparative Summary of Key Actuarial Valuation ResultsActuarial 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
- Actuarial Value of Assets
- Schedule of Changes in Net Pension Liability
- Net Pension Liability
- 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 consultants 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 the independent consulting actuaries 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 plan 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 Appendix C.

Respectfully submitted,

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

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

Wendy T. Ludbrook, FSA, EA, MAAA Senior Actuary
Actuarial Valuation – Pension Benefits

This page is intentionally left blank.

Actuarial Valuation – Pension Benefits

Overview

The Forest Preserve District Employees' Annuity and Benefit Fund of Cook County ("FPEABF" or "the Fund") provides pension and ancillary benefit payments to the active, retired and separated employees of the Forest Preserve District. A Retirement Board comprised of retiree, employee, and appointed representatives is responsible for administering the Plan and providing oversight of the investment policy. This report presents the results of the actuarial valuation of the Plan benefits as of the valuation date of December 31, 2018.

Purpose

An actuarial valuation is performed on the Plan 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 Data

Actives: As of December 31, 2018, there were 536 employees in active service (including 2 on disability) covered under the provisions of the Plan. 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, 2018	December 31, 2017
Number of active employees	536	548
Average age	45.5	45.9
Average years of service	9.4	9.8
Total annual payroll for year ended	$ 34,071,319	$ 35,078,173
Average annual salary	63,566	64,011
Total accumulated contributions	$ 28,919,366	$ 28,911,383
Average accumulated contributions	53,954	52,758

The number of active members decreased by 2.2% from the previous valuation date. The average age of the active members decreased by 0.4 years, and the average service decreased by 0.4 years. The total annual salary decreased by 2.9%. The average salary decreased by 0.7% from the previous valuation.

Membership Data (continued)

Disabilities: There were 2 disabled members (included in the active data). There were 3 disabilities in the prior year.

Retirees and Beneficiaries: In addition to the active members, there were 387 retired members and 144 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, 2018		December 31, 2017	
Number of members receiving payments				
Retirees		387		381
Beneficiaries		144		146
Total		531		527
Average age		72.0		72.0
Annual benefit amounts				
Retirees	$	14,226,132	$	13,426,824
Beneficiaries		2,833,179		2,681,524
Total	$	17,059,311	$	16,108,348
Average annual benefit payments	$	32,127	$	30,566

The number of retired members and beneficiaries increased by 0.8% from the previous valuation date. The average age of the retired members remained the same. The total annual benefit payments for these members increased by 5.9% from the previous valuation date.

Inactives: In addition to the active and retired members, there were 1,410 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, 2018	December 31, 2018
Number of inactive members	1,410	1,365
Average age	43.1	42.4

The number of inactive members increased by 3.3% from the previous valuation. The average age of the inactive members increased by 0.7 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.

Plan Assets

The Plan's assets are held in trust and invested for the exclusive benefit of Plan members. The trust is funded by member and employer contributions, and pays benefits directly to eligible members in accordance with Plan provisions. The assets are audited annually and are reported at fair value. On a fair value basis, the Plan has a Net Position Available for Benefits of $190.4 million as of December 31, 2018. This includes a decrease of $20.0 million from the Net Position Available for Benefits of $210.4 million as of December 31, 2017. During the prior year, the fair value of assets experienced an investment rate of return of -4.3% (net of investment expenses), as reported by the investment consultant.

In order to reduce the volatility investment gains and losses can have on the Plan'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, 2018, the assets available for benefits on an actuarial value basis were $202.9 million. This includes a decrease of $1.4 million over the actuarial value of assets of $204.3 million as of December 31, 2017. During 2018, the actuarial value of assets experienced an actuarial rate of return of 5.1% 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 102.

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 Plan experienced a total net actuarial loss of $5.9 million during the prior year. This net loss is about 2.0% of the Plan'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 Plan's population compared to the assumptions for decrements such as mortality, turnover, and retirement, as well as pay increases. The Plan experienced a demographic loss of $1.7 million during the year ending December 31, 2018. This loss increased the unfunded actuarial accrued liability by $1.7 million and decreased the funded ratio by 0.4%.

There were 457 active members who were also reported active in the December 31, 2017 actuarial valuation. The total salary for this group increased by 2.1%, which was lower than the 4.3% increase we expected for the group.

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 Plan liabilities and normal cost can be found beginning on page 110. 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, 2018 was reported to be -4.3%, which was lower than the assumed rate of 7.25%.

The Plan experienced a loss on an actuarial value of assets basis. The rate of return on the actuarial value of Plan assets for the year ending December 31, 2018 was approximately 5.1% compared to the assumption of 7.25%, resulting in an asset loss of $4.2 million. This loss increased the unfunded actuarial accrued liability by $4.2 million and decreased the funded ratio by 1.4%.

The rate of return on the fair value of assets for the year ending December 31, 2018 was lower than the assumed rate of 7.25%. The actuarial value of the assets recognizes only 20% of the 2018 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 Plan's assumed asset return of 7.25% during 2018 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 99.

Actuarial Contributions

The current contribution mechanism is not sufficient to fund the FPEABF in an actuarially sound manner. The Forest Preserve 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 1.30. This funding policy is insufficient to meet the needs of the FPEABF. We project that the FPEABF will become insolvent in 2037. We recommend that a funding policy be legislated that is sufficient to pay the Normal Costs of active Plan members, Plan 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 Plan. The expected member contributions are subtracted from this amount to determine the employer normal cost. The employer normal cost for 2019 has been determined to be $1.7 million, or 5.05% of pay. This represents a decrease in the employer normal cost rate of 2.51% of pay from last year's employer normal cost rate of 7.56%.

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 Plan 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 to determine the annual actuarially required employer contribution for the year.

Actuarial Contributions (continued)

The unfunded actuarial accrued liability as of December 31, 2018 is $110.1 million. This represents an increase of $12.2 million in the unfunded actuarial accrued liability from last year's amount of $97.9 million. The annual payment required to amortize the unfunded actuarial accrued liability of $110.1 million, over a period of 30 years, as of December 31, 2018 is $8.8 million, or 25.39% of pay.

The annual actuarially required employer contribution for 2019 is $10.5 million, or 30.44% of pay. This represents an increase of $0.3 million in the employer contribution amount of $10.2 million for 2018, or an increase of 1.37% of pay from last year's employer contribution rate of 29.07%.

The actuarial liabilities and development of the annual actuarial employer contribution is shown beginning on page 97.

In our opinion, the measurement of the benefit obligations and determination of the actuarial cost of the Plan 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 Plan 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 Plan that is ahead in funding, and a ratio of less than 100% represents a Plan that is behind in funding on the valuation date.

As of December 31, 2018 the funded ratio of the Plan is 64.82%. This represents a decrease of 2.77% from last year's funded ratio of 67.59% as of December 31, 2017.

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 plan 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 101.

Accounting Information

The Governmental Accounting Standards Board (GASB) issues statements which establish financial reporting standards for defined benefit pension Plans and accounting for the pension expenditures and expenses for governmental employers. The required financial reporting information for the Plan and the Employer under GASB No. 67 and 68 can be found beginning on page 101.

Changes in Plan Provisions

There were no changes in benefits or other Plan provisions considered in this actuarial valuation since the last valuation performed as of December 31, 2017.

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 115.

Change in Actuary

During 2018 Cook County retained Cavanaugh Macdonald as their actuary. The December 31, 2018 valuation is the first valuation completed by Cavanaugh Macdonald. During the transitioning of actuarial services to a new firm, a replication valuation is performed to ensure that we have properly programmed our valuation software to reflect the plan provisions and assumptions and to benchmark any difference between our results and the prior actuary's results. Based on the results of our replication, as of December 31, 2018 the Actuarial Accrued Liability increased $1.8M.

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

Comparative Summary of Key Actuarial Valuation Results
Actuarial Liabilites and Normal Cost

Priniciple Valuation Results

	Actuarial Valuation as of			
	December 31, 2018		December 31, 2017	
Summary of Member Data				
Number of Members Included in the Valuation:				
Active Members		536		548
Retirees and Beneficiaries		531		527
Inactive Members		1,410		1,365
Total		2,477		2,440
Annual Payroll				
Average	$	63,566	$	64,011
Annual Benefit Payments				
Retirees and Beneficiaries (Average) [1]	$	32,127	$	30,566
Investment Returns				
Fair Value Rate of Return (net of investment expenses)[2]		-4.30%		16.60%
Actuarial Value Rate of Return		5.12%		9%
Summary of Assets and Liabilities				
Total Actuarial Accrued Liability	$	313,013,137	$	302,213,539
Actuarial Value of Assets	$	202,894,946	$	204,273,172
Unfunded Actuarial Accrued Liability	$	110,118,191	$	97,940,367
Funded Ratio		64.82%		67.59%

	Fiscal Year Ending			
	December 31, 2020		December 31, 2019	
Employer Actuarial Required Contribution				
Employer Normal Cost	$	1,746,738	$	2,650,893
Amortization of Unfunded Actuarial Accrued Liability (Surplus)		8,785,037		7,544,798
Employer Actuarial Required Contribution	$	10,531,775	$	10,195,691

[1] The average annual benefit payments for retirees only is $36,760 as of December 31, 2018 and $35,241 as of December 31, 2017

[2] Rate of return Provided by the CCPF.

Actuarial Liabilities and Normal Cost

Actuarial Liabilities	Tier 1	Tier 2	Total	December 31, 2017 Total
1. Present Value of Projected Benefits				
a. Retirement Benefits	$ 111,389,027	$ 10,931,482	$ 122,320,509	$ 129,566,749
b. Withdrawal Benefits	3,313,081	5,012,115	8,325,196	9,228,891
c. Death Benefits	1,672,753	375,216	2,047,969	2,040,567
Total	**$ 116,374,861**	**$ 16,318,813**	**$ 132,693,674**	**$ 140,836,207**
2. Retired Members and Beneficiaries Receiving Benefits	195,126,716	-	195,126,716	184,465,544
3. Inactive Members with Deferred Benefits	19,099,535	1,092,360	20,191,895	15,407,865
4. Total Present Value of Projected Benefits (1. + 2. + 3.)	**$ 330,601,112**	**$ 17,411,173**	**$ 348,012,285**	**$ 340,709,616**
5. Present Value of Future Normal Costs	24,951,434	10,047,715	34,999,148	38,496,078
6. Total Actuarial Accrued Liability	**$ 305,649,678**	**$ 7,363,458**	**$ 313,013,137**	**$ 302,213,538**

Normal Cost as of December 31, 2018	Tier 1		Tier 2		Total		December 31, 2017 Total	
Projected Capped Payroll for Fiscal Year 2019	$ 21,031,853		$ 13,561,859		$ 34,593,712		$ 35,078,173	
1. Total Normal Cost	Amount	% of Pay	Amount	% of Pay	Amount	% of Pay	Amount	% of Pay
a. Retirement Benefits	$ 3,010,089	14.31%	$ 872,033	6.43%	$ 3,882,122	11.22%	$ 4,074,654	11.62%
b. Withdrawal Benefits	207,214	0.99%	287,258	2.12%	494,472	1.43%	1,261,786	3.60%
c. Duty Disability Benefits	-	0.00%	-	0.00%	-	0.00%	-	0.00%
d. Ordinary Disability Benefits	39,735	0.19%	-	0.00%	39,735	0.11%	33,972	0.10%
e. Death Benefits	69,809	0.33%	28,370	0.21%	98,179	0.28%	93,687	0.27%
f. Administrative Expenses	104,994	0.50%	67,702	0.50%	172,696	0.50%	168,439	0.48%
Total	**$ 3,431,841**	**16.32%**	**$ 1,255,363**	**9.26%**	**$ 4,687,204**	**13.55%**	**$ 5,632,538**	**16.06%**
2. Expected Member Contributions	**$ 1,787,708**	**8.50%**	**$ 1,152,758**	**8.50%**	**$ 2,940,466**	**8.50%**	**$ 2,981,645**	**8.50%**
3. Employer Normal Cost (1. - 2.)	**$ 1,644,133**	**7.82%**	**$ 102,605**	**0.76%**	**$ 1,746,738**	**5.05%**	**$ 2,650,893**	**7.56%**

Actuarial Contributions*

	Fiscal Year Ending December 31,	
Valuation Date	**2018**	**2017**
1. Projected Payroll for Year Beginning	$ 34,593,712	$ 35,078,173
2. Total Actuarial Accrued Liability		
a. Active Members		
i. Retirement Benefits	$ 92,380,452	$ 97,907,876
ii. Withdrawal Benefits	4,007,132	3,087,518
iii. Death Benefits	1,306,942	1,344,736
iv. Total	$ 97,694,526	$ 102,340,130
b. Retired Members and Beneficiaries Receiving Benefits	$ 195,126,716	$ 184,465,544
c. Inactive Members with Deferred Benefits	20,191,895	15,407,865
d. Total (2a. + 2b. + 2c.)	$ 313,013,137	$ 302,213,539
3. Actuarial Value of Assets	202,894,946	204,273,172
4. Unfunded Actuarial Accrued Liability (UAAL) (2d. - 3.)	$ 110,118,191	$ 97,940,367
5. Funded Ratio (3. / 2d.)	64.82%	67.59%
6. UAAL as a Percent of Annual Payroll (4. / 1.)	318.32%	279.21%

	Fiscal Year Ending December 31,	
Development of Employer Contribution*	**2020**	**2019**
7. Amortization Payment for UAAL (30 year amortization)		
a. Amount	$ 8,785,037	$ 7,544,798
b. As a % of pay (7a. / 1.)	25.39%	21.51%
8. Employer Normal Cost		
a. Amount	$ 1,746,738	$ 2,650,893
b. As a % of pay (8a. / 1.)	5.05%	7.56%
9. Employer Actuarial Required Contribution		
a. Amount (8a. + 7a.)	$ 10,531,775	$ 10,195,691
b. As a % of pay (9a. / 1.)	30.44%	29.07%

** Amount needed to fund the FPEABF in an actuarially responsible manner.*

Calculation of Actuarial (Gain)/Loss

Development of Actuarial (Gain) / Loss		**Amount**
1. Expected Actuarial Accrued Liability		
a. Actuarial Accrued Liability at December 31, 2017	$	302,213,539
b. Normal Cost at December 31, 2017		5,464,099
c. Interest on a. + b. to End of Year		22,306,629
d. Benefit Payments and Refunds, with Interest to End of Year		18,640,867
e. Expected Actuarial Accrued Liability Before Changes (a. + b. + c. - d.)	$	311,343,400
f. Change in Actuarial Accrued Liability at December 31, 2018 due to:		
i. Change in Actuarial Assumptions		-
ii. Change in Actuarial Methods		-
g. Expected Actuarial Accrued Liability at December 31, 2018 (e. + f.i. + f.ii.)	$	311,343,400
2. Actuarial Accrued Liability at December 31, 2018		313,013,137
3. Liability (Gain) / Loss (2. – 1.g.)	**$**	**1,669,737**
4. Expected Actuarial Value of Assets		
a. Actuarial Value of Assets at December 31, 2017	$	204,273,172
b. Interest on a. to End of Year		14,809,805
c. Contributions Made for December 31, 2018		6,426,749
d. Interest on c. to End of Year		228,894
e. Benefit Payments and Administrative Expenses, with Interest to End of Year		18,617,024
f. Change in Actuarial Value of Assets at December 31, 2018 due to:		
i. Change in Asset Method		-
g. Expected Actuarial Value of Assets at December 31, 2018 (a. + b. + c. + d. – e. – f.i.)	$	207,121,596
5. Actuarial Value of Assets as of December 31, 2018		202,894,946
6. Actuarial Asset (Gain) / Loss (4.g. - 5.)	**$**	**4,226,650**
7. Actuarial (Gain) / Loss (3. + 6.)	**$**	**5,896,387**

Analysis of Experience

Type of (Gain) or Loss		Year Ending December 31, 2018	As a % of Last Year's AAL
1. (Gain) or Loss During the Year from Experience:			
a. Salary	$	(2,525,529)	-0.84%
b. Investment		4,226,650	1.40%
c. Retiree Mortality		(1,315,849)	-0.44%
d. Other (turnover, retirement ages, service purchase, etc.)		5,511,115	1.82%
e. Total Experience (Gain) or Loss (a. + b. + c. + d.)	$	5,896,387	1.95%
2. Assumption and Method Changes		-	0.00%
3. Total (Gain) or Loss During Year (1.e. + 2.)	$	5,896,387	1.95%

Actuarial Balance Sheet

Financial Resources		December 31, 2018
1. Actuarial Value of Assets	$	202,894,946
2. Present Value of Future Contributions		
a. Expected Member Contributions		21,956,329
b. Employer Normal Cost		13,042,819
c. Total	$	34,999,148
3. Unfunded Actuarial Accrued Liability/(Reserve)	$	110,118,191
4. Total Assets [1. + 2.c. + 3.]	$	348,012,285

Benefit Obligations		
1. Present Value of Future Benefits		
a. Active Members	$	132,693,674
b. Retirees and Beneficiaries		195,126,716
c. Inactive Members		20,191,895
d. Total	$	348,012,285

History of UAAL And Funded Ratio

Valuation Date	Actuarial Accrued Liability (AAL)	Actuarial Value of Assets (AVA)	Funded Ratio (AVA as a % of AAL)	Unfunded Actuarial Accrued Liability (UAAL)
December 31, 2009	$ 244,625,664	$ 188,396,534	77.01%	$ 56,229,130
December 31, 2010	252,877,596	184,077,516	72.79%	68,800,080
December 31, 2011	261,509,175	178,126,063	68.11%	83,383,112
December 31, 2012	273,136,730	172,566,956	63.18%	100,569,774
December 31, 2013	277,560,212	182,554,587	65.77%	95,005,625
December 31, 2014	285,960,963	189,917,999	66.41%	96,042,964
December 31, 2015	291,739,068	193,729,042	66.40%	98,010,026
December 31, 2016	300,259,728	198,244,885	66.02%	102,014,843
December 31, 2017	302,213,539	204,273,172	67.59%	97,940,367
December 31, 2018	313,013,137	202,894,946	64.82%	110,118,191

Reconciliation of Change in Unfunded Actuarial Liability

Development of Unfunded Actuarial Liability	Amount
1. Unfunded Actuarial Accrued Liability as of December 31, 2017	$ 97,940,367
2. Normal Cost December 31, 2017	2,650,893
3. Interest on 1. and 2.	7,292,866
4. Employer Contribution Requirement of Normal Cost Plus Interest on Unfunded Liability for Period January 1, 2018 to December 31, 2018	$ 9,943,759
5. Actual Employer Contribution for the Year	3,481,281
6. Interest on 5.	123,988
7. Increase in Unfunded Liability Due to Employer Contribution Plus Interest Being Less Than Normal Cost Plus Interest on Unfunded Liability (4. - (5.+6.)	6,338,490
8. Increase/(Decrease) in Unfunded Liability Due to:	
a. Investment Return Lower/(Higher) Than Assumed	4,226,650
b. Salary Increases Higher/(Lower) Than Assumed	(2,525,529)
c. Assumption changes	-
d. Other Sources	4,138,213
9. Net Increase/(Decrease) in Unfunded Liability for the Year (7. + 8a. + 8b. + 8c. + 8d.)	12,177,824
10. Unfunded Actuarial Accrued Liability as of December 31, 2018 (1. + 9.)	$ 110,118,191

Actuarial Valuation – Pension Benefits (continued)

Summary of Fair Value of Assets

Asset Category	Fair Value as of December 31, 2018 Amount		Fair Value as of December 31, 2018 %	Fair Value as of December 31, 2017 Amount		Fair Value as of December 31, 2017 %
1. Short-Term Investments	$	4,140,867	2.2%	$	5,574,696	2.6%
2. Investments at Fair Value						
a. U.S. and International Equities	$	83,356,704	44.2%	$	112,414,952	52.8%
b. U.S. Government and Government Agency Obligations		5,477,851	2.9%		-	0.0%
c. Corporate Bonds		3,352,396	1.8%		-	0.0%
d. Collective International Equity Fund		24,019,014	12.7%		14,607,348	6.9%
e. Commingled Fixed Income Fund		28,910,652	15.3%		35,051,663	16.5%
f. Exchange Traded Funds		907,930	0.5%		4,315,663	2.0%
g. Private Equities		-	0.0%		-	0.0%
h. Hedge Funds		22,287,105	11.8%		21,691,553	10.2%
i. Real Estate		14,157,365	7.5%		13,440,254	6.3%
j. Total	$	182,469,017	96.8%	$	201,521,433	94.6%
3. Collateral Held for Securities Lending	$	1,908,473	1.0%	$	5,865,002	2.8%
4. Total Assets (1. + 2.j + 3.)	$	188,518,357	100.00%	$	212,961,131	100.0%
5. Receivables						
a. Interest and Dividends	$	330,951		$	198,409	
b. Investments Sold		272,015			320,866	
c. Other Receivables		4,217,173			3,490,299	
d. Total	$	4,820,139		$	4,009,574	
6. Payables						
a. Investments Purchased	$	598,518		$	288,853	
b. Securities Lending Collateral		1,908,473			5,865,002	
c. Other Payables		433,429			445,904	
d. Total	$	2,940,420		$	6,599,759	
7. Net Position for Pension Benefits [4. + 5.d – 6.d.]	**$**	**190,398,076**		**$**	**210,370,946**	

Changes in Fair Value of Assets

Transactions		December 31, 2018		December 31, 2017
Additions				
1. Contributions				
a. Contributions from Employers	$	3,481,281	$	2,239,632
b. Contributions from Plan Members		3,127,980		3,300,222
c. Total	$	6,609,261	$	5,539,854
2. Net Investment Income				
a. Interest and Dividends	$	2,714,516	$	2,403,075
b. Net Appreciation (Depreciation)		(10,507,657)		28,746,514
c. Net Securities Lending Income		20,632		24,725
d. Total	$	(7,772,509))	$	31,174,314
e. Less Investment Expense		650,342		674,299
f. Net Investment Income	$	(8,422,851)	$	30,500,015
g. Miscellaneous		-		14,250
3. Total Additions (1c. + 2f. + 2g.)	$	(1,813,590)	$	36,054,119
Deductions				
4. Benefits and Expenses				
a. Retirement Benefits	$	16,733,769	$	16,116,479
b. Refund of Contributions		1,083,510		554,417
c. Administrative Expenses		159,489		160,418
d. Employee Transfers		182,512		54,257
5. Total Deductions	$	18,159,280	$	16,885,571
6. Net Increase (Decrease) (3. - 5.)	$	(19,972,870)	$	19,168,548
Net Position Held in Trust for Pension Benefits				
a. Beginning of Year	$	210,370,946	$	191,202,398
b. End of Year	$	190,398,076	$	210,370,946

Actuarial Value of Assets

Development of Actuarial Value of Assets		Amount
1. Actuarial Value of Assets as of December 31, 2017	$	204,273,172
2. Unrecognized Return as of December 31, 2017		6,097,774
3. Fair Value of Assets as of December 31, 2017 (1. + 2.)	$	210,370,946
4. Contributions		
a. Member (includes purchased service)	$	3,127,980
b. Employer		3,481,281
c. Miscellaneous contributions		(182,512)
d. Total	$	6,426,749
5. Distributions		
a. Benefit payments	$	16,733,769
b. Refund of contributions		1,083,510
c. Administrative expenses		159,489
d. Total	$	17,976,768
6. Expected Return at 7.25% on		
a. Item 1.	$	14,809,805
b. Item 2.		442,089
c. Item 4.d.		228,894
d. Item 5.d.		640,256
e. Total (a. + b. + c. - d.)	$	14,840,532
7. Actual Return on Fair Value for Fiscal Year, net of Investment Expenses	$	(8,422,851)
8. Return to be Spread for Fiscal year (7. - 6e.)*	$	(23,263,383)
9. Total Fair Value of Assets as of December 31, 2018	$	190,398,076

10. Return to be Spread

Fiscal Year		Return to be Spread	Unrecognized Percent		Unrecognized Return
2018	$	(23,263,383)	80.00%	$	(18,610,706)
2017		16,577,084	60.00%		9,946,250
2016		(3,519,332)	40.00%		(1,407,733)
2015		(12,123,404)	20.00%		(2,424,681)
2014		(1,014,962)	0.00%		-
				$	(12,496,870)

11. Actuarial Value of Assets (9. - 10.)	$	202,894,946
12. Recognized rate of return for the Year on Actuarial Value of Assets		5.1%
13. Rate of Return for the Year on Market Value of Assets (reported by Cook County - net of inv. expenses)		-4.3%

** 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 (a)	Actuarial Accrued Liabilities (AAL) (b)	Unfunded AAL (UAAL) (Actuarial Value) (b-a)	Funded Ratio (Actuarial Value) (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (Fair Value) (b-a)/(c)
2009	$ 188,396,534	$ 244,625,664	$ 56,229,130	77.01%	$ 24,967,115	225.21%
2010	184,077,516	252,877,596	68,800,080	72.79%	24,397,376	282.00%
2011	178,126,063	261,509,175	83,383,112	68.11%	22,678,566	367.67%
2012	172,566,956	273,136,730	100,569,774	63.18%	26,252,071	383.09%
2013	182,554,587	277,560,212	95,005,625	65.77%	29,485,857	322.21%
2014	189,917,999	285,960,963	96,042,964	66.41%	29,811,912	322.16%
2015	193,729,042	291,739,068	98,010,026	66.40%	32,007,657	306.21%
2016	198,244,885	300,259,728	102,014,843	66.02%	34,509,011	295.62%
2017	204,273,172	302,213,539	97,940,367	67.59%	35,078,173	279.21%
2018	202,894,946	313,013,137	110,118,191	64.82%	34,071,319	323.20%

Schedule of Employer Contributions

The actuarially determined 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
2009	$ 2,809,494	$ 1,282,642	45.65%
2010	3,329,502	1,333,140	40.04%
2011	4,498,036	2,457,405	54.63%
2012	7,626,778	2,117,976	27.77%
2013	8,590,721	1,403,628	16.34%
2014	9,608,247	1,523,316	15.85%
2015	10,921,946	1,763,345	16.14%
2016	10,166,661	1,971,946	19.40%
2017	10,230,872	2,242,489	21.92%
2018	10,678,782	3,481,281	32.60%

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

Schedule of Changes in Net Pension Liability

	2018	2017	2016	2015
Total Pension Liability				
Service Cost	$ 9,426,212	$ 10,698,297	$ 11,224,976	$ 9,656,955
Interest	19,182,488	20,384,471	19,482,189	19,471,424
Benefit changes	-	-	-	-
Difference between expected and actual experience	608,525	(1,344,952)	(6,776,942)	(270,033)
Changes of assumptions	(26,452,372)	(21,473,767)	(26,186,535)	28,495,220
Benefit payments, including refund of contributions	(17,817,279)	(16,670,896)	(16,462,185)	(15,920,776)
Net change in Total Pension Liability	$ (15,052,426)	$ (8,406,847)	$ (18,718,497)	$ 41,432,790
Total Pension Liability – beginning	430,452,619	438,859,466	457,577,963	416,145,173
Total Pension Liability – ending (a)	415,400,193	430,452,619	438,859,466	457,577,963
Plan Fiduciary Net Position				
Contributions – employer	$ 3,481,281	$ 2,239,632	$ 1,971,946	$ 1,763,345
Contributions – member	3,127,980	3,300,222	3,184,051	2,771,533
Net investment income (loss)	(8,422,851)	30,500,015	10,477,792	2,549,975
Benefit payments, including refund of contributions	(17,817,279)	(16,670,896)	(16,462,185)	(15,920,776)
Administrative expense	(159,489)	(160,418)	(157,577)	(143,953)
Other	(182,512)	(40,007)	(133,999)	(6,928)
Net change in Plan Fiduciary Net Position	(19,972,870)	19,168,548	(1,119,972)	(8,986,804)
Plan Fiduciary Net Position – beginning	210,370,946	191,202,398	192,322,370	201,309,174
Plan Fiduciary Net Position – ending (b)	$ 190,398,076	$ 210,370,946	$ 191,202,398	$ 192,322,370
Net Pension Liability – ending (a) - (b)	$ 225,002,117	$ 220,081,673	$ 247,657,068	$ 265,255,593

GASB 67 Net Pension Liability (Asset)

	2018	2017	2016	2015
Total Pension Liability	$ 415,400,193	$ 430,452,619	$ 438,859,466	$ 457,577,963
Plan Fiduciary Net Position	190,398,076	210,370,946	191,202,398	192,322,370
Net Pension Liability	$ 225,002,117	$ 220,081,673	$ 247,657,068	$ 265,255,593
Ratio of Plan Fiduciary Net Position to Total Pension Liability	45.83%	48.87%	43.57%	42.03%
Covered-employee payroll	$ 34,071,319	$ 35,078,173	$ 34,509,011	$ 32,007,657
Net Pension Liability as a percentage of covered-employee payroll	660.39%	627.40%	717.66%	828.73%

GASB 67 Sensitivity of Net Pension Liability

	1% Decrease (3.91%)	Current Discount Rate (4.91%)	1% Increase (5.91%)
Total Pension Liability	$ 476,403,469	$ $415,400,193	$ 365,863,861
Fiduciary Net Position	190,398,076	190,398,076	190,398,076
Net Pension Liability	$ 286,005,393	$ $225,002,117	$ $175,465,785

The discount rate used to measure the total pension liability was 4.91%. The discount rate used to measure the total pension liability at December 31, 2017 was 4.45%. The projection of cash flows used to determine the discount rate assumed that FPEABF 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 1.30. 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 4.13% was used in the development of the blended GASB discount rate after that point. The 4.13% rate is based on the S&P Municipal Bond 20 Year High Grade Rate Index as of December 30, 2018. Based on the long-term rate of return of 7.25% and the municipal bond rate of 4.13%, the blended GASB discount rate would be 4.91%. Please see the supporting exhibits for additional detail.

GASB 67/68 Actuarial Assumptions and Methods

Actuarial Assumptions and Methods:

Measurement Date:	**December 31, 2018**	**December 31, 2017**
Valuation Date (VD):	December 31, 2017	December 31, 2016
Membership Data:		
Retirees	381	378
Beneficiaries	146	152
Inactive Vested Members	1,365	1,296
Active Employees	548	572
Total	2,440	2,398
Single Equivalent Interest Rate (SEIR):		
Long-Term Expected Rate of Return	7.25%	7.25%
Municipal Bond Index Rate at Measurement Date	4.13%	3.16%
Fiscal Year in which Fiduciary Net Position is Projected to be Depleted	2037	2042
Single Equivalent Interest Rate at Measurement Date	4.91%	4.45%
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 FPEABF contributions will continue to follow the current funding policy based on the tax levy. Based on this assumption, the Plan's fiduciary net position is projected to be insufficient to make all projected future benefit payments of current plan members. A municipal bond rate of 4.13% was used in the development of the blended GASB discount rate after that point. The 4.13% 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 4.13%, the blended GASB discount rate would be 4.91%. See the preceding exhibits for more detail.

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, 2018 are listed in the table below:

Asset Category	Target Allocation	Long-Term Expected Real Rate of Return
US Large Cap	16.00%	10.23%
US Mid Cap	8.00%	12.12%
US Small Cap	8.00%	12.09%
Global Equity ex US	27.00%	9.51%
Aggregate Bonds	21.00%	4.77%
NCREIF	9.00%	9.77%
Hedge Funds	10.00%	7.31%
Cash	1.00%	3.98%
Total	100.00%	

Summary of Benefit Provisions

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

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

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

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

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

Retirement Annuity - Amount

Money Purchase Annuity. The amount of annuity based on the sum accumulated from the employee's salary deductions for age and service annuity plus 1/10 of the sum accumulated from the contributions by the Forest Preserve District for age and service annuity for each completed year of service after the first 10.

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.

Summary of Benefit Provisions (continued)

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.

Surviving Spouse's Annuity - Death in Service

Money Purchase Annuity. The amount of annuity based on the accumulated salary deductions and Forest Preserve District 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.

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.

Summary of Benefit Provisions (continued)

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 Fund contributes the 8.5% of salary normally contributed by the employee for pension purposes.

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 Fund contributes the 8.5% of salary normally contributed by the employee for pension purposes.

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

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

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

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

Group Health Benefits. The FPEABF may pay all or any portion of the premium for health insurance on behalf of each annuitant who participates in any of the FPEABF's health care Plans. As of January 1, 2019, FPEABF pays 41% of the total premium for all post-Medicare retiree annuitants and 48% of the total premium for all pre-Medicare retiree annuitants on the Choice plan, including the cost of family coverage, and 54% of the total premium for all post-Medicare survivor annuitants and 61% of the total premium for all pre-Medicare survivor annuitants on the Choice plan, including the cost of family coverage.

FPEABF pays 38% of the total premium for all post-Medicare retiree annuitants and 43% of the total premium for all pre-Medicare retiree annuitants on the Choice Plus plan, including the cost of family coverage, and 51% of the total premium for all post-Medicare survivor annuitants and 56% of the total premium for all pre- Medicare survivor annuitants on the Choice Plus plan, including the cost of family coverage.

Summary of Benefit Provisions (continued)

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 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 of the employee and spouse, 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% of salary to the Fund, 6.5% 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 Forest Preserve District 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 1.30.

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.

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 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.

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 Normal Cost for the Plan 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 Plan 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 Plans.

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, 2018 actuarial valuation are summarized below.

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

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

Pre-commencement: adjust all rates by 75%

Post-commencement: adjust rates as follows:

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

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

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

	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

Interest Rate. 7.25% per year, compounded annually.

Inflation Rate. 2.75% per year, compounded annually.

Salary Rate (net of inflation):

Age	Rate
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 Forest Preserve District 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 Forest Preserve District 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. 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 Plan for a group of Plan 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 Plan. 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 Plan as a whole.
Vested Benefits	Benefits which are unconditionally guaranteed regardless of employment status.

This page is intentionally left blank.

Actuarial Certification – Postemployment Healthcare

June 6, 2019

Board of Trustees

Forest Preserve District Employees' Annuity and Benefit Fund of Cook County
Chicago, Illinois

Ladies and Gentlemen:

Presented in this report is information to assist the Forest Preserve District Employees' Annuity and Benefit Fund of Cook County ("FPEABF" or "the Fund") in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statements No. 74 and 75 for the December 31, 2018 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 3.16% at the Prior Measurement Date to 4.13% at the current Measurement Date.

The information is based on an actuarial valuation performed by Cavanaugh Macdonald (CMC) as of December 31, 2018, with plan asset information provided by FPEABF for its fiscal year ended December 31, 2018.

The valuation was based upon data, furnished by FBEABF 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 FBEABF 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 FBEABF, and on actuarial assumptions that are internally consistent and individually reasonable based on the actual experience of FBEABF. 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 Comprehensive Annual Financial Reporting:

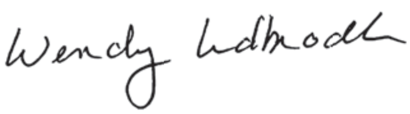
- Changes in the GASB 74/75 Total OPEB Liability (TOL)
- GASB 74 Components of the Net OPEB Liability
- GASB 74 Schedule of Employer Contributions
- GASB 74 Schedule of Changes in Net OPEB Liability
- GASB 74 Schedule of Net OPEB Liability
- GASB 74 Sensitivity of Net OPEB Liability
- Solvency Test
-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

We, Larry F. Langer, ASA, Patrice A. Beckham, FSA, 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

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary



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

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

Actuarial Valuation – Postemployment Healthcare

Overview

The Forest Preserve Employees' Annuity and Benefit Fund of Cook County ("FPEABF" or "the Fund") offers health benefits to retired employees of the Forest Preserve District and their eligible dependents. This report presents the results of the actuarial valuation of the Plan benefits as of the valuation date of December 31, 2018.

Purpose

This report had been prepared at the request of the Fund for use in financial reporting of FPEABF 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 Data

Summary of Membership Data	**Year Ending December 31,**	
	2018	**2017**
Annuitants Currently Receiving Benefits	273	273
Covered Spouses of Annuitants Currently Receiving Benefits	83	76
Separated Employees Entitled To Benefits But Not Yet Receiving Them	33	30
Active Employees	536	548
Total Number of Members	925	927

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, 2017:

- The 2019 subsidy for member health benefits was changed from 50% to 41% for annuitants in the Choice Plan Medicare, and from 50% to 38% for annuitants in the Choice Plus Plan Medicare.
- The 2019 subsidy for member health benefits was changed from 50% to 48% for annuitants in the Choice Plan non-Medicare, and from 45% to 43% for annuitants in the Choice Plus Plan non-Medicare.
- The 2019 subsidy for survivor health benefits was changed from 65% to 54% for survivors in the Choice Plan Medicare, and from 65% to 51% for survivors in the Choice Plus Plan Medicare.
- The 2019 subsidy for survivor health benefits was changed from 65% to 61% for survivors in the Choice Plan non-Medicare, and from 60% to 56% for survivors in the Choice Plus Plan non-Medicare.

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 FPEABF health plan. FPEABF will provide a reduced monthly premium for annuitants and spouses who are ineligible for premium free Medicare Part A..

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, 2017:

- 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 2019.
- Due to the uncertainty of the timing of the implementation of the Excise Tax attributable to the Affordable Care Act, the Excise Tax load on liabilities from the previous valuation was removed and no adjustment was made to future retiree health care liabilities.
- The assumption pertaining to health care cost trend rates was reset to begin in fiscal year 2019.

Change in Actuary

During 2018 the fund retained Cavanaugh Macdonald as their actuary. The December 31, 2018 valuation is the first valuation completed by Cavanaugh Macdonald. During the transitioning of actuarial services to a new firm, a replication valuation is performed to ensure that we have properly programmed our valuation software to reflect the plan provisions and assumptions and to benchmark any difference between our results and the prior actuary's results. Based on the results of our replication, as of December 31, 2018 the Actuarial Accrued Liability decreased $1.0M.

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

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

		TOL	% Change
December 31, 2017	**$**	**49,170,148**	
Expected Growth Due to Passage of Time		3,205,063	6.5%
Demographic Experience*		(1,423,986)	-2.9%
Updated Per Capita Health Plan Experience		(605,935)	-1.2%
Change in Participant Contributions		(6,230,418)	-12.7%
Change in Trend Assumption		542,870	1.1%
Removal of Excise Tax Assumption		(2,140,814)	-4.4%
Change in Discount Rate		(5,712,344)	-11.6%
Change in Plan Provisions regarding Medicare Pt. A		(954,345)	-1.9%
Total Change in TOL	**$**	**(13,319,909)**	**-27.1%**
December 31, 2018	**$**	**35,850,239**	**-27.1%**

**Includes a decrease in liability of approximately $1.0 million resulting from the transition to a new actuary.*

GASB 74 Components of the Net OPEB Liability

Valuation Date (VD):		December 31, 2018
Prior Measurement Date:		December 31, 2017
Measurement Date (MD):		December 31, 2018
Membership Data:		
Retirees and Beneficiaries		273
Inactive Members Eligible for Allowances		33
Active Employees		536
Total		842
Single Equivalent Interest Rate (SEIR):		
Long-Term Expected Rate of Return		7.25%
Municipal Bond Index Rate at Prior Measurement Date		3.16%
Municipal Bond Index Rate at Measurement Date		4.13%
Year in which Fiduciary Net Position is Projected to be Depleted		2018
Single Equivalent Interest Rate at Prior Measurement Date		3.16%
Single Equivalent Interest Rate at Measurement Date		4.13%
Net OPEB Liability:		
Total OPEB Liability (TOL)	$	35,850,239
Fiduciary Net Position (FNP)		-
Net OPEB Liability (NOL = TOL – FNP)	$	35,850,239
FNP as a percentage of TOL		0.00%

Fiscal Year Ending December 31, 2018		
Total OPEB Liability	$	35,850,239
Fiduciary Net Position		-
Net OPEB Liability	$	35,850,239
Ratio of Fiduciary Net Position to Total OPEB Liability		0.00%

GASB 74 Schedule of Employer Contributions

	2018	2017
Actuarially determined employer contribution	$ 3,353,628	$ 4,681,598
Actual employer contributions	606,110	1,305,075
Annual contribution deficiency (excess)	$ 2,747,518	$ 3,376,523
Covered employee payroll	$ 34,071,319	$35,078,173
Actual contributions as a percentage of covered payroll	1.78%	3.72%

GASB 74 Schedule of Changes in Net OPEB Liability

	2018	2017
Total O PEB Liability		
Service Cost	$ 2,197,459	$ 2,349,531
Interest	1,613,714	1,937,384
Benefit changes	(7,184,763)	(1,738,947)
Difference between expected and actual experience	(2,029,921)	(611,268)
Changes of assumptions	(7,310,288)	(1,979,137)
Benefit payments	(606,110)	(1,305,075)
Net change in Total OPEB Liability	$ (13,319,909)	$ (1,347,512)
Total OPEB Liability - beginning	$ 49,170,148	$ 50,517,660
Total OPEB Liability - ending (a)	$ 35,850,239	$ 49,170,148
Plan Fiduciary Net Position		
Employer contributions	$ 606,110	$ 1,305,075
Net investment income	-	-
Net Benefit payments	(606,110)	(1,305,075)
Administrative expense	-	-
Other	-	-
Net change in Plan Fiduciary Net Position	$ -	$ -
Plan Fiduciary Net Position – beginning	$ -	$ -
Plan Fiduciary Net Position - ending (b)	$ -	$ -
Net O PEB Liability - ending (a) - (b)	$ 35,850,239	$ 49,170,148

GASB 74 Schedule of the Net OPEB Liability

		2018		2017
Total OPEB Liability	$	35,850,239	$	49,170,148
Plan Fiduciary Net Position		-		-
Net OPEB Liability	$	35,850,239	$	49,170,1481
Ratio of Plan Fiduciary Net Position to Total OPEB Liability		0.00%		0.00%
Covered employee payroll	$	34,071,319	$	35,078,173
Net OPEB Liability as a percentage of covered employee payroll		105.22%		140.17%

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, 2018, calculated using the discount rate of 4.13%, 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 (3.13%) or 1-percentage-point higher (5.13%) than the current rate:

		1% Decrease (3.13%)		Current Discount Rate (4.13%)		1% Increase (5.13%)
Total OPEB Liability	$	41,863,281	$	35,850,239	$	31,047,940
Fiduciary Net Position		-		-		-
Net OPEB Liability	$	41,863,281	$	35,850,239	$	31,047,940

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, 2018, 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	$	30,416,653	$	35,850,239	$	42,881,818
Fiduciary Net Position		-		-		-
Net OPEB Liability	$	30,416,653	$	35,850,239	$	42,881,818

GASB 75 OPEB Expenses

		2018
Service Cost	$	2,197,459
Interest on the Total OPEB Liability		1,613,714
Current-period Benefit Changes		(7,184,763)
Expensed portion of current-period difference between expected nd actual experience in the total OPEB liability		(308,031)
Expensed portion of current-period changes of assumptions		(1,109,300)
Member Contributions		-
Projected Earnings on Plan Investments		-
Expensed portion of current-period differences between actual and projected earnings on plan investments		-
Administrative Expense		-
Other		-
Recognition of beginning deferred outflows of resources as OPEB expense		-
Recognition of beginning deferred inflows of resources asOPEB expense		(396,693)
Total OPEB Expense	$	**(5,187,614)**

Note: Average expected remaining service life for all members is 6.59.

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, FPEABF is their final retirement system.

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 FPEABF health plan. FPEABF 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

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

	Choice PPO	Choice Plus PPO
Retiree Annuitant w/o Medicare	48%	43%
Retiree Annuitant with Medicare	41%	38%
Survivor Annuitant w/o Medicare	61%	56%
Survivor Annuitant with Medicare	54%	51%

The following are the annual working rates effective January 1, 2019. These rates represent an estimated cost of self-insured coverage and include administrative expenses.

	Choice PPO	Choice Plus PPO
Single w/o Medicare	$15,531	$20,926
Two w/o Medicare	$31,062	$41,853
Single with Medicare	$4,881	$4,452
Two with Medicare	$9,763	$8,903

Summary of Assumptions and Methods

The actuarial assumptions used for the December 31, 2018 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 FPEABF, 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, 2018

Measurement Date. December 31, 2018

Discount Rate. 4.13% at December 31, 2018 (Municipal Bond Index Rate)
3.16% at December 31, 2017 (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

Inflation Rate. 2.75% per year, compounded annually.

Salary Rate (net of inflation):

Age	Rate
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 FPEABF.

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.

Summary of Assumptions and Methods (continued)

Dependent Coverage.

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

Medicare Coordination.

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

Per Capita Health Plan Costs.

Estimated net annual per capita incurred claim costs per covered adult for fiscal year 2019 at age 65, reflecting administrative expenses, drug rebates and EGWP subsidies.

	Choice PPO	Choice Plus PPO
Not Medicare eligible	$17,547	$24,149
Medicare eligible	$4,487	$4,119

Per capita medical costs were developed using claims, enrollment, drug rebates and EGWP subsidies for the period from January 1, 2018 through December 31, 2018 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.

Summary of Assumptions and Methods (continued)

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

Health Care Cost Trend Rates.

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

Year	Pre- Medicare	Post- Medicare
2019	7.25%	5.75%
2020	7.00%	5.50%
2021	6.75%	5.25%
2022	6.50%	5.00%
2023	6.25%	4.75%
2024	6.00%	4.75%
2025	5.75%	4.75%
2026	5.50%	4.75%
2027	5.25%	4.75%
2028	5.00%	4.75%
2029+	4.75%	4.75%

Summary of Assumptions and Methods (continued)

Census Data.

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

Actuarial Cost Method.

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

Amortization Method.

30 years open, level dollar.

Assets.

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

Retiree Drug Subsidy and Employer Group Waiver Plan.

FPEABF 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 2019 include approximately 20% savings due to drug rebates and EGWP subsidies.

IBNR.

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

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. FPEABF 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 2019 include approximately 20% savings due to drug rebates and EGWP subsidies.

Summary of Assumptions and Methods (continued)

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.

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.

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.

Automatic hoc postemployment benefit changes

Postemployment benefit changes that occur without a requirement for a decision to grand 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).

Glossary of Terms

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 and individuals currently receiving benefits.

Measurement period

The period between the prior and the current measurement dates..

Net OPEB liability

The liability of employers and non-employer contributing entities to employees for benefits provided through a defined benefit OPEB plan that is administered through a trust that meets the criteria in paragraph 4 of this Statement. Other postemployment benefits (OPEB) Benefits (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 (including refunds of employee contributions) 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
12/31/2009	461	$ 24,967,115	$ 54,159	2.0%
12/31/2010	448	24,397,376	54,458	0.6%
12/31/2011	408	22,678,566	55,585	2.1%
12/31/2012	467	26,252,071	56,214	1.1%
12/31/2013	534	29,485,857	55,217	-1.8%
12/31/2014	525	29,811,912	56,785	2.8%
12/31/2015	568	32,007,657	56,352	-0.8%
12/31/2016	572	34,509,011	60,330	7.1%
12/31/2017	548	35,078,173	64,011	6.1%
12/31/2018	536	34,071,319	63,566	-0.7%

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

	Added-To-Rolls		Removed-From-Rolls		Rolls-End-of-Year			
Year Ended	Number	Annual Benefits	Number	Annual Benefits	Number	Annual Benefits	Average Annual Benefit	% Increase in Average Annual Benefit
2009	27	$ 1,124,442	26	$ 454,966	490	$ 10,845,272	22,133	6.4%
2010	30	1,108,528	26	632,898	494	11,320,902	22,917	3.5%
2011	35	1,400,374	31	480,969	498	12,240,307	24,579	7.3%
2012	30	1,051,757	17	259,746	511	13,032,318	25,504	3.8%
2013	48	1,547,583	28	324,780	531	14,255,121	26,846	5.3%
2014	32	1,287,991	28	629,998	535	14,913,114	27,875	3.8%
2015	24	1,007,969	30	656,536	529	15,264,547	28,855	3.5%
2016	21	888,082	20	414,711	530	15,737,918	29,694	2.9%
2017	26	1,094,739	29	724,309	527	16,108,348	30,566	2.9%
2018	31	1,628,543	27	677,580	531	17,059,311	32,127	5.1%

Schedule of Retirees and Benficiaries Added To and Removed From Rolls - Postemployment Health

	Added-To-Rolls		Removed-From-Rolls		Rolls-End-of-Year			% Increase in Average Annual Benefit
Year Ended	Number	Annual Benefits	Number	Annual Benefits	Number	Annual Benefits	Average Annual Benefit	% Increase in Average Annual Benefit
2011	22	$ 169,227	18	$ 346,462	279	$ 1,324,476	$ 4,747	-13.1%
2012	18	91,062	16	218,153	281	1,197,385	4,261	-10.2%
2013	24	120,344	14	(277,417)	291	1,595,146	5,482	28.7%
2014	18	87,347	22	88,900	287	1,771,393	6,172	12.6%
2015	8	132,420	17	79,925	278	1,823,888	6,561	6.3%
2016	16	(206,717)*	13	67,620	281	1,549,551	5,514	-15.9%
2017	13	(179,554)*	21	73,922	273	1,305,075	4,780	-13.3%
2018	12	(661,677)*	12	37,288	273	606,110	2,220	-53.6%

1. Includes Liability from changes in benefit levels

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

Solvency Test - Pension Benefits

	Accrued Liabilities For						
Fiscal Year	(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)
2009	$ 31,830,611	$ 130,528,419	$ 82,266,634	$ 188,396,534	100%	100%	32%
2010	32,798,650	136,132,530	83,946,416	184,077,516	100%	100%	18%
2011	32,856,582	147,529,997	81,122,596	178,126,063	100%	98%	0%
2012	30,638,516	155,638,787	86,859,427	172,566,956	100%	91%	0%
2013	29,531,719	169,355,865	78,672,628	182,554,587	100%	90%	0%
2014	29,765,059	177,169,877	79,026,027	189,917,999	100%	90%	0%
2015	31,403,346	180,566,467	79,769,255	192,729,042	100%	89%	0%
2016	32,875,566	183,610,860	83,773,302	198,244,885	100%	90%	0%
2017	32,887,656	184,465,544	84,860,339	204,273,172	100%	93%	0%
2018	33,549,681	195,126,716	84,336,740	202,894,946	100%	87%	0%

Solvency Test - Postemployment Healthcare

	Accrued Liabilities For						
Fiscal Year	(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)
2009	-	$ 22,582,459	$ 20,560,518	$ -	0%	0%	0%
2010	-	22,131,960	20,970,550	-	0%	0%	0%
2011	-	21,172,862	19,233,334	-	0%	0%	0%
2012	-	25,571,863	20,141,897	-	0%	0%	0%
2013	-	26,785,364	20,328,289	-	0%	0%	0%
2014	-	27,165,388	20,046,785	-	0%	0%	0%
2015	-	26,560,776	22,918,014	-	0%	0%	0%
2016	-	23,482,726	21,225,463	-	0%	0%	0%
2017	-	22,654,735	20,756,005	-	0%	0%	0%
2018	-	19,477,243	16,372,996	-	0%	0%	0%

This page is intentionally left blank.

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 Benefits and Postemployment Healthcare provides details on the specific sources and uses of funds.

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

Schedule of Average Benefit Payments – Pension Benefits and Postemployment Healthcare provides details on years of credited service, average monthly pension, average monthly final average salary, and the number of new retirees, including those with postemployment healthcare.

Additional Schedules Required by Employer provides details on historical financial, investment and actuarial performance.

Statement of Changes in Pension Plan Fiduciary Net Position

For year ended December 31, 2018, with comparative totals for 9 years

	2018	2017	2016	2015	2014
Additions:					
Employer contributions	$ 3,481,281	$ 2,239,632	$ 1,971,946	$ 1,763,345	$ 1,520,316
Employee contributions	3,127,980	3,300,222	3,184,051	2,771,533	2,645,164
Net investment and net securities lending income (loss)	(8,422,851)	30,500,015	10,477,792	2,549,975	13,525,606
Other	-	14,250	-	11,442	-
Total additions	(1,813,590)	36,054,119	15,633,789	7,096,295	17,691,086
Deductions:					
Benefits					
Retirement	13,844,830	13,253,194	12,896,736	12,820,708	12,464,872
Survivors	2,761,444	2,630,286	2,523,376	2,281,100	2,206,512
Disability	127,495	232,999	301,487	183,060	172,196
Refunds					
Death	348,881	18,018	118,565	41,539	75,826
Separation	493,684	313,756	434,654	486,280	644,017
Other	240,945	222,643	187,367	108,089	241,794
Employee transfers to (from) Cook County	182,512	54,257	133,999	18,370	175,370
Net adminstrative and miscellaneous expenses	159,489	160,418	157,577	143,953	142,067
Total deductions	18,159,280	16,885,571	16,753,761	16,083,099	16,122,654
Net increase (decrease)	(19,972,870)	19,168,548	(1,119,972)	(8,986,804)	1,568,432
Net Position:					
Beginning of period	210,370,946	191,202,398	192,322,370	201,309,174	199,740,742
End of period	$ 190,398,076	$ 210,370,946	$ 191,202,398	$ 192,322,370	$ 201,309,174

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

For year ended December 31, 2018, with comparative totals for 9 years (continued)

	2013	2012	2011	2010	2009
Additions:					
Employer contributions	$ 1,403,628	$ 2,117,976	$ 2,441,301	$ 1,333,140	$ 1,282,642
Employee contributions	2,687,211	2,426,776	2,289,027	2,452,696	2,418,794
Net investment and net securities lending income (loss)	30,383,512	22,209,855	2,021,094	20,250,639	24,683,791
Other	691	6,062	2,541	52,736	1,798
Total additions	34,475,042	26,760,669	6,753,963	24,089,211	28,387,025
Deductions:					
Benefits					
Retirement	11,719,920	10,714,092	10,042,232	9,559,956	9,144,321
Survivors	2,052,205	1,901,171	1,815,262	1,615,256	1,552,939
Disability	277,873	347,509	420,518	366,484	247,088
Refunds					
Death	111,783	174,789	79,428	19,000	23,360
Separation	545,613	786,951	338,069	182,773	318,195
Other	301,311	226,899	186,817	142,090	131,398
Employee transfers to (from) Cook County	(106,012)	205,887	(328,586)	257,975	118,754
Net adminstrative and miscellaneous expenses	119,019	111,662	103,220	104,765	112,729
Total deductions	15,021,712	14,468,960	12,656,960	12,248,299	11,648,784
Net increase (decrease)	19,453,330	12,291,709	(5,902,997)	11,840,912	16,738,241
Net Position:					
Beginning of period	180,287,412	167,995,703	173,898,700	162,057,788	145,319,547
End of period	$ 199,740,742	$ 180,287,412	$ 167,995,703	$ 173,898,700	$ 162,057,788

Statement of Changes in Postemployment Healthcare Plan Net Position

For year ended December 31, 2018, with comparative totals for 9 years

	2018	2017	2016	2015	2014
Additions:					
Employer contributions	$ 606,110	$ 1,305,075	$ 1,419,435	$ 1,698,692	$ 1,616,436
Annuitant healthcare benefits contributions*	-	-	1,177,887	1,134,920	1,193,549
Other	946,166	581,415	317,217	228,836	204,853
Total additions	1,552,276	1,886,490	2,914,539	3,062,448	3,014,838
Deductions:					
Healthcare Benefits	1,552,276	1,886,490	2,914,539	3,062,448	3,014,838
Net increase (decrease)	-	-	-	-	-
Net Position:					
Beginning of period	-	-	-	-	-
End of period	$ -	$ -	$ -	$ -	$ -

Note: Beginning 2017, the annuitants Healthcare contribution ($1,398,987 in CY 2018 and $1,321,187 in CY 2017) is netted against Healthcare benefits expense.

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

For year ended December 31, 2018, with comparative totals for 9 years (continued)

	2013	2012	2011	2010	2009
Additions:					
Employer contributions	$ 1,459,517	$ 991,000	$ 814,308	$ 1,326,894	$ 1,261,052
Annuitant healthcare benefits contributions	1,190,706	1,127,026	1,120,842	984,039	1,039,073
Other	158,692	206,385	510,168	174,817	218,121
Total additions	2,808,915	2,324,411	2,445,318	2,485,750	2,518,246
Deductions:					
Healthcare Benefits	2,808,915	2,324,411	2,445,318	2,485,750	2,518,246
Net increase (decrease)	-	-	-	-	-
Net Position:					
Beginning of period	-	-	-	-	-
End of period	$ -	$ -	$ -	$ -	$ -

Schedule of Retired Members by Benefit Type - Pension Benefits

As of December 31, 2018

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit 1	Type of Pension Benefit 2	Option Selected 1	Option Selected 2	Option Selected 3
$ 1 – $ 500	64	40	24	35	23	6
501 – 1,000	69	37	32	42	27	0
1,001 – 1,500	50	26	24	38	12	0
1,501 – 2,000	53	39	14	32	21	0
2,001 – 2,500	42	26	16	29	13	0
2,501 – 3,000	43	32	11	26	17	0
3,001 – 3,500	51	40	11	27	24	0
3,501 – 4,000	37	30	7	17	20	0
4,001 – 4,500	26	23	3	11	15	0
4,501 – 5,000	22	21	1	6	16	0
5,001 – 5,500	18	17	1	6	12	0
5,501 – 6,000	19	19	0	2	17	0
6,001 – 6,500	17	17	0	3	14	0
6,501 – 7,000	9	9	0	3	6	0
7,001 – 7,500	5	5	0	1	4	0
7,501 – 8,000	2	2	0	0	2	0
8,001 – 8,500	1	1	0	0	1	0
8,501 – 9,000	2	2	0	0	2	0
9,001 – 9,500	0	0	0	0	0	0
9,501 – 10,000	0	0	0	0	0	0
10,001 – 10,500	0	0	0	0	0	0
10,501 – 11,000	0	0	0	0	0	0
11,001 – 11,500	0	0	0	0	0	0
11,501 – 12,000	0	0	0	0	0	0
12,001 – 12,500	0	0	0	0	0	0
12,501 – 13,000	0	0	0	0	0	0
13,001 – 13,500	0	0	0	0	0	0
13,501 – 14,000	1	1	0	0	1	0
14,001 – 14,500	0	0	0	0	0	0
14,501 – 15,000	0	0	0	0	0	0
Over $15,000	0	0	0	0	0	0
Totals	**531**	**387**	**144**	**278**	**247**	**6**

Type of Pension Benefit

1. Regular Retirement
2. Survivor Payment

Option Selected

1. Whole Life Annuity
2. 65% Joint and Contingent Annuity
3. Temporary Annuity

Schedule of Retired Members by Benefit Type - Postemployment Healthcare

As of December 31, 2018

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit 1	Type of Pension Benefit 2	Option Selected 1	Option Selected 2	Option Selected 3
$ 1 – $ 500	3	0	3	3	0	0
501 – 1,000	25	4	21	21	4	0
1,001 – 1,500	20	4	16	19	1	0
1,501 – 2,000	25	16	9	14	11	0
2,001 – 2,500	28	17	11	21	7	0
2,501 – 3,000	30	19	11	22	8	0
3,001 – 3,500	31	23	8	19	12	0
3,501 – 4,000	26	23	3	12	14	0
4,001 – 4,500	17	14	3	10	7	0
4,501 – 5,000	15	14	1	6	9	0
5,001 – 5,500	11	10	1	4	7	0
5,501 – 6,000	10	10	0	2	8	0
6,001 – 6,500	15	15	0	3	12	0
6,501 – 7,000	7	7	0	3	4	0
7,001 – 7,500	4	4	0	0	4	0
7,501 – 8,000	2	2	0	0	2	0
8,001 – 8,500	1	1	0	0	1	0
8,501 – 9,000	2	2	0	0	2	0
9,001 – 9,500	0	0	0	0	0	0
9,501 – 10,000	0	0	0	0	0	0
10,001 – 10,500	0	0	0	0	0	0
10,501 – 11,000	0	0	0	0	0	0
11,001 – 11,500	0	0	0	0	0	0
11,501 – 12,000	0	0	0	0	0	0
12,001 – 12,500	0	0	0	0	0	0
12,501 – 13,000	0	0	0	0	0	0
13,001 – 13,500	0	0	0	0	0	0
13,501 – 14,000	1	1	0	0	1	0
14,001 – 14,500	0	0	0	0	0	0
14,501 – 15,000	0	0	0	0	0	0
Over $15,000	0	0	0	0	0	0
Totals	**273**	**186**	**87**	**159**	**114**	**0**

Type of Pension Benefit

1. *Regular Retirement*
2. *Survivor Payment*

Option Selected

1. *Whole Life Annuity*
2. *65% 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+
2009	Average Monthly Pension	0	$580	$265	0	$2,389	$5,070	$3,587
	Average Monthly Final Average Salary	0	N/A	N/A	0	$4,015	$6,662	$4,789
	Number of New Retirees	0	2	1	0	4	2	2
2010	Average Monthly Pension	$463	0	$3,266	$2,775	0	$3,513	$3,572
	Average Monthly Final Average Salary	$6,589	0	$8,104	$5,544	0	$4,774	$4,478
	Number of New Retirees	3	0	1	5	0	3	7
2011	Average Monthly Pension	$524	$1,121	$2,214	$3,913	$3,192	$4,870	$4,653
	Average Monthly Final Average Salary	$5,692	$10,070	$6,735	$8,560	$5,068	$6,742	$5,817
	Number of New Retirees	1	2	7	1	5	2	5
2012	Average Monthly Pension	0	0	$2,765	$2,269	$2,321	$3,298	$3,930
	Average Monthly Final Average Salary	0	0	$7,434	$5,636	$4,079	$4,557	$4,941
	Number of New Retirees	0	0	2	2	8	4	5
2013	Average Monthly Pension	$321	$568	$1,439	$1,942	$2,864	$5,285	$3,732
	Average Monthly Final Average Salary	$6,012	$2,898	$5,512	$3,355	$4,971	$6,966	$4,691
	Number of New Retirees	3	2	6	1	9	1	14
2014	Average Monthly Pension	$1,331	$982	$1,427	$1,505	$2,760	$3,408	$3,173
	Average Monthly Final Average Salary	$15,150	$6,266	$4,789	$3,558	$4,810	$4,892	$4,044
	Number of New Retirees	1	4	4	4	3	7	6
2015	Average Monthly Pension	$639	$150	$1,141	0	$2,069	$2,840	$3,591
	Average Monthly Final Average Salary	$6,768	$1,491	$4,313	0	$5,402	$4,669	$4,500
	Number of New Retirees	2	1	2	0	2	2	5
2016	Average Monthly Pension	$177	0	0	$924	0	$3,632	$3,640
	Average Monthly Final Average Salary	$5,805	0	0	$3,397	0	$5,049	$4,671
	Number of New Retirees	2	0	0	1	0	5	4
2017	Average Monthly Pension	$402	$969	$1,696	$2,538	$1,773	$3,730	$3,843
	Average Monthly Final Average Salary	$5,788	$7,229	$5,836	$7,680	$4,704	$5,324	$4,829
	Number of New Retirees	5	3	2	1	2	7	5
2018	Average Monthly Pension	$449	$1,417	$1,062	0	$2,968	$4,555	$4,562
	Average Monthly Final Average Salary	$7,589	$10,124	$4,330	0	$5,464	$6,331	$5,868
	Number of New Retirees	2	1	5	0	3	8	7

N/A - Not Available

Schedule of Average Benefit Payments - Postemployment Healthcare

		Years of Credited Service						
		0-4	5-9	10-14	15-19	20-24	25-29	30+
2009	Average Monthly Pension	0	0	0	0	$2,341	$5,070	$3,587
	Average Monthly Final Average Salary	0	0	0	0	$4,210	$6,662	$4,789
	Number of New Retirees	0	0	0	0	3	2	2
2010	Average Monthly Pension	0	0	$3,266	$3,002	0	$3,413	$3,479
	Average Monthly Final Average Salary	0	0	$8,104	$5,948	0	$4,267	$4,372
	Number of New Retirees	0	0	1	4	0	1	4
2011	Average Monthly Pension	0	0	$2,066	$3,913	$2,998	$4,239	$4,361
	Average Monthly Final Average Salary	0	0	$6,073	$8,560	$4,857	$5,299	$5,352
	Number of New Retirees	0	0	5	1	4	1	3
2012	Average Monthly Pension	0	0	$3,346	0	$2,341	$2,647	$4,265
	Average Monthly Final Average Salary	0	0	$7,819	0	$4,115	$3,889	$5,367
	Number of New Retirees	0	0	1	0	7	3	4
2013	Average Monthly Pension	0	$37	$1,616	$1,942	$2,763	$5,285	$3,594
	Average Monthly Final Average Salary	0	$4,049	$5,217	$3,355	$4,418	$6,966	$4,528
	Number of New Retirees	0	1	2	1	6	1	8
2014	Average Monthly Pension	0	0	$1,675	0	$2,314	$3,643	$3,167
	Average Monthly Final Average Salary	0	0	$5,856	0	$3,915	$5,155	$4,076
	Number of New Retirees	0	0	2	0	1	6	4
2015	Average Monthly Pension	0	0	0	0	$3,473	0	$3,181
	Average Monthly Final Average Salary	0	0	0	0	$5,365	0	$3,995
	Number of New Retirees	0	0	0	0	1	0	3
2016	Average Monthly Pension	0	0	0	0	0	$3,611	$3,640
	Average Monthly Final Average Salary	0	0	0	0	0	$4,996	$4,671
	Number of New Retirees	0	0	0	0	0	3	4
2017	Average Monthly Pension	0	0	$2,464	0	0	$4,040	$3,997
	Average Monthly Final Average Salary	0	0	$8,074	0	0	$5,623	$5,027
	Number of New Retirees	0	0	1	0	0	4	4
2018	Average Monthly Pension	0	0	$918	0	$3,670	$5,077	$4,787
	Average Monthly Final Average Salary	0	0	$3,616	0	$5,450	$7,165	$6,124
	Number of New Retirees	0	0	1	0	2	4	4

This page is intentionally left blank.

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)
2009	17.9%
2010	13.1%
2011	1.1%
2012	13.8%
2013	17.5%
2014	7.1%
2015	1.5%
2016	5.7%
2017	16.6%
2018	-4.3%

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
2009	$ 188,396,534	$ 162,057,788	116.3%
2010	184,077,516	173,898,700	105.9%
2011	178,126,063	167,995,703	106.0%
2012	172,566,956	180,287,412	95.7%
2013	182,554,587	199,740,742	91.4%
2014	189,917,999	201,309,174	94.3%
2015	193,729,043	192,322,370	100.7%
2016	198,244,885	191,202,398	103.7%
2017	204,273,172	210,370,946	97.1%
2018	190,398,076	202,894,946	93.8%

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
2008	$ 6,094,316	$ 2,198,000	$ 2,023,448	33.2%
2009	7,273,214	2,582,587	2,543,694	35.0%
2010	10,653,889	2,754,970	2,660,034	25.0%
2011	11,606,636	3,144,432	3,255,609	28.0%
2012	12,429,935	3,188,505	3,108,976	25.0%
2013	14,045,708	2,975,735	2,863,145	20.4%
2014	13,072,570	3,154,809	3,136,752	24.0%
2015	13,191,203	3,493,374	3,462,037	26.2%
2016	13,547,803	3,438,713	3,391,381	25.0%
2017	13,913,427	3,602,993	3,544,707	25.5%
2018	13,169,170	4,139,266	4,087,391	31.0%

Additional Schedules Required by Employer (continued)

Schedule of Financial Condition - Pension and Postemployment Healthcare Benefits Combined for year ended December 31, 2018, with comparative totals for 9 years

	2018	2017	2016	2015	2014
Beginning Net Position (Fair Value)	$ 210,370,946	$ 191,202,398	$ 192,322,370	$ 201,309,174	$ 199,740,742
Additions:					
Employer contributions	4,087,391	3,544,707	3,391,381	3,462,037	3,136,752
Employer contributions	3,127,980	3,300,222	3,184,051	2,771,533	2,645,164
Annuitant Health Benefit Contributions	- *	- *	1,177,887	1,134,920	1,193,549
Net investment income (loss)	(8,422,851)	30,500,015	10,477,792	2,549,975	13,525,606
Other	946,166	595,665	317,217	240,278	204,853
Total additions	(261,314)	37,940,609	18,548,328	10,158,743	20,705,924
Deductions:					
Benefits	18,286,045	18,002,969	18,636,138	18,347,316	17,858,418
Refunds	1,083,510	554,417	740,586	635,908	961,637
Employee transfers to (from) Cook County	182,512	54,257	133,999	18,370	175,370
Administrative Expenses	159,489	160,418	157,577	143,953	142,067
Total deductions	19,711,556	18,772,061	19,668,300	19,145,547	19,137,492
Ending Net Position (Fair Value)	$ 190,398,076	$ 210,370,946	$ 191,202,398	$ 192,322,370	$ 201,309,174
Actuarial Value of Assets	202,894,946	204,273,172	198,244,885	193,729,043	189,917,999
Actuarial Accrued Liabilities (AAL)	336,684,911	330,912,840	330,207,622	322,764,141	315,234,847
Unfunded AAL (UAAL) (Fair Value)	146,286,835	120,541,894	139,005,224	130,441,771	113,925,673
Unfunded AAL (UAAL) (Actuarial Value)	133,789,965	126,639,668	131,962,737	129,035,098	125,316,848
Funded Ratio (Fair Value)	56.6%	63.6%	57.9%	59.6%	63.9%
Funded Ratio (Actuarial Value)	60.3%	61.7%	60.0%	60.0%	60.2%

* *Beginning 2017, the annuitants Healthcare contribution ($1,398,987 in CY 2018 and $1,321,187 in CY 2017) is netted against Healthcare benefits expense.*

Schedule of Financial Condition - Pension and Postemployment Healthcare Benefits Combined for year ended December 31, 2018, with comparative totals for 9 years

	2013	2012	2011	2010	2009
Beginning Net Position (Fair Value)	$ 180,287,412	$ 167,995,703	$ 173,898,700	$ 162,057,788	$ 145,319,547
Additions:					
Employer contributions	2,863,145	3,108,976	3,255,609	2,660,034	2,543,694
Employee contributions	2,687,211	2,426,776	2,289,027	2,452,696	2,418,794
Annuitant Health Benefit Contributions	1,190,706	1,127,026	1,120,842	984,039	1,039,073
Net investment income (loss)	30,383,512	22,209,855	2,021,094	20,250,639	24,683,791
Other	159,383	212,447	512,709	227,553	219,919
Total additions	37,283,957	29,085,080	9,199,281	26,574,961	30,905,271
Deductions:					
Benefits	16,858,913	15,287,183	14,723,330	14,027,446	13,462,594
Refunds	958,707	1,188,639	604,314	343,863	472,953
Employee transfers to (from) Cook County	(106,012)	205,887	(328,586)	257,975	118,754
Administrative Expenses	119,019	111,662	103,220	104,765	112,729
Total deductions	17,830,627	16,793,371	15,102,278	14,734,049	14,167,030
Ending Net Position (Fair Value)	$ 199,740,742	$ 180,287,412	$ 167,995,703	$ 173,898,700	$ 162,057,788
Actuarial Value of Assets	182,554,587	172,566,956	178,126,063	184,077,516	188,396,534
Actuarial Accrued Liabilities (AAL)	306,919,270	304,451,002	289,321,074	282,391,153	274,032,351
Unfunded AAL (UAAL) (Fair Value)	107,178,528	124,163,590	121,325,371	108,492,453	111,974,563
Unfunded AAL (UAAL) (Actuarial Value)	124,364,683	131,884,046	111,195,011	98,313,637	85,635,817
Funded Ratio (Fair Value)	65.1%	59.2%	58.1%	61.6%	59.1%
Funded Ratio (Actuarial Value)	59.5%	56.7%	61.6%	65.2%	68.7%

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)
2009	$ 274,032,351	$ 188,396,534	$ 162,057,788	$ 85,635,817
2010	282,391,153	184,077,516	173,898,700	98,313,637
2011	289,321,074	178,126,063	167,995,703	111,195,011
2012	304,451,002	172,566,956	180,287,412	131,884,046
2013	306,919,270	182,554,587	199,740,742	124,364,683
2014	315,234,847	189,917,999	201,309,174	125,316,848
2015	322,764,141	193,729,043	192,322,370	129,035,098
2016	330,207,622	198,244,885	191,202,398	131,962,737
2017	330,912,840	204,273,172	210,370,946	126,639,668
2018	336,684,911	202,894,946	190,398,076	133,789,965

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 Pension and OPEB benefits tables below.

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)
2009	$ 244,625,664	$ 188,396,534	$ 162,057,788	$ 56,229,130
2010	252,877,596	184,077,516	173,898,700	68,800,080
2011	261,509,175	178,126,063	167,995,703	83,383,112
2012	273,136,730	172,566,956	180,287,412	100,569,774
2013	277,560,212	182,554,587	199,740,742	95,005,625
2014	285,960,963	189,917,999	201,309,174	96,042,964
2015	291,739,068	193,729,043	192,322,370	98,010,025
2016	300,259,728	198,244,885	191,202,398	102,014,843
2017	302,213,539	204,273,172	210,370,946	97,940,367
2018	313,013,137	202,894,946	190,398,076	110,118,191

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)
$ 111,974,563	68.7%	59.1%	$ 24,967,115	343.0%	448.5%
108,492,453	65.2%	61.6%	24,397,376	403.0%	444.7%
121,325,371	61.6%	58.1%	22,678,566	490.3%	535.0%
124,163,590	56.7%	59.2%	26,252,071	502.4%	473.0%
107,178,528	59.5%	65.1%	29,485,857	421.8%	363.5%
113,925,673	60.2%	63.9%	29,811,912	420.4%	382.1%
130,441,771	60.0%	59.6%	32,007,657	403.1%	407.5%
139,005,224	60.0%	57.9%	34,509,011	382.4%	402.8%
120,541,894	61.7%	63.6%	35,078,173	361.0%	343.6%
146,286,835	60.3%	56.6%	34,071,319	392.7%	429.4%

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)
$ 82,567,876	77.0%	66.2%	$ 24,967,115	225.2%	330.7%
78,978,896	72.8%	68.8%	24,397,376	282.0%	323.7%
93,513,472	68.1%	64.2%	22,678,566	367.7%	412.3%
92,849,318	63.2%	66.0%	26,252,071	383.1%	353.7%
77,819,470	65.8%	72.0%	29,485,857	322.2%	263.9%
84,651,789	66.4%	70.4%	29,811,912	322.2%	284.0%
99,416,698	66.4%	65.9%	32,007,657	306.2%	310.6%
109,057,330	66.0%	63.7%	34,509,011	295.6%	316.0%
91,842,593	67.6%	69.6%	35,078,173	279.2%	261.8%
122,615,061	64.8%	60.8%	34,071,319	323.2%	359.9%

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)
2009	$ 43,142,977	$ -	$ -	$ 43,142,977
2010	43,102,510	-	-	43,102,510
2011	40,406,196	-	-	40,406,196
2012	45,713,760	-	-	45,713,760
2013	47,113,653	-	-	47,113,653
2014	47,212,173	-	-	47,212,173
2015	49,478,790	-	-	49,478,790
2016	44,708,189	-	-	44,708,189
2017	43,410,740	-	-	43,410,740
2018	35,850,239	-	-	35,850,239

Schedule of Components of Change in Unfunded Liability - 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
2009	$ (1,015,614)	$ 14,363,849	$ 4,512,235
2010	(3,394,112)	9,729,368	7,483,382
2011	(3,690,231)	11,541,394	7,734,557
2012	1,939,324	8,635,210	5,369,563
2013	(2,208,899)	(17,264,428)	10,855,083
2014	(2,333,548)	(6,069,280)	9,597,999
2015	(2,503,098)	(1,528,781)	9,379,058
2016	2,722,397	(2,010,983)	9,799,700
2017	1,473,961	(2,908,636)	10,005,461
2018	(2,525,529)	4,226,650	8,609,423

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

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)
$ 43,142,977	0.0%	0.0%	$ 24,967,115	172.8%	172.8%
43,102,510	0.0%	0.0%	24,397,376	176.7%	176.7%
40,406,196	0.0%	0.0%	22,678,566	178.2%	178.2%
45,713,760	0.0%	0.0%	26,252,071	174.1%	174.1%
47,113,653	0.0%	0.0%	29,485,857	159.8%	159.8%
47,212,173	0.0%	0.0%	29,811,912	158.4%	158.4%
49,478,790	0.0%	0.0%	32,007,658	154.6%	154.6%
44,708,189	0.0%	0.0%	34,512,652	129.5%	129.5%
43,410,740	0.0%	0.0%	35,078,173	123.8%	123.8%
35,850,239	0.0%	0.0%	34,071,319	105.2%	105.2%

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

Changes in Actuarial Assumptions	Plan Changes	Other Sources (1)	Total Change in Unfunded Liability
$ 24,746,310	$ -	$ 1,379,086	$ 43,985,866
-	-	(1,140,818)	12,677,820
-	-	(2,704,346)	12,881,374
-	-	4,744,938	20,689,035
-	-	1,098,881	(7,519,363)
-	-	(243,006)	952,165
-	-	(1,628,929)	3,718,250
-	-	(7,583,475)	2,927,639
(8,134,544)	(1,124,460)	(4,634,851)	(5,323,069)
(921,732)	(3,271,394)	1,032,879	7,150,297

This page is intentionally left blank.

FOREST PRESERVE DISTRICT EMPLOYEES' ANNUITY
AND BENEFIT FUND OF COOK COUNTY
70 West Madison Street
Suite 1925
Chicago, Illinois 60602
312.603.1200
www.cookcountypension.com

Our objective is to provide exceptional service in the support and administration of your annuity, health and disability benefits. In addition, along with your Board of Trustees, we are also committed to effectively managing the assets of both the Cook County and Forest Preserve Funds.