

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO, ILLINOIS



COMPREHENSIVE ANNUAL FINANCIAL REPORT

a component unit of the City of Chicago
for the years ended December 31, 2018 and 2017





Comprehensive Annual Financial Report

A Component Unit
of the City of Chicago
for the years ended
December 31, 2018
and 2017

Prepared by

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Interim Executive Director

Caroline E. Vullmahn, CPA

Comptroller

August A. Madonia

Assistant Comptroller

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Policemen's Annuity and Benefit Fund of Chicago

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

Comprehensive Unit Financial Report Years Ended December 31, 2018 and 2017

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Introductory Section



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and Benefit Fund
Illinois**

For its Comprehensive Annual
Financial Report
For the Fiscal Year Ended

December 31, 2017

Christopher P. Morrell

Executive Director/CEO

Members of the Board
Representing the Public
Jennie Huang Bennett
Melissa Conyears-Ervin
Carol L. Hamburger, Vice President
Susie Park

Representing the Active Police
and Disability Beneficiaries
Thomas A. Beyna, President
Edward M. Wodnicki
Brian E. Wright, Recording Secretary

Representing the Annuity
Michael K. Lappe

The Retirement Board
of the
Policemen's Annuity and Benefit Fund
City of Chicago

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Caroline E. Vullmahn, CPA
Comptroller

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Peter Orris, M.D.
Physician

David R. Kugler & Associates, Ltd.
Board Counsel

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to the Retirement Board

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1-800-656-6606

**Retirement Board of the Policemen's
Annuity and Benefit Fund of
Chicago, Illinois**

The Policemen's Annuity and Benefit Fund of Chicago (the Fund) hereby submits its comprehensive annual financial report (CAFR) for the years ended December 31, 2018, and 2017. The Fund is responsible for the accuracy of the data and the completeness and fairness of presentation, including disclosures. To the best of our knowledge and belief, the enclosed information is accurate in all material respects and is reported in a manner designed to present fairly the financial position and results of operations of the Fund. All disclosures necessary to enable the reader to understand the Fund's financial activities have been included.

Any employee of the City of Chicago employed under the provisions of the municipal personnel ordinance as police service, sworn or designated by law as a peace officer, is generally included in the Policemen's Annuity and Benefit Fund of Chicago. The Fund is governed under Illinois State Statutes (Chapter 40, Pension, Article 5, Illinois Compiled Statutes) and may be amended only by the Illinois Legislature.

The Fund was established January 1, 1922, with the mission of providing retirement benefits to the sworn police members of the Chicago Police Department, their spouses and children. To properly execute this mission the Fund is administered by an eight (8) member Board of Trustees. The Board is composed of four (4) elected members, with one elected from each rank of police officer, sergeant, lieutenant and above, and one from the retired members and their widows. The Mayor of Chicago appoints four members. The Retirement Board then elects a Board President, a Vice-President and a Recording Secretary from its own membership.

Among its many duties, the Retirement Board is charged with: approval of all applications for benefits and annuities, investment of Fund monies in a manner prescribed by the State Statutes and Fund policy, adoption of rules and regulations for the proper conduct of the affairs of the Fund, engaging a certified independent public accountant to conduct an annual audit on the financial results each year and engaging an actuary to perform an annual actuarial valuation of the Fund. Annually, the Fund files financial statements and an actuarial valuation with the State of Illinois Department of Insurance and the City of Chicago, along with other governmental entities as requested. A summary of plan provisions overseen by the Retirement Board, as prescribed in the state statutes, are presented as part of this CAFR.

This report presents the financial activities of the Fund and is composed of five (5) sections:

1. The introductory section contains the table of contents, this transmittal letter, a listing of the Retirement Board members and office staff members, a listing of professional consultants, a listing of investment managers, and a summary Fund organizational chart.
2. The financial section contains the report of the independent auditors, management discussion and analysis, the financial statements and accompanying notes, required supplementary information and accompanying notes and supporting schedules of the Fund;
3. The investment section reports on activity, policy, results, allocation, commissions paid to managers and brokers and includes an investment summary;
4. The actuarial section contains the report of the Fund's actuary with supporting actuarial assumptions, schedules and tables;
5. The statistical section provides membership data for both active members and annuitants of the Fund.

Financial Information

Management of the Fund is responsible for establishing and maintaining an internal control structure designed to maintain reasonable assurance regarding the safekeeping of the Fund's assets from loss, theft or misuse and to ensure that adequate accounting data are compiled to allow for the preparation of financial statements that conform to generally accepted accounting principles. The concept of reasonable assurance recognizes that: (1) the cost of a control should not exceed the benefits likely to be derived; and (2) the valuation of costs and benefits requires estimates and judgments by management. Because the cost of internal control should not exceed the anticipated benefits, the objective is to provide reasonable, rather than absolute, assurance that the financial statements are free of material misstatements. Consideration of the internal controls over financial reporting is included in the auditor's review. The Fund does engage an independent certified public accountant to audit the Fund's financial statements, and the auditor's unqualified audit opinion on the financial statements as of and for the years ended December 31, 2018, and 2017, is included in the financial section.

Users of this report are strongly encouraged to review the **Management's Discussion and Analysis** portion of the financial section in order to obtain a more complete understanding of the Fund's financial condition and activity.

Investment Performance and Policy

The Fund depends upon the performance of its assets to fund benefits (supplemented by both employer and employee contributions). The Fund's net position held in trust declined by approximately \$216.3 million from December 31, 2017 to December 31, 2018. The Fund experienced a loss on investments in calendar year 2018 of \$138 million, (5.36)% which compares to the positive investment return of \$412.2 million, or 17.15% in 2017. Most major asset classes ended 2018 in the red, with US equities suffering their worst December since the 1930s. A wave of risk aversion was felt broadly as safe-haven fixed income rallied with Treasury yields declining in the final weeks of the year. The broad equity markets, as measured by the Morgan Stanley Capital International All Country All World Index (MSCI ACWI) index posted a return of (9.4)%. The Fund's portfolio return of (5.36)% for the year is primarily attributed to the total equity portfolio, which returned (11.54)% (net of fees) and made up 51% of the Fund's investments as of December 31, 2018.

During 2018, the Fund awarded 13 new mandates totaling \$390 million, of which \$45 million (or 12%) were awarded to minority or women owned firms, \$230 million (or 59%) of the new allocation was made to firms with a Chicago presence.

Overall, the Fund's assets are diversified in several ways, which minimizes the potential for overexposure to individual investments and provides a broad opportunity set for the portfolio, while trying to minimize risk. The Fund has over 50 professional investment management firms investing on behalf of the Fund. These firms make investment decisions for the Fund under the Prudent Person Rule authorized by State statutes and the Investment Policy guidelines adopted by the Board of Trustees.

Board President Thomas Beyna started working as the Interim Chief Investment Officer after the Fund's Chief Investment Officer Ms. Aoifinn Devitt gave notice in December 2018 and left the Fund in January 2019 to join an investment firm in Ireland.

Generally, investment decisions and strategies attempt to balance optimal performance and risk management, given the Fund's ongoing liquidity needs and constraints. That said, a sustained economic recovery and substantial growth in asset prices remain critical factors in the Fund's ability to meet its future obligations. On the other hand, it is expected that a significant correction in the capital markets would negatively impact the Fund's assets in a very meaningful way.

Current and Future Developments

As this transmittal letter is being written, it is becoming apparent that calendar year end December 31, 2018 will prove to be a very significant milestone in the history of the Policemen's Annuity and Benefit Fund of Chicago. First of all, as the details in this annual report indicate, the combination of the net outflow of benefits and expenses over all sources of income, including a negative return on its Investments for the year of (5.36)% translate to a decrease of \$216.3 million in its Fiduciary Net Position for the year end December 31, 2018. This compares with a net increase in Fiduciary Net Position of \$257.1 at December 31, 2017.

Secondly; the entire landscape of the Administrations of both the City of Chicago and the State of Illinois have changed. By necessity, the Trustees and Staff of the Fund will become increasingly in tune with the potential impacts that these new Administrations will have upon the Fund, the Chicago Police Department, the City of Chicago and the State of Illinois. New ideas concerning taxation and fee structures will hopefully provide the necessary revenues that will move the Fund to a more viable funded status. At December 31, 2018, despite the decrease in Fiduciary Net Position, the Actuarial Funding status remained fairly constant at 23.8% in comparison to the 23.7% level at December 31, 2017.

It is extremely important at this point, to take a much deeper look at what is behind these funded status percentages. As members and other users may be aware, the Policemen's Annuity and Benefit Fund of Chicago is created and governed by Illinois state statutes. For the past 5 reporting years, the Fund has relied upon fixed dollar amounts of Employer Contributions as were set out in Public Act 096-0506 (PA 96-0506). This language, enacted on May 30, 2016 effectively repealed language that would have required the City of Chicago to provide funding based on an Actuarial Required Contribution (ARC) methodology that was to insure the Fund would achieve a 90% funded status by 2045.

Beginning with the payment year 2016, the Fund will receive the following fixed amounts of Employer Funding; \$420 million in 2016, \$464 million in 2017; \$500 million in 2018; \$557 million in 2019; and \$579 million in 2020 which will be mathematically higher funding amounts than the "Property Tax Multiplier" method. Due to the increase in total payouts each year, the fixed amount of the increased contributions only serve to hold the funded status constant. Beginning in tax payment year 2021, the "second phase" of the funding mechanism in Public Act 096-0506 is scheduled to begin. This "second phase" requires the City to provide funding on an Actuarial methodology, to achieve 90% funding by 2055.

The Board will continue to communicate its annual Funding requirements resolution to the City this summer (and every summer) based on Actuarial projections developed by the Fund's Independent Consulting Actuary, Gabriel Roeder Smith. These Funding projections indicate that based on the existing underlying Actuarial Assumptions and current valuation of the Fund, required Funding for the first few years of this ARC methodology will increase to \$737 million for 2021, \$764 million for 2022, \$785 million 2023 and \$806 million for 2024.

An abbreviated schedule of future anticipated Actuarial Funding amounts can be found in the actuarial section of this report. It is also important to note that these future funding amounts are currently based on existing actuarial Assumptions. Two of these assumptions, the investment earnings assumption and the annualized rate of salary increase assumption have the biggest impact upon the valuation of the Fund, (and future actuarial funding). The Chicago Police Department and the Fund both anxiously await the negotiations of a new Contract between the FOP and the City of Chicago. The Fund has budgeted for a review of all of these underlying assumptions to be conducted by the Fund's Actuaries during calendar year 2019. These future funding projections will change with any change to the underlying Actuarial assumptions. They will also change each year based on the actual results of Fund each year and whether any benefit changes are enacted. The ARC funding methodology is embodied in the statutory language to insure that the Fund will achieve 90% funded status by 2055.

In 2018, the Fund welcomed approximately 1,253 new members to active status, including approximately 24 members returning from inactive or disability status. In 2018 and recent

years, the Fund has been working closely with the Human Resources Department of the Chicago Police Department, the Board's consulting physician, the Fund's medical consulting firm, and the Fund's members on disability to place certain members, previously on disability, back to service with the Chicago Police Department, as positions become available for such members and based upon medical eligibility. Based upon these efforts, the quantity of members with a duty, occupational or ordinary disability has declined in each of the last four years, from 343 at December 31, 2014, to 247 at December 31, 2018.

With the addition of new members, the Fund has approximately 4,569 and 3,393 Tier 2 members at December 31, 2018, and 2017, respectively. Tier 1 members continue to decline with retirements, as such members were 8,869 and 9,240, at December 31, 2018, and 2017, respectively.

The Fund continues to strive for customer service excellence by improving the operational efficiencies and service delivery to the membership. Enhancements to the Fund's pension administration system continue. The Fund also continues to develop and enhance its website, located at www.chipabf.org. The website includes the online estimate program for active members, electronic copies of the Fund's newsletter, information on scheduled meetings of the Board of Trustees, and other important updates.

Funding Status

For purposes of funding, the actuarial value of assets and liabilities was \$3,145.1 million, and \$13,214.7 million, respectively at December 31, 2018. The funded ratio, for purposes of calculating the statutory contribution, increased from 23.71% to 23.80%. On a fair value basis, for purposes of statutory funding, the funded ratio experienced a decrease from 23.84% at December 31, 2017, to 21.98% at December 31, 2018.

As mentioned previously, PA-96-0506 changed the City's funding policy to fixed contributions through the year 2020, and an Actuarial Required Funding methodology that will achieve a 90% funding status by 2055. This legislation also changed the required actuarial cost method from projected unit credit to entry age normal.

The Fund manages its Investment portfolio in line with its statement of Investment Policy which has been developed by the Board and its overall Investment Consulting firm of NEPC taking into consideration the Fund's unique Risk, Return and Liquidity profile. The Retirement Board makes all investment decisions based on the parameters of this policy.

As previously stated, the Fund is extremely dependent on the successful performance of the Investment portfolio and is required to fund a portion of the total annual benefit payments through available liquidity in the portfolio. Although the Fund's Investment portfolio remains fully invested, The Retirement Board has diversified the risks within portfolio to the extent possible to mitigate the impact of any meaningful market corrections.

Professional Services

The Fund's actuarial valuation, along with other actuarial services, are provided by its Independent Consulting Actuaries, Gabriel, Roeder, Smith & Company. The annual audit of the financial statements is performed by Mitchell & Titus, LLP, Certified Public Accountants.

The Fund's investment consultant is NEPC, LLC. A complete listing of all investment managers is detailed in the CAFR's introductory section.

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 comprehensive annual financial report for the fiscal year ended December 31, 2017. In order to be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized comprehensive annual financial report. The 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 our current comprehensive annual financial report 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

I wish to thank the members of the Retirement Board for their thankless service to the Fund and its members and extend a sincere note of thanks to Ms. Regina Tuczak, the Fund's previous Executive Director, for her dedication and diligence through nearly nine (9) years at the Fund and wish her all the best as she moves forward with her career. I would also like to express my appreciation to the Fund's Comptroller, Ms. Caroline Vullmahn, for her tenacity and attention to every aspect of the Fund's financial reporting and her level of commitment to each of the Fund's members. Gratitude is also extended to the members of the accounting and finance staff that worked on the compilation of this report and to the entire Fund's staff and professional consultants who work both professionally and effectively to ensure the continued successful operation of the Fund, and to the Fund's members for their interest and involvement in all plan activities.

This report is intended to provide complete and reliable information to the members of the Fund, the City of Chicago as Plan Sponsor, and other important users of the Fund's financial and demographic information.

We are always striving for cost effective ways to better serve the Fund's members and, as always, welcome your comments or suggestions.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Kenneth Kaczmarz', with a stylized flourish at the end.

Kenneth Kaczmarz
Interim Executive Director
June 18, 2019

RETIREMENT BOARD OF TRUSTEES AND OFFICE STAFF

December 31, 2018

Appointed Trustees

Carole L. Brown

Samantha S. Fields

Carol L. Hamburger, Vice President

Kurt A. Summers, Jr

Elected Trustees

Thomas A. Beyna, President and Investment
Committee Chairman

Michael K. Lappe, Representing the Annuitants

Edward M. Wodnicki

Brian E. Wright, Recording Secretary

Office Staff Members

Kenneth E. Kaczmarz, Interim Executive Director

Caroline E. Vullmahn, CPA, Comptroller

August A. Madonia, Assistant Comptroller

Support Staff

Gladys Bernal

Robert Crawford

Angela Curtis

Karina Fruin

Kay Hylton

Peter Kim

Adriana Kiretyan

Quiana Knapp

Joseph Kosman

Justin Kugler

Kristi Matalik

Anne McGowan

Richard Muhlbacher

Jacqueline Robinson

Ivan Rogic

Erwin Santos

Carol Vega

PROFESSIONAL CONSULTANTS

LEGAL ADVISOR

David R. Kugler & Associates, Ltd

MEDICAL ADVISOR

Peter Orris, M.D.

INVESTMENT CONSULTANTS

NEPC, LLC

CONSULTING ACTUARY

Gabriel, Roeder, Smith & Company

INDEPENDENT AUDITORS

Mitchell & Titus, LLP

MASTER CUSTODIAN

The Northern Trust Company

COMMERCIAL BANK

JPMorgan Chase Bank, N.A.

INVESTMENT MANAGERS

ABR Chesapeake Investors III LP	GMO, LLC
Acadian Asset Management LLC	Great Lakes Advisors, LLC
Adams Street Partners, LLC	HGK Asset Management, Inc
Angelo Gordon & Co., LP	Invesco Venture Alpha Fund LP
ARES Management LLP	Lazard Asset Management, LLC
Artisan Partners LP	LM Capital Group LLC
Beach Point Select Fund LP	Lone Star Funds
Blackrock Asia Fund III	MacKay Shields LLC
Blueprint Capital Advisors LLC	Manulife Asset Management LLC
BMO Asset Management Corp	Mesirow Financial Real Estate Value Fund
Brookfield Real Estate Finance Fund V	Monroe Capital Private Credit Fund
Carlyle Infrastructure Partners, LP	Montag & Caldwell, LLC
CBRE Clarion Securities LLC	Morgan Stanley Real Estate Investing
Chicago Equity Partners LLC	Newport Capital Partners, LLC
Clareant EDL (Levered)	Northern Trust Investments Inc
Crestline Investors Inc	PIMCO Investments LLC
Denali Advisors LLC	Pluscios Management LLC
Dorchester Capital Advisors LLC	Shamrock Hostmark Hotel Fund, LP
DRA Growth and Income Fund VI	Sound Mark Horizons Fund LP
Eagle Point Credit Management	UBS Asset Management Inc.
Earnest Partners, LLC	Ullico Investment Advisors Inc
EntrustPermal PABF Fund LLC	Voya Investment Management Co. LLC
Fisher Asset Management LLC	Wellington Management Company LLP
GAM Investment Management	Wells Capital Management Incorporated
Global Infrastructure Partners	William Blair Investment Management, LLC

ORGANIZATION CHART

RETIREMENT BOARD OF TRUSTEES

Thomas A. Beyna, President and Investment Committee Chairman
 Carol L. Hamburger, Vice President
 Brian E. Wright, Recording Secretary
 Kurt A. Summers, Jr., Treasurer
 Carole L. Brown, Trustee
 Samantha S. Fields, Trustee
 Michael K. Lappe, Trustee
 Edward M. Wodnicki, Trustee

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✧

INTERIM EXECUTIVE DIRECTOR

Kenneth E. Kaczmarz

INTERIM CHIEF INVESTMENT OFFICER

Thomas A. Beyna

✧

✧

PROFESSIONAL CONSULTANTS

Legal Advisor
 Medical Advisor
 Investment Consultants
 Consulting Actuary
 Auditors
 Master Custodian
 Investment Managers

COMPTROLLER

Caroline E. Vullmahn, CPA

ASSISTANT COMPTROLLER

August A. Madonia

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BENEFIT CALCULATIONS

Gladys Bernal

BENEFIT CLAIMS

Kay Hylton

BENEFIT COUNSELING

Jacqueline Robinson

BENEFIT DISBURSEMENTS

Kris Matalik

DISABILITY MATTERS

Robert Crawford

Information regarding investment professionals that provide services to the Policemen's Annuity and Benefit Fund of Chicago can be found in the Other Supplementary Information to the Financial Statements (see Schedule of Investment Fees on page 74) and the Investment Section (pages 76 to 88).



Financial Section



INDEPENDENT AUDITOR'S REPORT

Board of Trustees
Policemen's Annuity and Benefit Fund of Chicago

Report on the Financial Statements

We have audited the accompanying financial statements of the Policemen's Annuity and Benefit Fund of Chicago (the Fund), a component unit of the City of Chicago (City), as of and for the years ended December 31, 2018 and 2017, and the related notes to the financial statements, which collectively comprise the Fund's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

The Fund's 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.

Auditor's 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 audit 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 entity'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 entity's internal control. Accordingly, we express no such opinion. 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.

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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 above present fairly, in all material respects, the fiduciary net position of the Fund as of December 31, 2018 and 2017, and the changes in its fiduciary net position for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matter

As discussed in Note 7 to the financial statements, as of January 1, 2018, the Fund adopted Governmental Accounting Standards Board Statement No. 75, *Accounting and Financial Reporting for Postemployment Plans Other Than Pension Plans*. Our opinion is not modified with respect to this matter.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and required supplementary information as listed in the table of contents, 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 inquiries 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 audits 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 financial statements that collectively comprise the Fund's basic financial statements. The schedule of administrative expenses, schedule of consulting costs and schedule of investment fees are presented for purposes of additional analysis and are not a required part of the basic financial statements.



MITCHELLTITUS

The supplementary 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 basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

The information included in the introductory section, the investment section, the actuarial section, and the statistical section as listed in the table of contents is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information has not been subjected to the auditing procedures applied in the audits of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on it.

Mitchell Titus, LLP

June 14, 2019

MANAGEMENT'S DISCUSSION AND ANALYSIS (unaudited)

The Management's Discussion and Analysis section of this report is intended to serve as an introduction to the financial statements of the Policemen's Annuity and Benefit Fund of Chicago (the Fund) and to supplement the information contained therein.

Overview of Financial Statements and Accompanying Information

The basic financial statements are prepared in accordance with accounting principles generally accepted in the United States of America as established by the Governmental Accounting Standards Board (GASB) and are described below:

- **Statements of Fiduciary Net Position** report the Fund's assets, liabilities, deferred inflow of resources and the resultant net position where assets minus liabilities equal net position held in trust for pension benefits at the end of the year.
- **Statements of Changes in Fiduciary Net Position** show the sources and uses of funds during the calendar year, where additions minus deductions equal the net increase or decrease in net position held in trust for pension benefits for the year.
- **Notes to the Financial Statements** are an integral part of the financial statements and include important information and schedules to provide a more comprehensive understanding of the data provided in the financial statements. Information contained in the note disclosures includes the Fund's accounting policies, descriptions of pension and health benefits and related liabilities, detail of investments and related risks, fund reserves, and various other relevant topics.
- **Required Supplementary Information** presents detailed required historical information and is presented after the Notes to the Financial Statements. This required supplementary information includes data on the employer's net pension liability and changes thereof, employer's contribution and money-weighted rate of return for the pension plan; and information on total OPEB liability and employer's contributions for the Health Insurance Supplement and Staff Retiree Health Plan; along with the other information useful in evaluating the fiduciary net position of the Fund.
- **Supplementary Information** presents the detail on administrative costs of maintaining a defined benefit pension plan.

Financial Highlights

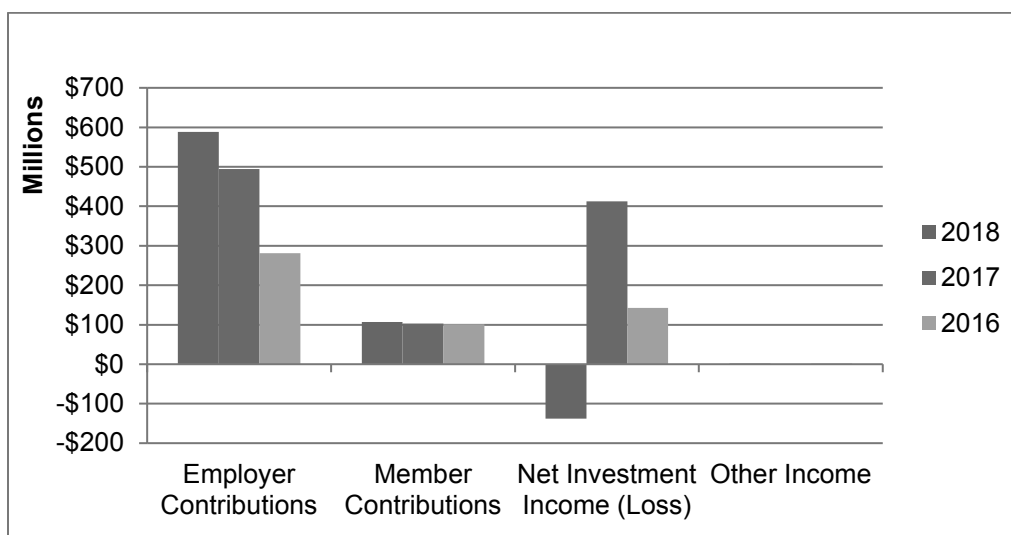
- The fiduciary net position of the Fund decreased by \$216.3 million, or 7.0%, to \$2,905.1 million at December 31, 2018. At December 31, 2017, the fiduciary net position of the Fund increased by \$257.1 million, or 9.0%, to \$3,122.1 million (\$3,121.4 after restatement) from the December 31, 2016 balance of \$2,865.0 million. In 2018, the Fund adopted GASB Statement No. 75, and as a result, we restated the beginning fiduciary net position at January 1, 2018. See Note 7 for further details.

MANAGEMENT'S DISCUSSION AND ANALYSIS (unaudited)

Financial Highlights (continued)

- Additions to the Fund are received from investment income and contributions from the employer and plan members. These are the primary funding sources for benefit payments. In 2018, these additions totaled \$558.8 million versus \$1,009.8 million in 2017, which is a 44.7% decrease. The Fund experienced a loss on investments in calendar year 2018 of \$138 million, (5.36)% which compares to the positive investment return of \$412.2 million, or 17.15% in 2017. Most major asset classes ended 2018 in the red, with US equities suffering their worst December since the 1930s. A wave of risk aversion was felt broadly as safe-haven fixed income rallied with Treasury yields declining in the final weeks of the year. The broad equity markets, as measured by the Morgan Stanley Capital International All Country All World Index (MSCI ACWI) index posted a return of (9.4)%; the credit markets, as measured by the Bloomberg Barclays Global Aggregate index posted a return of (1.2)%. The Fund's portfolio return of (5.36)% for the year is primarily attributed to the total equity portfolio, which returned (11.54)% (net of fees) and made up 51% of the Fund's investments as of December 31, 2018.
- An increase in employer contributions was a factor in the additions to the Fund. Effective May 30, 2016, with the passing of Public Act 099-0506 (PA 99-0506), the reserve was adjusted in accordance with the Illinois Pension Statutes. For financial reporting purposes, the 2018 employer contributions increased \$93.5 million, representing both the required statutory increase and the acknowledgment of additional employer receivables. In 2017, the employer contributions significantly increased by \$212.9 million, reflecting a full year of contributions required by PA-0506.

ADDITIONS 2016 - 2018



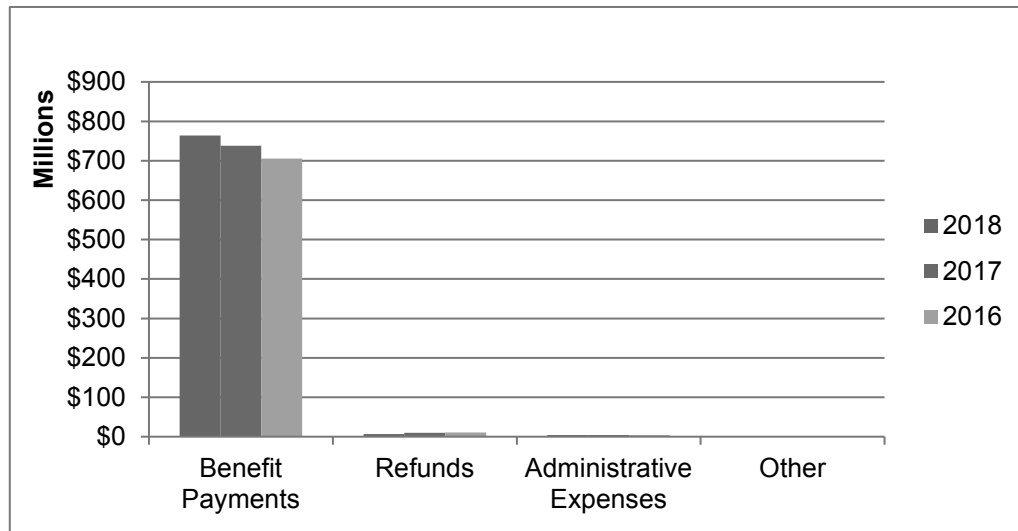
- Deductions to the Fund are incurred primarily for the purpose for which the Policemen's Annuity and Benefit Fund of Chicago was created, to provide benefits to the police officers of the City and their surviving spouses and children. Deductions consist primarily of pension and disability benefits, death benefits, refunds of employee deductions, and administrative expenses. In 2018, these deductions totaled \$775.7 million and were \$752.7 million in 2017, which is a 3.1% increase. This increase is attributable primarily to the number of retirees and beneficiaries receiving higher benefit payments. The net number of benefit recipients increased in 2018 by three members to 13,631, the highest beneficiary count in Fund history.

MANAGEMENT'S DISCUSSION AND ANALYSIS (unaudited)

Financial Highlights (continued)

- Also contributing to the increase in deductions and benefit payments is the enactment of Public Act 99-0905 (PA 99-0905) on November 29, 2016, which provided the statutory 3% automatic increase annually to members born between January 1, 1955, and January 1, 1966. The legislature also provided increased benefits to qualifying annuitants such that the minimum annuity paid cannot be less than 125% of the Federal poverty level. Increased benefit payments were made in 2018 to the members impacted; with each legislative provision impacting over 900 retirees and surviving spouses.

DEDUCTIONS 2016 - 2018



- Benefit payments, excluding death benefits and refunds, increased by approximately \$26.3 million in 2018 to \$762.3 million from \$736.0 million in 2017. Death benefits and refunds of employee deductions decreased 25.8% from 2017 to 2018 by approximately \$3.1 million, from \$11.9 million to \$8.8 million, respectively.
- Administrative expenses decreased slightly by approximately \$0.3 million, or 6.8%, from \$4.4 million in 2017 to \$4.1 million in 2018.
- The primary objective of the Fund is to meet its long-term defined pension benefit obligations. The funding ratio of the Fund on a fair value basis, for purposes of statutory funding, experienced a decrease from 23.8% at December 31, 2017 to 22.0% at December 31, 2018. The decrease reflects a slight increase in benefits paid and a lower than expected investment return. The absence of a contract settlement left salary levels unchanged and resulted in a favorable actuarial gain. For the year ended December 31, 2018, the Fund's (5.36)% investment return was significantly lower than the Fund's underlying investment return assumption of 7.25%.

MANAGEMENT'S DISCUSSION AND ANALYSIS (unaudited)

Financial Highlights *(continued)*

- For accounting and financial reporting pursuant to GASB 67 and 68, which uses a Single Discount Rate that reflects: (1) a long-term expected rate of return on pension plan investments (to the extent that the Fund's fiduciary net position is projected to be sufficient to pay benefits) and (2) a tax-exempt municipal bond rate as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met), the Fund's net pension liability increased by \$75,682,255 from \$10,332,396,270 as of December 31, 2017, to \$10,408,078,525 at December 31, 2018. Changes in the actuarial assumptions and methods led to the change in the Single Discount Rate from 7.00% to 7.18% (based on the long-term expected rate of return on investments of 7.25% used in the December 31, 2017, and December 31, 2018, actuarial valuations and the long-term municipal bond rate of 3.31% as of December 29, 2017, and 3.71% as of December 28, 2018, respectively).
- In compliance with GASB No. 75, the Fund is required to recognize a liability for other postemployment benefits (OPEB), which represents health insurance coverage for active and retired Fund employees. Expenses of \$0.2 million and \$0.50 million were recognized in 2018 and 2017, respectively, resulting in a total accrued liability of \$2.24 million and \$2.95 million as of December 31, 2018 and 2017, respectively. The difference between the \$2.95 million GASB 45 net OPEB obligation at December 31, 2017 and the \$2.29 million GASB 75 total OPEB obligation at January 1, 2018 generated a gain of \$0.65 million due to a change in accounting principle.

MANAGEMENT'S DISCUSSION AND ANALYSIS (unaudited)

Fiduciary Net Position

A summary of fiduciary net position is presented below:

Fiduciary Net Position

(In millions)

As of December 31, 2018, 2017, and 2016

				2018–2017 Change	
	2018	2017	2016	\$	%
Receivables	\$ 593.3	\$ 497.0	\$ 460.2	\$ 96.3	19.4 %
Brokers–unsettled trades	135.1	139.7	114.3	(4.6)	(3.3)
Investments, at fair value	2,391.4	2,702.3	2,485.2	(310.9)	(11.5)
Invested securities lending cash collateral	<u>112.8</u>	<u>146.5</u>	<u>177.8</u>	<u>(33.7)</u>	<u>(23.0)</u>
Total assets	<u>3,232.6</u>	<u>3,485.5</u>	<u>3,237.5</u>	<u>(252.9)</u>	<u>(7.3)</u>
Brokers–unsettled trades	204.5	207.3	186.9	(2.8)	(1.4)
Securities lending payable	112.8	146.5	177.8	(33.7)	(23.0)
OPEB obligation	2.2	2.9	2.7	(0.7)	(24.1)
Refunds and accounts payable	<u>7.9</u>	<u>6.7</u>	<u>5.1</u>	<u>1.2</u>	<u>17.9</u>
Total liabilities	<u>327.4</u>	<u>363.4</u>	<u>372.5</u>	<u>(36.0)</u>	<u>(9.9)</u>
Deferred inflow of resources	<u>0.1</u>	<u>-</u>	<u>-</u>	<u>0.1</u>	<u>-</u>
Net position	<u>\$ 2,905.1</u>	<u>\$ 3,122.1</u>	<u>\$ 2,865.0</u>	<u>\$ (217.0)</u>	<u>(7.0)%</u>

Overall, the fiduciary net position decreased in 2018 primarily due to the negative investment performance of the Fund's portfolio and when netted together with an increase in employer contributions. The Fund's investment portfolio retracted by (5.36)% in 2018.

As of December 31, 2018 and 2017, the amount recorded as receivables includes the employer contributions receivable under the provisions of PA 99-0506. The funding provisions of PA 99-0506 are significantly different than PA-1495, which was in effect at December 31, 2015. Pursuant to PA 99-0506, the funding policy requires City contributions to be equal to \$500 million in payment year 2018. Required funding in subsequent payment years is as follows: 2019 - \$557 million, and 2020 - \$579 million. For the payment years 2021 through 2055, the employer is required to make percent of pay contributions that, along with member contributions and investment earnings, are expected to generate a projected funded ratio of 90% by plan year-end 2055.

MANAGEMENT'S DISCUSSION AND ANALYSIS (unaudited)

Changes in Fiduciary Net Position

The following table reflects a comparative summary of various changes in fiduciary net position:

Changes in Fiduciary Net Position

(In millions)

Years Ended December 31, 2018, 2017 and 2016

				2018–2017	
				Change	
	2018	2017	2016	\$	%
ADDITIONS					
Member contributions	\$ 107.2	\$ 103.0	\$ 101.5	\$ 4.2	4.1 %
Employer contributions	588.0	494.5	281.6	93.5	18.9
Net investment gain (loss)					
and investment income	(138.7)	411.4	142.1	(550.1)	(133.7)
Securities lending income	0.7	0.8	0.6	(0.1)	(12.5)
Miscellaneous income	<u>1.6</u>	<u>0.1</u>	<u>1.4</u>	<u>1.5</u>	<u>1,500.0</u>
Total additions	<u>558.8</u>	<u>1,009.8</u>	<u>527.2</u>	<u>(451.0)</u>	<u>(44.7)</u>
DEDUCTIONS					
Annuity, disability, and death					
benefits	764.3	737.9	705.6	26.4	3.6
Refunds of contributions	6.7	10.0	10.7	(3.3)	(33.0)
Administrative expenses	<u>4.1</u>	<u>4.8</u>	<u>4.8</u>	<u>(0.7)</u>	<u>(14.6)</u>
Total deductions	<u>775.1</u>	<u>752.7</u>	<u>721.1</u>	<u>22.4</u>	<u>3.0</u>
Net increase/(decrease)	<u>(216.3)</u>	<u>257.1</u>	<u>(193.9)</u>	<u>(473.4)</u>	<u>(184.1)</u>
<i>Net position restricted</i>					
<i>for pension benefits</i>					
Beginning of year, as restated	<u>3,121.4</u>	<u>2,865.0</u>	<u>3,058.9</u>	<u>256.4</u>	<u>8.9</u>
Ending of year	<u>\$ 2,905.1</u>	<u>\$ 3,122.1</u>	<u>\$ 2,865.0</u>	<u>\$ (217.0)</u>	<u>(7.0)%</u>

The Fund experienced a decrease in fiduciary net position of \$216.3 million in 2018. While an overall decrease in the net fiduciary position was experienced, benefit payments continue to increase each year. The Fund experienced an increase in retirements of active members in 2018.

Contractual terms between the employer and the Fraternal Order of Police, Chicago Lodge No. 7, provided that police officers of at least 60 years of age, with over 20 years of service, receive free healthcare in the City sponsored healthcare program until the age of Medicare eligibility. Police officers of at least 55 years of age, indicating their intent to retire prior to October 1, 2018, with over 20 years of service, can participate in the City sponsored healthcare program at a cost of 2% of their retirement annuity until the age of Medicare eligibility. Given these provisions, increases in retirement were experienced in 2018.

MANAGEMENT'S DISCUSSION AND ANALYSIS (unaudited)

Investment Activities

The Board approved certain changes in the asset allocation over the course of 2018. In March 2018, the Board approved increasing allocations to Real Estate +2% and Infrastructure +2% and Total Equities +3%. Additionally, the Board voted to decrease the portfolio's allocations to Private Equity (2)%, Real Assets (4)% and Hedge Funds (1)%.

The Fund continues to prudently implement the strategic allocation approved by the Board of Trustees. In 2018, the Board voted to hire 13 new investment managers: Two (2) domestic equity managers, two (2) long/short equity managers, two (2) infrastructure managers, one (1) opportunistic credit hedge fund, one (1) private equity manager and five (5) real estate managers.

Investment Returns

Years Ended December 31, 2018, 2017 and 2016

	<u>2018</u>	<u>2017</u>	<u>2016</u>
Total fund (%)	(5.36)%	17.15%	6.66%
Equities	(11.54)	29.10	6.16
Fixed income	(0.38)	4.18	4.36
Alternatives	(0.95)	12.62	8.02
Real estate	1.64	5.43	6.01
Private capital	6.15	3.88	7.89
Cash and cash equivalents	1.98	1.00	0.58

Private capital consists of investments in private equity, private credit and infrastructure. Alternative investments consist of fund of hedge fund investments and global tactical allocations.

Plan Membership

The following table reflects the Plan membership as of December 31, 2018, 2017 and 2016.

Plan Membership

As of December 31, 2018, 2017 and 2016

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2018-2017</u>	
				<u>Change</u>	<u>%</u>
Retirees and beneficiaries receiving benefits	13,631	13,628	13,394	3	0.0%
Active employees	13,438	12,633	12,177	805	6.4
Terminated (inactive members) employees entitled to benefits or refunds of contributions	<u>721</u>	<u>640</u>	<u>606</u>	<u>81</u>	<u>12.7</u>
Total	<u><u>27,790</u></u>	<u><u>26,901</u></u>	<u><u>26,177</u></u>	<u><u>889</u></u>	<u><u>3.3%</u></u>

MANAGEMENT'S DISCUSSION AND ANALYSIS (unaudited)

Funding Status

The funding ratio of the Fund on a fair value basis, for purposes of market value funding, experienced a decrease to 22.0% at December 31, 2018 from 23.8% at December 31, 2017. During 2014, the Fund adopted GASB No. 67, which requires that projected benefit payments are required to be disclosed to their actuarial present values using a single discount rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) a tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average 'AA' credit rating. Using this methodology and accounting standard, the funding ratios of the Fund at December 31, 2018 and 2017, were 21.8% and 23.2%, respectively. Discount rates used in the GASB No. 67 valuation were 7.18% and 7.00% as of December 31, 2018 and 2017, respectively.

In 2016, certain assumptions were changed, which included the investment return assumption and the inflation rate assumption. Actuarial information presented as of December 31, 2018 and 2017 reflects these assumption changes.

Effective May 30, 2016, the Illinois Pension Statutes regarding employer contributions to the Fund were changed by Public Act 099-0506. In accordance with Public Act 099-0506, the funding policy requires that contributions from the City, as employer, be equal to \$420 million in payment year 2016, \$464 million in payment year 2017, \$500 million in payment year 2018, \$557 million in payment year 2019, and \$579 million in payment year 2020. For payment years after 2020, the City is required to make level percent of pay contributions for plan years 2020 through 2055 that, along with member contributions and investment earnings, are expected to generate a projected funded ratio of 90% by plan year-end 2055.

As currently provided in the applicable provisions of Public Act 099-0506, the funded ratio of the Fund is projected to increase slowly in future years, with required increases from the employer in years into the future in accordance with current legislature. The Fund continues to be heavily dependent upon employer contributions to fund benefit payments to members now and in future years.

Contact Information

This financial report is designed to provide the employer, plan participants, and others with a general overview of the Fund's finances and to show accountability for the monies received. Questions concerning any data provided in this report can be submitted to:

Caroline Vullmahn
Comptroller
Policemen's Annuity and Benefit Fund of Chicago
221 North LaSalle Street
Suite 1626
Chicago, Illinois 60601

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Statements of Fiduciary Net Position

As of December 31, 2018 and 2017

	<u>2018</u>	<u>2017</u>
ASSETS		
Cash	\$ 250	\$ 250
<i>Receivables</i>		
Employer tax levies, net of allowance for loss of \$3,098,266 in 2018 and \$37,047,204 in 2017	581,515,035	486,151,716
Member contributions	5,209,350	5,019,464
Interest and dividends	6,555,824	5,822,061
Accounts receivable—due from brokers	135,126,612	139,702,728
	<u>728,406,821</u>	<u>636,695,969</u>
<i>Investments, at fair value</i>		
U.S. common stock and other equity	460,527,370	483,368,980
Collective investment funds, stock	92,658,300	245,941,487
Collective investment funds, international equities	17,782,881	36,222,231
Collective investment funds, fixed income	158,012,181	170,641,311
Collective investment funds, international fixed income	54,103,217	112,135,048
International equity	527,687,517	720,385,794
U.S. bonds and notes	454,917,964	473,953,673
International bonds and notes	38,396,304	39,339,047
Short-term instruments	108,459,004	156,035,625
Infrastructure	92,520,576	26,855,526
Forward contracts and swaps	22,194,095	27,924,125
Hedge fund-of-funds	188,406,726	100,082,750
Real estate	90,782,832	72,809,905
Venture capital and private equity	84,919,513	36,607,996
	<u>2,391,368,480</u>	<u>2,702,303,498</u>
Invested securities lending cash collateral	112,851,289	146,521,469
Total assets	<u>3,232,626,840</u>	<u>3,485,521,186</u>
LIABILITIES		
Refunds and accounts payable	7,898,508	6,734,372
Trade accounts payable—due to brokers	204,454,518	207,254,031
Securities lending cash collateral	112,851,289	146,521,469
OPEB obligation	2,242,684	2,945,021
Total liabilities	<u>327,446,999</u>	<u>363,454,893</u>
Deferred inflow of resources	91,256	-
Total liabilities and deferred inflow of resources	<u>327,538,255</u>	<u>363,454,893</u>
Net position restricted for pension benefits	<u>\$ 2,905,088,585</u>	<u>\$ 3,122,066,293</u>

The accompanying notes are an integral part of these financial statements.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Statements of Changes in Fiduciary Net Position

For the Years Ended December 31, 2018 and 2017

	<u>2018</u>	<u>2017</u>
ADDITIONS		
<i>Contributions</i>		
Employer	\$ 588,034,930	\$ 494,483,191
Plan member salary deductions	107,186,492	103,011,250
Total contributions	<u>695,221,422</u>	<u>597,494,441</u>
<i>Investment income</i>		
Net appreciation (depreciation) in the fair value of investments	(183,034,696)	371,090,439
Interest	21,282,711	19,437,993
Dividends	29,667,486	29,272,410
Real estate income	2,973,090	1,749,558
	<u>(129,111,409)</u>	<u>421,550,400</u>
<i>Investment activity expenses</i>		
Investment management fees	(8,802,097)	(9,053,006)
Custodial fees	(390,145)	(255,135)
Investment consulting and other fees	(423,295)	(821,236)
Total investment activity expenses	<u>(9,615,537)</u>	<u>(10,129,377)</u>
Net income (loss) from investing activities	<u>(138,726,946)</u>	<u>411,421,023</u>
<i>From securities lending activities</i>		
Securities lending income	3,134,411	2,150,479
Borrower rebates, net of related fees	(2,282,407)	(1,254,123)
Bank fees	(102,240)	(126,975)
Net income from securities lending activities	<u>749,764</u>	<u>769,381</u>
Total net investment income (loss)	<u>(137,977,182)</u>	<u>412,190,404</u>
Miscellaneous income	<u>1,600,348</u>	<u>97,239</u>
Total additions	<u>558,844,588</u>	<u>1,009,782,084</u>
DEDUCTIONS		
Pension and disability benefits	762,295,768	736,026,328
Death benefits	2,071,600	1,847,600
Refunds of employee deductions	6,737,073	10,017,655
	<u>771,104,441</u>	<u>747,891,583</u>
Administrative expenses	4,064,802	4,843,012
Total deductions	<u>775,169,243</u>	<u>752,734,595</u>
Net Increase (decrease)	(216,324,655)	257,047,489
<i>Net position restricted for pension benefits</i>		
Beginning of year, as restated	<u>3,121,413,240</u>	<u>2,865,018,804</u>
End of year	<u><u>\$ 2,905,088,585</u></u>	<u><u>\$ 3,122,066,293</u></u>

The accompanying notes are an integral part of these financial statements.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Reporting Entity

Accounting principles generally accepted in the United States (U.S. GAAP), as established by the Governmental Accounting Standards Board (GASB), 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 the primary government to impose its will on the component unit, or a potential for the component unit to provide specific financial benefits to or impose specific financial burdens on the primary government. A primary government may also be financially accountable for its component units.

Based on the above criteria, the Policemen's Annuity and Benefit Fund of Chicago (the Fund, or PABF) is considered to be a component unit of the City of Chicago (the City). The Fund is part of the City's financial reporting entity and is included in the City's fiduciary statement of net assets as pension trust funds.

Basis of Accounting

The Fund's financial statements are prepared on the accrual basis of accounting. Employee and employer contributions are recognized as additions in the period in which employee services are performed. Benefits and refunds are recognized as deductions when payable. Expenses are recorded when the corresponding liabilities are incurred, regardless of when payment is made.

Use of Estimates

The preparation of financial statements in accordance with U.S. GAAP requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results may differ from those estimates.

Investments

The Fund is authorized to invest in bonds, notes, and other direct obligations of the U.S. Government and U.S. Government agencies; corporate bonds, debentures, and notes; certain notes secured by mortgages, including pass-through securities; common and preferred stocks; certain pooled funds; limited partnerships; real estate; derivatives; currencies and other types of investment vehicles as set forth in the Fund's Statement of Investment Policy and in compliance with the Illinois Compiled Statutes.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES *(continued)*

Method Used to Value Investments

Investments are reported at fair value. Short-term investments are reported at cost, which approximates fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. Fixed-income securities are valued principally using quoted market prices provided by independent pricing services. For collective investments, net asset value (NAV) is determined and certified by the investment managers as of the reporting date. Real estate investments are valued at estimated fair value as determined by the general partner, based upon appraisals provided by the investment manager. Hedge funds, venture capital, private equity, infrastructure, and certain opportunistic investments are reported at estimated fair value as determined by the general partner of the investment vehicle.

Furniture and Office Equipment

Furniture and office equipment are not capitalized as they are immaterial and are charged to expenses in the year of purchase.

Administrative Expenses

Administrative expenses are recorded as incurred and are budgeted and approved by the Fund's Board of Trustees. Administrative expenses are funded by employer contributions.

Income Taxes

The Fund is a tax exempt retirement plan as determined by the Internal Revenue Service and as such, income earned by the Fund is not subject to Federal income taxes.

Securities Lending Transactions

Cash received as collateral on securities lending transactions and investments made with that cash are reported as assets in the statements of fiduciary net position at fair value. Securities received as collateral are reported as assets only if the Fund is able to pledge or sell them without a borrower default. Liabilities resulting from these transactions are reported in the statements of fiduciary net position.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES *(continued)*

Recent Accounting Pronouncements

The following standards were adopted by the Fund during 2018 and 2017:

GASB Statement No. 75, *Accounting and Financial Reporting for Post-Retirement Benefits Other Than Pension Plans*, was issued in June of 2015. The primary objective of this Statement is to improve accounting and financial reporting by government entities for post-retirement benefits other than pensions. The Fund adopted GASB No. 75 for its December 31, 2018, financial statements.

GASB Statement No. 82, *Pension Issues*, was established to address certain issues that have been raised with respect to GASB Statements No. 67, 68, and 73. Specifically, this Statement addresses issues regarding (1) the presentation of payroll-related measures in required supplementary information, (2) the selection of assumptions and the treatment of deviations from the guidance in an Actuarial Standard of Practice for financial reporting purposes, and (3) the classification of payments made by employers to satisfy employee (plan member) contributions requirements. During the year ended December 31, 2017, the Fund adopted GASB Statement No. 82. Implementation had no impact on the reporting amounts in the statements of fiduciary net position.

GASB Statement No. 85, *Omnibus*, was issued in March 2017. The primary objective of this Statement is to address practice issues that have been identified during implementation and application of certain GASB Statements. The Fund adopted GASB No. 85 for its December 31, 2018, financial statements. Implementation did not have a significant impact on the financial statements.

Other accounting standards that the Fund is currently reviewing for applicability and potential impact on the financial statements include:

GASB Statement No. 87, *Leases*, was issued in June of 2017. The primary objective of this Statement is to improve accounting and financial reporting for leases by government entities. This Statement will require recognition of certain leases that were previously categorized as operating leases. The Fund will adopt GASB No. 87 for its December 31, 2020, financial statements.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 2 PENSION PLAN

Plan Description and Contribution Information

PABF is the administrator of a defined benefit, single-employer pension plan with a defined contribution minimum for the purpose of providing benefits to the police officers of the City and their widows and children. Any City employee employed under the provisions of the municipal personnel ordinance as police service is covered by the Fund. The defined benefits, as well as the employer and employee contribution levels, are mandated in Illinois Compiled Statutes (40 ILCS Act 5, Article 5) and may be amended only by the Illinois State Legislature. The Fund is governed by an eight-member Board of Trustees (four appointed by the City, three elected by the police officers, and one elected by the annuitants) whose duties are to administer the Fund under the Illinois Pension Code. The City's payrolls for employees covered by the Fund for the years ended December 31, 2018 and 2017 were \$1,205,324,445 and \$1,150,406,094, respectively. At December 31, 2018 and 2017, the Fund's membership consisted of the following:

	<u>2018</u>	<u>2017</u>
Active employees	13,438	12,633
Retirees and beneficiaries currently receiving benefits	13,631	13,628
Terminated employees entitled to benefits or a refund of contributions, but not yet receiving them	<u>721</u>	<u>640</u>
	<u>27,790</u>	<u>26,901</u>

The Fund provides retirement benefits as well as death and disability benefits. Employees age 50 or older with at least 10 years of service are entitled to receive a money purchase annuity and partial City contributions if they have completed less than 20 years of service. The mandatory retirement age for a participant is 63. Employees age 50 or older with at least 20 years of service are entitled to receive a minimum formula annuity of 2.5% per year for the first 20 years of service, plus 2.5% per year for each following year or fraction thereof times the final average salary (highest average annual salary for any four consecutive years within the last 10 years of service immediately preceding the date of retirement). The annuity shall not exceed 75% of the highest average annual salary.

For members with at least 20 years of service, the monthly annuity increases by 3% of the original annuity at the first of the month following the later of the attainment of age 55 or the first anniversary of retirement, and by 3% on each January 1 thereafter, if the recipient was born before January 1, 1966.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

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Years Ended December 31, 2018 and 2017

NOTE 2 PENSION PLAN *(continued)*

Plan Description and Contribution Information *(continued)*

Effective November 29, 2016, Public Act 99-0905 (PA 99-0905) became law. This Act extended the 3% annual automatic increase to participants born after December 31, 1954, but before January 1, 1966, first payable at the later of age 55 or one year from retirement date. In addition, under PA 99-0905, the minimum benefit for annuitants and widows cannot be less than 125% of the Federal poverty level.

If the recipient was born after January 1, 1966, the monthly annuity increases by 1.5% of the original annuity at the first of the month following the later of the attainment of age 60 or the first anniversary of retirement, and 1.5% on each January 1 thereafter, but will not exceed a total of 30%. Members first hired after January 1, 2011, are subject to different provisions within their defined benefit pension plan. The new provisions include a minimum retirement age of 55, a final average salary calculation based upon 96 consecutive months within the last 120 months of employment, an annual salary cap for purposes of calculating a pension benefit, and cost-of-living increases for a pension benefit that include considerations related to the Consumer Price Index for urban consumers.

Covered employees are required to contribute 9.0% of their salary to the Fund. If an employee leaves covered employment without qualifying for an annuity, accumulated contributions are refunded with interest.

Commencing with the City tax levy year beginning in 2016, legislation in place at December 31, 2016, provides for fixed dollar City contributions for payment years 2016 to 2020, and level percent of pay contributions for years 2021 to 2055. Beginning with payment year 2021, the funding policy requires that future employer contributions, employee contributions and other Fund income are sufficient to produce a funding goal of 90% by the fiscal year end 2055, based upon the actuarial value of Fund assets and application of certain required actuarial assumptions and methodologies.

The actuarial calculation utilized and reported to the City for its tax levy in 2015 requires that assets are marked-to-market at March 30, 2011, and the actuarial value of assets be based upon a five-year smoothing of investment gains and losses incurred in fiscal years ending after March 30, 2011. The actuarial value of assets at December 31, 2016, reflects that assets were marked to the fair market value of assets at January 1, 2012, and all related investment gains and losses through January 1, 2012, were recognized. Investment gains and losses for the years ended December 31, 2012, 2013, 2014, 2015 and 2016, are recognized at a rate of 20% per year over a five-year period. For purposes of the actuarial asset valuation, resetting the actuarial value of assets to the fair market value of assets at January 1, 2012, instead of March 30, 2011, did not impact the statutory contribution requirement for 2017 and 2018.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

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NOTE 2 PENSION PLAN *(continued)*

Plan Description and Contribution Information *(continued)*

The total pension liability at December 31, 2018 and 2017, was \$13,313,258,366 and \$13,454,462,563, respectively. The plan fiduciary net position at December 31, 2018 and 2017 was \$2,905,179,841 and \$3,122,066,293, respectively. The net pension liability at December 31, 2018 and 2017 was \$10,408,078,525 and \$10,332,396,270, respectively. The Single Discount Rate of 7.18% required by GASB Statement No. 67 as of December 31, 2018, was based on a long-term expected rate of return on pension plan investments of 7.25% and a long-term municipal bond rate of 3.71%. The Single Discount Rate of 7.00% required by GASB Statement No. 67 as of December 31, 2017, was based on a long-term expected rate of return on pension plan investments of 7.25% and a long-term municipal bond rate of 3.31%.

NOTE 3 HEALTH INSURANCE SUPPLEMENT

Plan Description and Contribution Information

The City offered group health benefits, as was provided, to annuitants and their eligible dependents, which expired on December 31, 2016 (part or all of the City portion and related subsidy paid by the Fund is subject to ongoing court review).

Effective in 2017, pursuant to the June 29, 2017, Appellate Court order, certain retirees are entitled to receive the 1983 provided subsidies of \$55 per month if non-Medicare-eligible and \$21 per month if Medicare-eligible subsidies. This obligation is not reflected as an actuarial accrued liability as of December 31, 2018, or 2017, as the matter remains in the Circuit Court to determine the mechanics and specific members eligible for the requisite payments. Refer to Note 13 for further details.

NOTE 4 CASH AND INVESTMENT RISK

Cash

The bank balance and carrying amount of the Fund's deposits at December 31, 2018, were \$189,933 and \$(81,970), respectively, and \$510,442 and \$(127,263) at December 31, 2017, respectively. These balances excluded \$250 of petty cash. The bank balance at December 31, 2018 and 2017 is on deposit with the City Treasurer and is insured or collateralized by securities held by the City Treasurer in the Fund's name.

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NOTE 4 CASH AND INVESTMENT RISK *(continued)*

Investment Policy

The Trustees assume the responsibility for establishing the Fund's investment policy. The Fund's overall investment policy is based on the following principles established by the Trustees:

- Maintain a long-term investment horizon for the Fund
- Diversify investments across several asset classes

The Trustees have indicated interest in developing a risk policy statement in parallel to the Fund's investment policy. The policy would highlight those risks managed at the Fund level and those managed by external managers. The risk policy would also state the types of risks that are monitored and how they are measured. Until such policy is developed by PABF staff and adopted by the Board, there is no formal policy relating to specific investment-related risks.

Money-Weighted Rate of Return

For the years ended December 31, 2018 and 2017, the annual money-weighted rate of return on the plan investments, net of investment expense, was (5.7)% and 16.7%, respectively. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Investment Summary

The following table presents a summary of the Fund's investments by type at December 31, 2018 and 2017:

	<u>2018</u>	<u>2017</u>
Government and agency fixed income	\$ 233,564,965	\$ 227,353,917
Corporate fixed income	259,749,303	285,938,803
U.S. common collective fixed-income funds	158,012,181	170,641,311
Global common collective fixed-income funds	54,103,217	112,135,048
Global common collective equity funds	12,847,652	13,853,401
U.S. equities	460,527,370	483,368,980
U.S. common collective stock funds	79,810,648	232,088,086
International equity common collective funds	17,782,881	36,222,231
Foreign equities	527,687,517	720,385,794
Pooled short-term investment funds	81,002,791	118,519,186
Infrastructure	92,520,576	26,855,526
Real estate	90,782,832	72,809,905
Venture capital	84,919,513	36,607,996
Forward contracts and swaps	22,194,095	27,924,125
Hedge fund-of-funds	188,406,726	100,082,750
Cash and cash equivalents	27,456,213	37,516,439
Total investments at fair value	<u><u>\$ 2,391,368,480</u></u>	<u><u>\$ 2,702,303,498</u></u>

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Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 4 CASH AND INVESTMENT RISK *(continued)*

Investment Summary *(continued)*

There were no individual investments held by the Fund that represented 5% or more of net position held in trust for pension benefits as of December 31, 2018. The Fund's individual investment Northern Trust Collective Russell 1000 Index Fund – Non Lending, which amounted to \$232,088,086 as of December 31, 2017, represented 5% or more of net position held in trust for pension benefits. There are no insurance contracts excluded from plan assets.

The Fund sold the majority of its private equity holdings (which formerly totaled over 4% of the Fund) on the secondary market in a transaction that closed in December 2017. The Fund realized a loss on the transaction, which is reflected in net appreciation (depreciation) in the fair value of investments on the statement of changes in fiduciary net position of the Fund for the year ended December 31, 2017. The realized loss was not material to the financial statements of the Fund.

The Fund's investments were managed by approximately 50 external investment managers during 2018, with additional services provided by an external investment consultant. The Fund does not employ any internal investment managers; therefore, its investments are not managed internally. The Fund does not have a formal policy regarding the credit risk of its external managers or investment consultant.

Fair Value Measurements

The Fund categorizes the fair value measurements of its investments based on the hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure an asset's fair value. Fair value is the amount that would be received to sell the investment in an orderly transaction between market participants at the measurement date (*i.e.*, exit price). The fair value measurements are determined within a framework that utilizes a three-tier hierarchy, which maximizes the use of observable inputs and minimizes the use of unobservable inputs. Investments measured and reported at fair value are classified and disclosed in one of the following categories:

- Level 1:* Unadjusted quoted prices in active markets for identical assets.
- Level 2:* Inputs other than quoted prices that are observable for the asset, either directly or indirectly. These inputs include:
 - a. quoted prices for similar assets in active markets;
 - b. quoted prices for identical or similar assets in markets that are not active;
 - c. inputs other than quoted prices that are observable for the asset;

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Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 4 CASH AND INVESTMENT RISK (continued)Fair Value Measurements (continued)*Level 2: (continued)*

- d. inputs that are derived principally from or corroborated by observable market data.

Level 3: Inputs that are unobservable for the asset. The valuation of these investments requires significant judgment due to the absence of quoted market values, inherent lack of liquidity, and changes in market conditions.

The Fund's investments that are valued using the NAV per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy. These investments do not have a readily determinable fair value.

The recurring fair value measurements for the year ended December 31, 2018 are as follows:

Investments by fair value level	Totals	Fair Value Measurements Using		
		Level 1	Level 2	Level 3
<i>Equities</i>				
U.S. common stock and other equity	\$ 460,527,370	\$ 459,786,536	\$ 740,834	\$ -
Collective investment funds, stock	79,810,648	-	79,810,648	-
International equity	527,687,517	527,637,001	-	50,516
<i>Fixed income</i>				
U.S. bonds and notes	454,917,964	-	454,917,964	-
International bonds and notes	38,396,304	-	38,396,304	-
Cash equivalents and short-term instruments	108,459,004	20,084,603	88,304,401	70,000
Forward contracts and swaps	22,194,095	-	22,194,095	-
Real estate	13,684,142	13,684,142	-	-
Subtotal	1,705,677,044	\$ 1,021,192,282	\$ 684,364,246	\$ 120,516
Investments measured at net asset value				
Collective investment funds, stock	12,847,652			
Collective investment funds, international equities	17,782,881			
Collective investment funds, fixed	158,012,181			
Collective investment funds, international fixed	54,103,217			
Infrastructure	92,520,576			
Hedge fund-of-funds	188,406,726			
Real estate	77,098,690			
Venture capital and private equity	84,919,513			
Subtotal	685,691,436			
Total	\$ 2,391,368,480			

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 4 CASH AND INVESTMENT RISK (continued)**Fair Value Measurements (continued)**

The recurring fair value measurements for the year ended December 31, 2017 are as follows:

Investments by fair value level	Totals	Fair Value Measurements Using		
		Level 1	Level 2	Level 3
<i>Equities</i>				
U.S. common stock and other equity	\$ 483,368,980	\$ 482,323,881	\$ 1,045,099	\$ -
Collective investment funds, stock	232,088,086	-	232,088,086	-
International equity	720,385,794	720,231,846	39,507	114,441
<i>Fixed income</i>				
U.S. bonds and notes	473,953,673	-	473,953,673	-
International bonds and notes	39,339,047	-	39,339,047	-
Cash equivalents and short-term instruments	156,035,625	25,815,852	130,219,773	-
Forward contracts and swaps	27,924,125	-	27,924,125	-
Real estate	15,099,845	15,099,845	-	-
Subtotal	2,148,195,175	\$ 1,243,471,424	\$ 904,609,310	\$ 114,441
Investments measured at net asset value				
Collective investment funds, stock	13,853,401			
Collective investment funds, international equities	36,222,231			
Collective investment funds, fixed	170,641,311			
Collective investment funds, international fixed	112,135,048			
Infrastructure	26,855,526			
Hedge fund-of-funds	100,082,750			
Real estate	57,710,060			
Venture capital and private equity	36,607,996			
Subtotal	554,108,323			
Total	\$ 2,702,303,498			

Equity investments classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets issued by pricing vendors.

Equity, fixed-income securities, and investment derivative instruments classified in Level 2 of the fair market hierarchy are valued using either a bid evaluation or a matrix pricing technique maintained by various pricing vendors. Bid evaluations may include market quotations, yields, maturities, call features and ratings. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices.

Equity classified in Level 3 of the fair value hierarchy is securities whose stated market price is unobservable by the market place. Many of these securities are priced by the issuers of industry groups. These prices are obtained from various pricing sources by the Fund's custodian bank.

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Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 4 CASH AND INVESTMENT RISK (continued)Fair Value Measurements (continued)

Investments measured at NAV for fair value are not subject to level classification. The following table summarizes the Fund's investments in certain entities that measure NAV per share as fair value measurement as of December 31, 2018 and 2017:

2018	Fair Value	Unfunded Commitments	Redemption Frequency (if Currently Eligible)	Redemption Notice Period
Collective investment funds, stock	\$ 12,847,652	\$ -	Daily	5 days
Collective investment funds, international equities	17,782,881	-	Daily	5 days
Collective investment funds, fixed	158,012,181	3,064,058	Daily	5 days
Collective investment funds, international fixed	54,103,217	3,000,000	Daily	5 days
Infrastructure	92,520,576	16,606,619	Illiquid	N/A
Hedge fund-of-funds	188,406,726	-	Quarterly	90 days
Real estate	77,098,690	35,669,088	Illiquid	N/A
Venture capital and private equity	84,919,513	22,418,899	Illiquid	N/A
	<u>\$ 685,691,436</u>			

2017	Fair Value	Unfunded Commitments	Redemption Frequency (if Currently Eligible)	Redemption Notice Period
Collective investment funds, stock	\$ 13,853,401	\$ -	As needed	Daily
Collective investment funds, international equities	36,222,231	-	As needed	Daily
Collective investment funds, fixed	170,641,311	3,000,000	-	-
Collective investment funds, international fixed	112,135,048	6,450,460	-	-
Infrastructure	26,855,526	77,475,701	-	-
Hedge fund-of-funds	100,082,750	-	Quarterly	Up to 65 days
Real estate	57,710,060	43,426,524	-	-
Venture capital and private equity	36,607,996	67,740,126	-	-
	<u>\$ 554,108,323</u>			

Collective investment funds, stock and international equities: There are two funds at December 31, 2018 and 2017, which invest in equities diversified across all sectors.

Collective investment funds, fixed and international fixed: There are seven funds at December 31, 2018 and 2017, which invest in a variety of fixed-income markets through various investments. Two of these funds are not eligible for redemption as of December 31, 2018, and two of these funds were not eligible for redemption as of December 31, 2017.

Infrastructure: There are three funds at December 31, 2018 and 2017, that invest in a variety of infrastructure assets through various investments. These funds are not eligible for redemption.

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Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 4 CASH AND INVESTMENT RISK *(continued)*

Fair Value Measurements *(continued)*

Hedge fund-of-funds: There are four funds at December 31, 2018, and three funds at December 31, 2017, that invest in a select group of underlying managers that implement a number of different alternative investment strategies and invest in a variety of markets through limited partnerships, limited liability companies and other investment entities. Two of the funds were not available for redemption as of December 31, 2018.

Real estate, venture capital and private equity: The real estate investments consist of 23 and 17 core, value-add, and opportunistic real estate funds as of December 31, 2018 and 2017, respectively. These funds invest in both real estate equity or real estate debt securities. The private market partnerships consist of two and four limited partnership interests as of December 31, 2018 and 2017, respectively. These funds invest in equity or debt securities of privately held companies. Real estate closed-end funds and private market partnerships are not eligible for redemption.

Investment Risks

The Fund's investments are subject to certain types of risks, including interest rate risk, credit risk, custodial credit risk and foreign currency risk. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the value of investment securities will occur in the near term. The changes could materially affect the amounts reported in the statements of fiduciary net position.

Interest rate risk—Interest rate risk is the risk that the fair value of debt securities decreases due to increases in the prevailing market interest rate. Generally, the longer the maturity of an investment, the greater the sensitivity of its fair value to changes in market interest rates. The Fund does not have a formal policy regarding interest rate risk. The Fund attempts to mitigate its exposure to fair value loss arising from increasing interest rates by diversifying its fixed-income investment strategy and by allocation to several investment managers. The Fund engaged six such managers in 2018 and 2017, respectively. Each investment manager is required to determine the maturities of all fixed-income securities in their portfolio. Additionally, guidelines are provided to the external investment managers, including a target duration range that is consistent with each investment manager's respective strategy.

The following tables show the segmented time distribution of the Fund's investments into time periods of maturities based on the investments' cash flows.

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Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 4 CASH AND INVESTMENT RISK (continued)Investment Risks (continued)

At December 31, 2018, the Fund had the following investments and maturities related to certain fixed-income securities (bonds and notes):

Investment Type	Fair Value	Investment Maturities			
		Less than 1 Year	1 to 6 Years	7 to 10 Years	More than 10 Years
Asset-backed securities	\$ 35,204,068	\$ -	\$ 8,202,322	\$ 4,448,185	\$ 22,553,561
Bank loans	20,972,644	-	13,701,061	7,271,583	-
Commercial mortgage-backed securities	18,718,629	421,138	-	638,881	17,658,610
Corporate bonds	172,826,636	8,349,359	79,444,532	58,604,244	26,428,501
Corporate convertible bonds	2,143,439	-	-	68,639.00	2,074,800
Government agency securities	11,225,076	1,576,107	8,525,797	744,974	378,198
Government bonds	101,708,419	4,018,181	57,546,398	22,178,146	17,965,694
Government mortgage-backed securities	117,658,857	-	29,110	4,241,120	113,388,627
Index-linked government funds	2,520,778	-	-	2,520,778	-
Municipal/provincial bonds	3,662,933	80,299	2,530,248	-	1,052,386
Non-government-backed collateralized mortgage obligations	6,672,789	-	442,875	1,733,727	4,496,187
	<u>\$ 493,314,268</u>	<u>\$ 14,445,084</u>	<u>\$ 170,422,343</u>	<u>\$ 102,450,277</u>	<u>\$ 205,996,564</u>

At December 31, 2017, the Fund had the following investments and maturities related to certain fixed-income securities (bonds and notes):

Investment Type	Fair Value	Investment Maturities			
		Less than 1 Year	1 to 6 Years	7 to 10 Years	More than 10 Years
Asset-backed securities	\$ 37,842,129	\$ -	\$ 6,171,983	\$ 9,273,085	\$ 22,397,061
Bank loans	20,295,764	-	9,808,649	10,487,115	-
Commercial mortgage-backed securities	21,791,026	10,844	1,664,113	884,077	19,231,992
Corporate bonds	193,659,978	4,670,201	81,031,730	70,897,190	37,060,857
Corporate convertible bonds	1,420,269	-	98,550	-	1,321,719
Government agency securities	15,426,463	516,966	12,940,975	1,189,016	779,506
Government bonds	114,345,111	4,385,907	58,989,842	34,380,073	16,589,289
Government mortgage-backed securities	94,247,724	45,935	197,079	3,707,245	90,297,465
Index-linked government funds	1,508,198	-	-	1,508,198	-
Municipal/provincial bonds	6,547,637	307,378	4,059,362	317,719	1,863,178
Non-government-backed collateralized mortgage obligations	6,208,421	-	662,343	137,803	5,408,275
	<u>\$ 513,292,720</u>	<u>\$ 9,937,231</u>	<u>\$ 175,624,626</u>	<u>\$ 132,781,521</u>	<u>\$ 194,949,342</u>

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Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 4 CASH AND INVESTMENT RISK *(continued)*Investment Risks *(continued)*

Credit risk—Credit risk is the risk that the issuer or other counterparty to an investment will not fulfill its obligations. One measure of credit risk is the quality ratings issued by national ratings agencies, such as Moody's Investors Services (Moody's) and Standard & Poor's Financial Services. The Fund does not have a formal policy in regard to aggregate credit quality of fixed-income holdings. The Fund utilizes external investment management firms to invest in fixed-income securities and credit quality is addressed within the guidelines of the mandate for each of the managers. If a holding falls below specific guideline requirements, the manager will either sell the security or will inform the Fund of the lower rating and why the manager believes that it is prudent to continue to hold the security as they believe that the security will return to minimum constraints.

The following table provides information on the credit ratings associated with the Fund's investments in debt securities. Rates were obtained from Moody's:

	Fair Value	
	2018	2017
<i>Quality Rating</i>		
Aaa	\$ 126,217,776	\$ 154,954,935
Aa	13,092,171	14,428,275
A	45,113,168	54,846,339
Baa	93,601,400	92,278,349
Ba	42,397,425	46,221,457
B	13,679,998	12,584,345
Not rated	39,802,336	38,625,051
Caa through C	1,717,912	3,081,798
Total credit risk of U.S. corporate fixed income	375,622,186	417,020,549
U.S. Govt. fixed-income securities - explicitly guaranteed	117,577,766	95,169,983
U.S. Govt. agency securities-not rated	114,316	1,102,188
	<u>\$ 493,314,268</u>	<u>\$ 513,292,720</u>

Custodial credit risk—Custodial credit risk applies to investments, cash, and certificates of deposit. For an investment, custodial credit risk is the risk that, in the event of the failure of the counterparty, the Fund will not be able to recover the value of its investments or collateral securities that are in the possession of an outside party. For cash and certificates of deposit, custodial credit risk is the risk that in the event of a bank failure, the Fund's deposits may not be returned. As of December 31, 2018 and 2017, cash deposits of \$1,768,818 and \$1,670,530, respectively, were exposed to custodial credit risk as uninsured and uncollateralized. The Fund does not have a formal policy regarding custodial credit risk.

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Years Ended December 31, 2018 and 2017

NOTE 4 CASH AND INVESTMENT RISK *(continued)*Investment Risks *(continued)*

Foreign currency risk—Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment.

The Fund does not have a formal investment policy governing foreign currency risk, but does manage its exposure to loss in the fair value of investments by requiring managers of foreign investments to maintain diversified portfolios. The Fund's equity and fixed-income portfolios include investments that are subject to foreign currency risk. Such investments include non-U.S. equities, government bonds, corporate bonds, and derivative instruments. Additionally, some of the Fund's investment managers at least partially hedge foreign currency exchange risk. The Fund's exposure to foreign currency risk is as follows:

	Fair Value	
	2018	2017
<i>Currency</i>		
Argentine Peso	\$ 65,322	\$ 188,558
Australian Dollar	13,198,563	10,973,972
Brazilian Real	18,727,267	11,302,358
British Pound Sterling	51,109,664	66,864,387
Canadian Dollar	19,564,274	26,963,324
Chinese Yuan Renminbi	(286,100)	-
Colombian Peso	2,047,567	4,672,423
Czech Koruna	1,529,671	2,316,617
Danish Krone	6,601,964	8,199,833
Egyptian Pound	150,452	102,496
Euro Currency Unit	131,214,727	153,451,415
Hong Kong Dollar	52,483,201	83,534,023
Hungarian Forint	1,270,612	1,965,744
Indian Rupee	9,302,013	12,070,610
Indonesian Rupiah	10,831,062	13,622,440
Japanese Yen	70,377,704	109,147,306
Malaysian Ringgit	3,355,087	4,596,619
Mexican Peso	3,929,986	11,113,254
New Israeli Shekel	4,281,040	1,708,394
New Taiwan Dollar	20,776,470	32,291,927
New Zealand Dollar	(411,564)	(3,093,813)
Norwegian Krone	4,830,685	6,916,987
Philippine Peso	2,958,201	4,128,072
Polish Zloty	44,405	217,813
Qatari Riyal	91,643	44,129
Russian Ruble	(1,532,788)	(2,448,023)
Singapore Dollar	4,027,833	2,451,282
South African Rand	8,129,877	13,214,950
South Korean Won	15,273,984	27,363,439
Swedish Krona	10,857,577	10,508,565
Swiss Franc	19,425,395	20,960,059
Thai Baht	4,096,455	3,773,013
Turkish Lira	40,247	5,188,258
United Arab Emirates dirham	25,650	-
Total investments in foreign currency	\$ 488,388,146	\$ 644,310,431

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NOTE 4 CASH AND INVESTMENT RISK *(continued)*

Derivatives

The Fund's investment managers may enter into derivative transactions as permitted by their guidelines. A derivative financial instrument is an investment whose payoff depends on the value of an underlying instrument such as bond or stock prices, a market index, or commodity prices. Derivative financial instruments involve, to varying degrees, credit risk and market risk. Credit risk is the possibility that a loss may occur because a party to a transaction fails to perform according to terms. Market risk is the possibility that a change in the underlying element of the derivative will cause the value of a financial instrument to decrease or become more costly to settle. Most of the derivative transactions executed by the Fund's investment managers are related to currency through foreign exchange contracts, the vast majority of which is for hedging purposes, and interest rates through interest rate futures and forward contracts, the purpose of which is mostly duration management. In addition to derivative transactions executed directly by the Fund's investment managers, the Fund also holds interests in collective funds, hedge funds, and private equity funds, which may engage in derivative transactions. The Fund does not directly purchase derivatives with borrowed funds.

Futures contracts—The Fund's external investment managers enter into futures contracts in the normal course of investing activities to manage market risk associated with the Fund's fixed-income investments and to achieve overall investment portfolio objectives. These contracts involve elements of market risk in excess of amounts recognized in the statements of fiduciary net position. The credit risk associated with these contracts is minimal, as they are traded on organized exchanges and settled daily.

At December 31, 2018, the Fund had interest rate futures contracts to purchase U.S. Treasury bonds with notional costs of \$10,553,542. At December 31, 2018, the Fund also had interest rate futures contracts to (sell) United States Treasury securities and Euro dollars, and German bonds with notional amounts of \$(48,540,428), and \$(7,351,670), respectively. At December 31, 2017, the Fund had interest rate futures contracts to purchase U.S. Treasury securities with notional costs of \$23,494,315. At December 31, 2017, the Fund also had interest rate futures contracts to (sell) U.S. Treasury securities, Australian Treasury securities, United Kingdom bonds, and Canadian bonds with notional amounts of \$(97,747,016), \$(502,414), \$(2,325,406), and \$(744,844), respectively.

The fair value of futures contracts in the statements of fiduciary net position was zero at December 31, 2018 and 2017, as settlements are by cash daily.

The Fund had net investment earnings of \$216,072 and \$105,632 on futures contracts in 2018 and 2017, respectively. These earnings (losses) are accounted for as net appreciation (depreciation) in fair value of investments.

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NOTE 4 CASH AND INVESTMENT RISK *(continued)*

Derivatives *(continued)*

Interest rate and credit default swaps—The Fund's external investment managers utilize interest rate and credit default swaps in the management of the Fund's fixed-income portfolio. Swap agreements are contractual agreements between two or more parties in which each party agrees to exchange sets of cash flows based on certain agreed-upon parameters. The holder is exposed to credit risk for nonperformance and market risk for changes in interest rates. Gains and losses on swaps are determined based on fair values and are recorded in the statements of changes in fiduciary net position. The notional value of credit default swaps was \$8,225,381 and \$22,509,662 as of December 31, 2018 and 2017, respectively. The notional value of inflation and interest rate swaps was \$6,385,000 and \$3,075,000 as of December 31, 2018 and 2017, respectively. The fair value of swaps outstanding at December 31, 2018 and 2017 was a net liability of \$266,634 and \$470,624, respectively. Investment loss from holdings and sales of interest rate and credit default swaps was \$33,415 and \$157,314 in 2018 and 2017, respectively. These losses are included in net appreciation (depreciation) in the fair value of investments in the statements of changes in fiduciary net position.

Foreign exchange contracts—The Fund's external investment managers utilize foreign currency forward contracts, primarily for hedging purposes. Foreign currency forward contracts are contractual agreements to buy or sell a specific amount of a foreign currency at a certain date for an agreed price. As the fair value of the underlying foreign currency varies from the contractual agreed price, the Fund records an unrealized gain or loss. The holder is exposed to credit risk for nonperformance and to market risk for changes in interest rates. The Fund had pending foreign currency purchases and sales that included positions with various currencies primarily including Argentine peso, Australian dollar, Brazilian real, British pound sterling, Canadian dollar, Chinese yuan renminbi, Colombian peso, Czech koruna, Danish krone, Egyptian pound, Euro currency unit, Hong Kong dollar, Hungarian forint, Indian rupee, Indonesian rupiah, Japanese yen, Malaysian ringgit, Mexican peso, New Israeli shekel, New Taiwan dollar, New Zealand dollar, Norwegian krone, Philippine peso, Polish zloty, Qatari riyal, Russian ruble, Singapore dollar, South African rand, South Korean won, Swedish krona, Swiss franc, Thai baht, Turkish lira, United Arab Emirates dirham, and United States dollar at December 31, 2018 and 2017. Total pending foreign currency forward purchases and (sales) had notional values of \$103,155,485 and \$(102,605,357), respectively, at December 31, 2018, and \$97,753,406 and \$(98,799,706), respectively, at December 31, 2017.

The Fund had a net unrealized gain (loss) on pending foreign currency forward contracts of \$550,128 and \$(1,046,300) at December 31, 2018 and 2017, respectively, which is reflected in the fair value of the investments on the statements of fiduciary net position. Investment loss from holdings and sales of foreign currency forward contracts was \$1,162,280 and \$2,628,562 in 2018 and 2017, respectively.

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NOTE 4 CASH AND INVESTMENT RISK *(continued)*

Derivatives *(continued)*

Forward interest rate contracts—The Fund's external investment managers entered into forward contracts to purchase or sell bond securities during 2018 and 2017. Forward contracts are contracts for delayed delivery of securities in which the seller agrees to make delivery at a specified future date of a specified instrument, at a specified price or yield. The holder is exposed to credit risk for nonperformance and to market risk for changes in interest rates.

These instruments involve, to varying degrees, elements of credit risk in excess of the amount recognized in the statements of fiduciary net position. The Fund's external investment managers attempt to mitigate this credit risk through structured trading with reputable parties.

At December 31, 2018, the Fund held forward contracts to buy U.S. TIPS (United States Treasury Inflation-Protected Security), UST (United States Treasury debt), and USTN (United States Treasury Note) with fair values of \$18,548,853, Luxembourg treasury bonds (BTPS) with a fair value of \$2,027,637, and United Kingdom treasury securities (GILT) with a fair value of \$1,466,334. The Fund also held forward contracts to (sell) U.S. TIPS and USTN with fair values of \$(13,797,706), Luxembourg BTPS with a fair value of \$(2,073,788), and one contract to sell United Kingdom T-bill (UKT) with a fair value of \$(1,417,860). At December 31, 2017, the Fund held forward contracts to buy U.S. TIPS with fair values of \$26,984,932, and the Fund also held forward contracts to sell U.S. TIPS and U.S. Treasury Strips with fair values of \$(23,809,793) and Luxembourg BTPS with fair values of \$(507,889). The unrealized gain on these contracts was \$2,513 and \$40,462 at December 31, 2018 and 2017, respectively. Investment (loss) income from holdings and sales of interest rate forward contracts was \$(22,602) and \$(143,903) in 2018 and 2017, respectively. The investment income is included in net appreciation in fair value of investments in the statements of changes in fiduciary net position.

Investment Management Fees

Investment management fees from equity and fixed-income managers, including one of the collective funds, one of the private equity managers, and the cash manager, are included in investment management fees on the statements of changes in fiduciary net position. Investment management fees from all other collective funds, short-term investments, infrastructure, hedge, real estate, venture capital and private equity are reflected in the net investment income from such investment products. Such investment management fees are not significant to the financial statements.

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Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 5 SECURITIES LENDING PROGRAM

State statutes and the Fund's Statement of Investment Policy permit the Fund to lend certain of its liquid securities to broker/dealers and other entities with a simultaneous agreement to return the collateral for the same securities in the future. The Fund's securities lending agent, Deutsche Bank AG, New York Branch (Deutsche Bank), lends securities of the type on loan at year end for collateral in the form of U.S. Dollar cash, securities issued by or guaranteed as to principal and interest by the U.S. Government, its agencies, instrumentalities and establishment, and non-U.S. sovereign debt securities representing obligations of an Organization for Economic Cooperation and Development (OECD) country having a fair value equal to or exceeding 102% of the value of the loaned securities and 105% for non-U.S. securities. The contract with Deutsche Bank provides for indemnification for the Fund with respect to any shortfall between liquidation proceeds and the fair market value of: (1) in respect to lending transactions, the securities subject to such transaction, or (2) in the case of reverse transactions, the amount of cash deposited with a counterparty with respect to such transaction. The terms of liquidation proceeds, fair market value and reverse transactions are more specifically defined in the agency securities lending agreement.

Any of the loans of the Fund's securities can be terminated on demand by either the Fund or the borrower. The average term of the Fund's loans was approximately one day as of December 31, 2018 and 2017. At December 31, 2018 and 2017, cash collateral was reinvested in indemnified repurchase agreements which had an interest sensitivity of one (1) day and 3.48 days, respectively. The Fund cannot pledge or sell collateral securities received unless the borrower defaults.

Loans outstanding as of December 31, 2018 and 2017 were as follows:

	<u>2018</u>	<u>2017</u>
Fair value of securities loaned	\$ 115,481,089	\$ 143,322,338
Fair value reinvested of cash collateral from borrowers	112,851,289	146,521,469
Fair value of non-cash collateral from borrowers	5,267,203	16,961,681

As of December 31, 2018 and 2017, the Fund had limited credit risk exposure to borrowers because the amounts owed to the borrowers exceeded the amounts owed to the Fund.

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NOTE 6 UNFUNDED INVESTMENT COMMITMENTS

The Fund had unfunded commitments of approximately \$81 million and \$198 million at December 31, 2018 and 2017, respectively, in connection with real estate, infrastructure, private equity and collective commingled fund investments.

NOTE 7 POSTEMPLOYMENT BENEFITS OF THE FUND—STAFF RETIREE HEALTHCARE PLAN

GASB 75 Implementation

On January 1, 2018, PABF adopted GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions* (GASB 75) related to its other postemployment benefits (OPEBs). GASB 75 replaces the requirements of GASB Statement No. 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*, as amended. The scope of this Statement addresses accounting and financial reporting for OPEBs that are provided to the employees of state and local governmental employers. This Statement establishes standards for recognizing and measuring liabilities, deferred outflows of resources, deferred inflows of resources, and expense/expenditures. For defined benefits OPEBs, this Statement identifies the methods and assumptions that are required to be used to project benefit payments, discount projected benefit payments to their actuarial present value, and attribute that present value to periods of employee service. Note disclosure and required supplementary information requirements about defined benefit OPEBs also are addressed in this Statement.

Because the restatement of the prior-year financial statement amounts was not practical, PABF is reporting the cumulative effect of adopting GASB 75, which includes the restatement of beginning net position at January 1, 2018. The table that follows presents the net impact of the cumulative effect of adopting GASB 75 on total net position.

Statement of Changes in Fiduciary Net Position

Total net position, beginning of period, January 1, 2018	\$ 3,122,066,293
Cumulative effect of adopting GASB 75	<u>653,053</u>
Total net position, beginning of period January 1, 2018 (restated)	<u>\$ 3,121,413,240</u>

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NOTE 7 POSTEMPLOYMENT BENEFITS OF THE FUND—STAFF RETIREE HEALTHCARE PLAN *(continued)*

Plan Description

PABF, as an employer, administers a single-employer defined benefit postemployment healthcare plan (Staff Retiree Healthcare Plan). The Staff Retiree Health Plan provides health and dental insurance for eligible retirees and their spouses through PABF's group health insurance plan, which covers both active and retired members. As of December 31, 2018, 10 retirees were in the Staff Retiree Healthcare Plan and 20 active employees could be eligible at retirement. As of December 31, 2017, 13 retirees were in the Staff Retiree Healthcare Plan and 20 active employees could be eligible at retirement. Benefit subsidy provisions have been established by PABF's Board of Trustees. The amount of the subsidy varies according to a retiree's years of service with PABF and the coverages elected. These benefit subsidy provisions can be modified or terminated at the sole discretion of the PABF Board.

Funding Policy

The required contribution is based on projected pay-as-you-go financing requirements. Accordingly, the Plan does not accumulate assets in a trust for OPEB. For 2018 and 2017, PABF contributed approximately \$162,785 and \$214,586, respectively, to the Staff Retiree Healthcare Plan for current premiums, inclusive of an implicit subsidy of \$30,176 and \$32,126, for 2018 and 2017, respectively. For 2018 and 2017, members receiving benefits contributed approximately \$95,811 and \$96,748, respectively, to the Staff Retiree Healthcare Plan for current premiums.

GASB 75 Valuation

As of December 31, 2018, the Fund's total OPEB liability was \$2,242,684. Total OPEB liability as of December 31, 2018, was measured based on the requirements of GASB Statement No. 75, using census, plan provisions, methods and assumptions as of December 31, 2017.

The following methods and assumptions were used in the OPEB valuation:

Actuarial valuation date	December 31, 2017
Measurement date	December 31, 2018
Fiscal year end date	December 31, 2018

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**NOTE 7 POSTEMPLOYMENT BENEFITS OF THE FUND—STAFF RETIREE
HEALTHCARE PLAN (continued)**GASB 75 Valuation (continued)

Methods and actuarial assumptions used to measure total OPEB liability:

Actuarial cost method	Entry age normal
GASB 75 discount rate beginning of year	3.31% per year
GASB 75 discount rate end of year	3.71% per year
Wage inflation	3.00% per year
Retirement age	Experience-based table of rates that are specific to the type of eligibility condition
Post-retirement mortality	The mortality rates are from the RP-2014 Blue Collar Mortality Table with two-dimensional, fully generational improvements using the MP-2017 Mortality Improvement Scale (projected from 2006)
Healthcare trend rates	Pre-Medicare trend rate of 5.61%, and Post- Medicare trend rate of 1.6% for plan year beginning on January 1, 2019. Trend rates for plan years beginning on and after January 1, 2020, based on 8.00% for Pre-Medicare and 9.00% for Post-Medicare per year graded down in 0.50% increments to an ultimate trend rate of 4.50% per year. Excess trend rate of 0.19% over the base healthcare trend rate beginning in 2022 applied to per capita claim cost to account for the Excise Tax under the Healthcare Reform Act. Dental trend rate of 0.81% for plan year beginning on January 1, 2019, and 4.50% thereafter.

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**NOTE 7 POSTEMPLOYMENT BENEFITS OF THE FUND—STAFF RETIREE
HEALTHCARE PLAN (continued)**Total OPEB Liability and Sensitivity to Changes in the Discount and Healthcare
Cost Trend Rates**Total OPEB liability**

1. Service cost	\$ 93,951
2. Interest on the total OPEB liability	75,485
3. Changes of assumptions	(101,657)
4. Benefit payments	<u>(117,063)</u>
5. Net change in total OPEB liability	(49,284)
6. Total OPEB liability – beginning	<u>2,291,968</u>
7. Total OPEB liability – ending	<u>\$ 2,242,684</u>

Covered-employee payroll \$ 1,630,338

**Total OPEB liability as a percentage of
Covered-employee payroll** 137.56%

Discount Rate

The following presents the Fund's total OPEB liability, calculated using a discount rate of 3.71%, as well as what the Fund's total OPEB liability would be if it were calculated using a discount rate that is 1% lower or 1% higher:

<u>Net OPEB Liability for Year Ended</u>	<u>1% Decrease (2.71%)</u>	<u>Current Assumption (3.71%)</u>	<u>1% Increase (4.71%)</u>
December 31, 2018	\$ 2,511,527	\$ 2,242,684	\$ 2,017,864

The following presents the Funds' OPEB liability, calculated using the assumed trend rates as well as what the Fund's total OPEB liability would be if it were calculated using a trend rate that is 1% lower or 1% higher (except for the first increase at January 1, 2019, which is based on actual plan experience):

<u>Net OPEB Liability for Year Ended</u>	<u>1% Decrease</u>	<u>Current Healthcare Cost Trend Rate Assumption</u>	<u>1% Increase</u>
December 31, 2018	\$ 2,128,478	\$ 2,242,684	\$ 2,389,084

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**NOTE 7 POSTEMPLOYMENT BENEFITS OF THE FUND—STAFF RETIREE
HEALTHCARE PLAN (continued)****Statement of OPEB Expense****Fiscal Year Ended December 31, 2018****Expense**

1. Service cost	\$ 93,951
2. Interest on the total OPEB liability	75,485
3. OPEB plan administrative expense	3,750
4. Recognition of outflow (inflow) of resources due to assumption changes	<u>(10,401)</u>
5. Total OPEB expense	<u>\$ 162,785</u>

Reconciliation of total OPEB liability

1. Net OPEB obligation, beginning of year	\$ 2,291,968
2. OPEB expense	162,785
3. Employer contributions	(120,813)
4. Change in deferred outflow/(inflow) due to assumption change	<u>(91,256)</u>
5. Net OPEB obligation, end of year	<u>\$ 2,242,684</u>

Total deferred Inflows of Resources

As of December 31, 2018, the deferred inflow of resources related to OPEB was

\$ 91,256

The following table presents the component of total deferred inflow of resources related to OPEB.

<u>Deferred Inflows of Resources</u>	<u>December 31, 2018</u>
Difference between expected and actual experience	\$ -
Assumption changes	<u>91,256</u>
Total deferred inflows of resources	<u>\$ 91,256</u>

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**NOTE 7 POSTEMPLOYMENT BENEFITS OF THE FUND—STAFF RETIREE
HEALTHCARE PLAN (continued)**

Amounts reported as deferred inflows of resources related to OPEB will be recognized as OPEB expense over 9.7735 years in the administrative expenses line item on the statement of changes in fiduciary net position as follows:

Year Ending December 31

2019	\$ (10,401)
2020	(10,401)
2021	(10,401)
2022	(10,401)
2023	(10,401)
2024	(10,401)
2025	(10,401)
2026	(10,401)
2027	<u>(8,048)</u>
Total	<u>\$ (91,256)</u>

NOTE 8 RESERVES

The Fund maintains several reserves, as required by the Illinois Pension Code and Board policy. The following are brief descriptions of the reserves:

City Contribution Reserve

	<u>2018</u>	<u>2017</u>
Balances, at December 31	<u>\$ 1,877,390,448</u>	<u>\$ 2,149,735,763</u>

The City Contribution Reserve is maintained for the payment of the City's portion of future retirement benefits for active and inactive participants. Interest at 3% is credited to this reserve annually. When the amount of annuity for a policeman or widow is fixed, the City Contribution Reserve is charged with the amount of the present value of retirement benefit and the Annuity Payment Reserve is credited with such amount.

The City Contribution Reserve does not equal the present value of expected retirement benefits. The reserve is maintained on a cost basis, in accordance with the Illinois Pension Code.

Salary Deduction Reserve

	<u>2018</u>	<u>2017</u>
Balances, at December 31	<u>\$ 1,586,966,550</u>	<u>\$ 1,519,507,781</u>

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NOTE 8 RESERVES *(continued)*Salary Deduction Reserve *(continued)*

The Illinois Pension Code requires the Fund to maintain separate accounts for each policeman for the amounts of salary deductions with interest at 3% per year. When a policeman retires, the amount of his annuity is charged to the Salary Deduction Reserve and credited to the Annuity Payment Reserve. If a policeman takes a separation refund, his salary deductions are refunded to him and charged to the Salary Deduction Reserve. This reserve is fully funded.

Annuity Payment Reserve

	<u>2018</u>	<u>2017</u>
Balances, at December 31	\$ <u>2,657,102,400</u>	\$ <u>2,584,081,060</u>

When the amount of annuity has been fixed, the present value of expected benefit is transferred from the City Contribution Reserve and the Salary Deduction Reserve to the Annuity Payment Reserve for the payment of annuity. All age and service annuities, widow's annuities, and refunds are charged to this reserve.

Annually, the actuary calculates the present value of all annuities. The Investment and Interest Reserve will transfer amounts to the Annuity Payment Reserve to ensure that the balance in the Annuity Payment Reserve equals the present value of annuities. This reserve is fully funded.

Prior Service Annuity Reserve

	<u>2018</u>	<u>2017</u>
Balances, at December 31	\$ <u>(1,267,227,915)</u>	\$ <u>(1,380,076,402)</u>

The Prior Service Annuity Reserve is increased by the City's contributions for policemen and widows' prior service annuities and all prior service annuities payable to policemen and widows are charged to this reserve. This reserve included an unfunded liability of \$10,069,521,907 and \$9,989,892,966 as of December 31, 2018 and 2017, respectively.

Gift Reserve

	<u>2018</u>	<u>2017</u>
Balances, at December 31	\$ <u>13,686,709</u>	\$ <u>12,945,425</u>

The Gift Reserve is maintained for gifts, grants, bequests, or other amounts received by the Fund. The Board of Trustees determines the use of these funds. Interest is credited to the Gift Reserve annually.

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NOTE 8 RESERVES (continued)

Investment and Interest Reserve

All gains and losses from investments and investment earnings are recorded in the investment and interest reserve. Interest due to the City Contribution Reserve, Salary Deduction Reserve, Prior Service Annuity Reserve, Gift Reserve, and Supplementary Payment Reserve is transferred from the Investment and Interest Reserve to those reserves.

Ordinary Death Benefit Reserve

	<u>2018</u>	<u>2017</u>
Balances, at December 31	\$ <u>(39,856,412)</u>	\$ <u>(36,229,226)</u>

Amounts contributed by policemen and the City for death benefits are credited to the Ordinary Death Benefit Reserve. Death benefit payments are charged to this reserve. At December 31, 2018 and 2017, the Ordinary Death Benefit Reserve had a deficit.

Automatic Increase Reserve

	<u>2018</u>	<u>2017</u>
Balances, at December 31	\$ <u>(1,923,329,341)</u>	\$ <u>(1,728,345,510)</u>

The Automatic Increase Reserve is credited with amounts deducted from the salaries of police officers and matching contributions by the City for automatic increase in annuity. Payments of increased annuities and salary deduction refunds, for increase in annuity, are charged to this reserve. At December 31, 2018 and 2017, the Automatic Increase Reserve had a deficit.

Supplementary Payment Reserve

	<u>2018</u>	<u>2017</u>
Balances, at December 31	\$ <u>447,402</u>	\$ <u>447,402</u>

The Supplementary Payment Reserve receives amounts transferred from the Investment and Interest Reserve for supplemental increases in annuity for certain eligible retirees. This reserve is fully funded.

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NOTE 8 RESERVES (continued)

Additional Reserves

The following reserves have a \$0 balance at December 31, 2018 and 2017. City contributions are allocated to these reserve accounts in amounts equal to payments made on an annual basis.

Child's Annuity Reserve

Amounts contributed by the City for child's annuity are credited to the Child's Annuity Reserve, and payments of child's annuity are charged to this reserve.

Duty Disability Reserve

The Duty Disability Reserve is increased by the City's contributions for duty disability benefits, child's disability benefits, and compensation annuities and is decreased by the payments of these benefits.

Ordinary Disability Reserve

Amounts contributed by the City for ordinary disability benefits are credited to the Ordinary Disability Reserve. Payments of ordinary disability benefits are charged to this reserve.

Hospitalization Fund Reserve

The health care premiums are paid from the tax levies and are credited to the reserve for Group Hospitalization Fund. Premium payments to the City are charged against this reserve.

Expense Reserve

Amounts contributed toward the cost of administration are credited to the Expense Reserve. Expenses of administration are also charged to this reserve.

NOTE 9 NET PENSION LIABILITY OF THE FUND

The components of the net pension liability at December 31, 2018 and 2017, were as follows:

	<u>2018</u>	<u>2017</u>
Total pension liability	\$ 13,313,258,366	\$ 13,454,462,563
Less: Plan fiduciary net position	<u>2,905,179,841</u>	<u>3,122,066,293</u>
Fund's net pension liability	<u>\$ 10,408,078,525</u>	<u>\$ 10,332,396,270</u>
Plan fiduciary net position as a percentage of total pension liability	21.82%	23.20%

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NOTE 9 NET PENSION LIABILITY OF THE FUND *(continued)*

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of December 31, 2018 and 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.75%
Salary increases	3.75% per year, plus additional percentage related to service
Investment rate of return	7.25%
Cost of living adjustments	For members hired before January 1, 2011: 3.0% (1.5% for retirees born on or after January 1, 1966, to a maximum of 30%) For members hired on or after January 1, 2011: 1/2 of CPI-U, maximum 3.0%, to begin no earlier than age 60.

Mortality rates were based on the Sex Distinct Retirement Plans 2014 Total Employee and Healthy Annuitant mortality tables weighted 108% for post-retirement males and 97% for females, respectively, and 85% for pre-retirement males and 115% for females, respectively, and 115% for disabled males and females.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate arithmetic expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These assumptions are converted into nominal assumptions by adding inflation, then combined by weighing them by the target asset allocation percentages. Finally, the arithmetic portfolio expected return is converted into a geometric expected return using assumed asset class standard deviations and correlations. The pension plan's target allocation as of December 31, 2018 and 2017, are summarized in the following tables:

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NOTE 9 NET PENSION LIABILITY OF THE FUND *(continued)*Actuarial Assumptions *(continued)***December 31, 2018:**

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Long-Term Expected Real Rate of Return</u>
U.S. equity	21%	6.0%
Non-U.S. equity	21	7.4
Fixed income	22	2.2
Global asset allocation	5	4.4
Private markets	17	6.7
Hedge funds	7	4.2
Real estate	7	4.1
Real assets	<u>0</u>	0.0
Total	<u>100%</u>	

December 31, 2017:

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Long-Term Expected Real Rate of Return</u>
U.S. equity	21%	6.1%
Non-U.S. equity	21	7.7
Fixed income	22	1.9
Global asset allocation	5	4.4
Private markets	17	7.4
Hedge funds	5	4.0
Real estate	5	4.6
Real assets	<u>4</u>	4.4
Total	<u>100%</u>	

Single Discount Rate

A Single Discount Rate of 7.18% and 7.00% as of December 31, 2018 and 2017, respectively, was used to measure the total pension liability. These Single Discount Rates were based on an expected rate of return on pension plan investments of 7.25% for 2018 and 2017, and a municipal bond rate of 3.71% and 3.31%, respectively. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made under the statutory funding policy. Based on these assumptions, the pension plan's fiduciary net position and future contributions were sufficient to finance the benefit payments only through the year 2079. As a result, the long-term expected rate of return on pension plan investments was applied to projected benefit payments through the year 2079, and the municipal bond rate was applied to all benefit payments after that date.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 9 NET PENSION LIABILITY OF THE FUND *(continued)*Single Discount Rate *(continued)*

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 7.18% and 7.00% as of December 31, 2018 and 2017, respectively, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is 1-percentage-point lower or 1-percentage-point higher:

Sensitivity of net pension liability to the Single Discount Rate assumption as of December 31, 2018:

1% Decrease 6.18%	Single Discount Rate Assumption 7.18%	1% Increase 8.18%
\$ 11,955,692,258	\$ 10,408,078,525	\$ 9,104,012,404

Sensitivity of net pension liability to the single discount rate assumption as of December 31, 2017:

1% Decrease 6.00%	Single Discount Rate Assumption 7.00%	1% Increase 8.00%
\$ 11,944,827,526	\$ 10,332,396,270	\$ 8,978,201,794

NOTE 10 DEFERRED COMPENSATION PLAN

The Fund offers its employees a deferred compensation plan created in accordance with Internal Revenue Code Section 457. The plan, available to all employees of the Fund, permits them to defer a portion of their salary until future years. Participation in the plan is optional. Accumulated balances within deferred compensation accounts are not available to employees until termination, retirement, death, or unforeseeable emergency. The plan is managed by a third-party administrator.

The assets of the plan are deposited in trust accounts with the plan administrator for the exclusive benefit of participants and their beneficiaries and are not considered assets of the Fund.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 11 LEASE AGREEMENT

The Fund leases its office facilities under a non-cancelable agreement. The current lease commenced on July 1, 2016, and was renewed for 16 years through 2032. The new lease agreement includes an abatement clause during the term of the new lease.

Office rental expense amounted to \$324,612 and \$259,435 for the years ended December 31, 2018 and 2017, respectively.

Future minimum rental payments, net of abatement provisions under the office lease at December 31, 2018, are as follows:

<u>Year</u>	<u>Amount</u>
2019	\$ 340,744
2020	347,559
2021	354,510
2022	361,600
2023	368,832
2024 and thereafter (total)	3,447,204

NOTE 12 RISK MANAGEMENT

The Fund is exposed to various risks of loss related to tort, theft of, damage to, and destruction of assets; errors and omissions; injuries to employees; and natural disasters. The Fund carries commercial insurance to reduce its exposure to risk of loss. There is no significant change in insurance coverage from year to year. Settled claims resulting from these risks have not exceeded commercial insurance coverage in any of the past three fiscal years.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Notes to Financial Statements

Years Ended December 31, 2018 and 2017

NOTE 13 CONTINGENCIES

In July 2013, a group of plaintiffs purporting to represent retirees in four Chicago public pension funds filed a civil action, *Underwood v. City of Chicago et. al.* (13-CH-17450; 1-17-162356), seeking class certification and an order requiring the City and the defendant pension funds to continue subsidizing retiree healthcare insurance premiums past the June 30, 2013, statutory expiration date. Following litigation filed in both the federal and state courts, the Illinois Appellate Court, on June 29, 2017, issued an order which in part affirmed with Circuit Court's dismissal order and held that the subsidies pursuant to the 1983 and 1985 amendments is a protected benefit under the pension protection clause of the Illinois Constitution. As such, the retirees in the Appellate Court expanded class are entitled to continue to receive the 1983 provided subsidies (related to the police and fire funds) of \$55 per month if non-Medicare-eligible and \$21 per month if Medicare-eligible subsidies. The Appellate Court remanded the case back to the Circuit Court for the purpose of allowing the presiding judge to determine the mechanics of the payments and specific members eligible for the requisite payments. This matter remains pending for such purpose and the amount of any related obligation has not been determined yet. Therefore, no related obligations have been recorded or disclosed in the financial statements.

On May 23, 2018, three plaintiffs filed litigation, *De Jesus et. al., v. Policemen's Annuity & Benefit Fund of the City of Chicago* (18 CH 06195), seeking class action status, in substance alleging the fund did not properly calculate their duty disability benefits by not including duty availability allowance in their computation of salary in calculating their benefit amount. This matter is pending and the outcome is uncertain.

NOTE 14 ACTUARIAL EXPERIENCE STUDY

At its regularly scheduled meeting on May 31, 2019, The Retirement Board of the Policemen's Annuity and Benefit Fund of Chicago, authorized its independent consulting actuarial firm, Gabriel Roeder Smith, to perform the experience study of the actuarial assumptions for the five-year period January 1, 2014 through December 31, 2018. The primary purpose of the study is to determine the continued appropriateness of the current actuarial assumptions by comparing actual experience to expected experience. The study will be completed in the Summer of 2019.

REQUIRED SUPPLEMENTARY INFORMATION

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Required Supplementary Information

Schedule of Changes in Net Pension Liability

As of December 31 - Last 5 Years

(Unaudited)

	2018	2017	2016	2015	2014
<i>Total pension liability</i>					
Service cost, including pension plan administrative expense	\$ 242,998,341	\$ 237,333,255	\$ 220,569,553	\$ 213,584,647	\$ 199,435,084
Interest on the total pension liability	931,731,201	917,720,267	851,098,457	832,972,131	791,693,017
Benefit changes	-	-	606,249,791	-	-
Difference between expected and actual experience	(281,150,986)	(299,923,560)	1,801,353	(105,968,891)	-
Assumption changes	(259,051,713)	238,975,508	112,585,241	-	845,070,287
Benefit payments	(764,367,368)	(737,873,928)	(696,491,103)	(668,950,080)	(645,688,934)
Refunds	(6,737,073)	(10,017,655)	(10,704,842)	(7,826,847)	(8,991,636)
Pension plan administrative expense	(4,626,599)	(4,843,012)	(4,749,762)	(4,508,519)	(4,240,625)
Net change in total pension liability	(141,204,197)	341,370,875	1,080,358,688	259,302,441	1,177,277,193
Total pension liability – beginning	13,454,462,563	13,113,091,688	12,032,733,000	11,773,430,559	10,596,153,366
Total pension liability – ending (a)	13,313,258,366	13,454,462,563	13,113,091,688	12,032,733,000	11,773,430,559
<i>Plan fiduciary net position</i>					
Employer contributions	588,034,930	494,483,191	272,427,716	572,836,100	177,417,827
Employee contributions	107,186,492	103,011,250	101,475,864	107,626,311	95,675,538
Pension plan net investment (loss) income	(137,977,182)	412,190,404	142,699,124	(5,333,795)	181,901,293
Benefit payments	(764,367,368)	(737,873,928)	(696,491,103)	(668,950,080)	(645,688,934)
Refunds	(6,737,073)	(10,017,655)	(10,704,842)	(7,826,847)	(8,991,636)
Pension plan administrative expense	(4,626,599)	(4,843,012)	(4,749,762)	(4,508,519)	(4,240,625)
Other	1,600,348	97,239	1,412,770	3,091,545	740,305
Net change in plan fiduciary net position	(216,886,452)	257,047,489	(193,930,233)	(3,065,285)	(203,186,232)
Plan fiduciary net position – beginning	3,122,066,293	2,865,018,804	3,058,949,037	3,062,014,322	3,265,200,554
Plan fiduciary net position – ending (b)	2,905,179,841	3,122,066,293	2,865,018,804	3,058,949,037	3,062,014,322
Net pension liability – ending (a)-(b)	\$ 10,408,078,525	\$ 10,332,396,270	\$ 10,248,072,884	\$ 8,973,783,963	\$ 8,711,416,237

The above information was required beginning in 2014. Information for the next five years will be presented in future years.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Required Supplementary Information

Notes to Schedule of Changes in Net Pension Liability

For the Years Ended December 31, 2018 and 2017

(Unaudited)

Beginning of year total pension liability for 2018 used a Single Discount Rate of 7.00% and the benefit provisions, actuarial assumptions and funding policy in effect as of the December 31, 2017 funding actuarial valuation. The Single Discount Rate of 7.00% was based on a long-term expected rate of return on pension plan investments of 7.25% used in the December 31, 2017, funding actuarial valuation for the years 2017 through 2070 and a long-term municipal bond rate as of December 29, 2017, of 3.31% for subsequent years.

End of year total pension liability for 2018 uses a Single Discount Rate of 7.18% and the benefit provisions, actuarial assumptions and funding policy in effect as of the December 31, 2018, funding actuarial valuation. The Single Discount Rate of 7.18% was based on a long-term expected rate of return on pension plan investments of 7.25% used in the December 31, 2018, funding actuarial valuation for the years 2018 through 2079 and a long-term municipal bond rate as of December 28, 2018, of 3.71% for subsequent years.

The increase in total pension liability for 2017 due to benefit changes is a result of the change in plan provisions pursuant to P.A. 99-0905.

The decrease in the total pension liability for 2018 due to assumption changes and methods includes the impact of the change in the municipal bond rate from December 29, 2017, to December 28, 2018. Changes in actuarial assumptions and methods led to the change in the Single Discount Rate from 7.00% to 7.18% (based on the long-term expected rate of return on pension plan investments of 7.25% used in the December 31, 2018 and 2017, funding valuations and the long-term municipal bond rate of 3.71% and 3.31% as of December 31, 2018 and 2017, respectively.) This change was measured at the end of the year using the benefit provisions in effect as of December 31, 2018.

The increase in the total pension liability for 2017 due to assumption changes and methods includes the impact of the change in the municipal bond rate from December 29, 2016, to December 29, 2017. Changes in actuarial assumptions and methods led to the change in the Single Discount Rate from 7.07% to 7.00% (based on the long-term expected rate of return on pension plan investments of 7.25% used in the December 31, 2016, and 2017, funding valuations and the long-term municipal bond rate of 3.78% as of December 29, 2016, and 3.31% as of December 31, 2017, respectively.) This change was measured at the end of the year using the benefit provisions in effect as of December 31, 2017.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Required Supplementary Information

Schedule of Net Pension Liability

As of December 31 - Last 5 Years

(Unaudited)

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Total pension liability	\$ 13,313,258,366	\$ 13,454,462,563	\$ 13,113,091,688	\$ 12,032,733,000	\$111,773,430,559
Plan fiduciary net position	2,905,179,841	3,122,066,293	2,865,018,804	3,058,949,037	3,062,014,322
Net pension liability	<u>\$ 10,408,078,525</u>	<u>\$ 10,332,396,270</u>	<u>\$ 10,248,072,884</u>	<u>\$ 8,973,783,963</u>	<u>\$ 8,711,416,237</u>
Plan fiduciary net position as a percentage of total pension liability	21.82%	23.20%	21.85%	25.42%	26.01%
Covered employee payroll	<u>\$ 1,205,324,445</u>	<u>\$ 1,150,406,094</u>	<u>\$ 1,119,526,987</u>	<u>\$ 1,086,607,979</u>	<u>\$ 1,074,333,318</u>
Net pension liability as a percentage of covered employee payroll	863.51%	898.15%	915.39%	825.85%	810.87%

The above information is required beginning in 2014. Information for the next five years will be presented in future years.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Required Supplementary Information

Schedule of Contributions—Pension

Last 10 Years

(Unaudited)

Year Ended	Actuarially Determined Contribution (a)*	Actual Contribution (b)	Contribution Deficiency (Excess) (c) = (b)-(a)	Covered Payroll (d)**	Actual Contribution as a % of Covered Payroll (e) = (b)/(d)	Statutory Contribution (f)	Statutory Contribution Deficiency/ (Excess) (g) = (f)-(b)**
12/31/09	\$ 339,488,187	\$ 172,043,784	\$ 167,444,403	\$1,011,205,359	17.01%	\$ 177,333,569	\$ 5,289,785
12/31/10	363,624,570	174,500,507	189,124,063	1,048,084,301	16.65%	177,060,837	2,560,330
12/31/11	402,751,961	174,034,600	228,717,361	1,034,403,526	16.82%	176,068,606	2,034,006
12/31/12	431,010,173	197,885,552	233,124,621	1,015,170,686	19.49%	204,329,314	6,443,762
12/31/13	474,177,604	179,521,259	294,656,345	1,015,426,128	17.68%	182,716,690	3,195,431
12/31/14	491,651,208	178,158,132	313,493,076	1,074,333,318	16.58%	178,773,877	615,745
12/31/15	785,500,836	575,927,645	209,573,191	1,086,607,979	53.00%	410,558,466	(165,369,179)
12/31/16	785,695,084	273,840,486	511,854,598	1,119,526,987	24.46%	454,844,486	181,004,000
12/31/17	910,938,497	494,580,430	416,358,067	1,150,406,094	42.99%	500,000,000	(5,419,570)
12/31/18	924,653,899	589,635,278	335,018,621	1,205,324,445	48.92%	557,000,000	(32,635,278)

* The Fund's Statutory Funding does not conform to Actuarial Standards of Practice; therefore, for 2015 and after, the actuarially determined contribution is equal to the normal cost plus a 30-year level dollar amortization of the unfunded actuarial liability. Prior to 2015, the actuarially determined contribution was equal to the "ARC", which was equal to the normal cost plus a 30-year open level percent amortization of the unfunded actuarial liability.

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

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Required Supplementary Information

Notes to Schedule of Contributions—Pension

(Unaudited)

Valuation Date: December 31, 2018

Methods and Assumptions Used to Determine Contribution Rates as of the Valuation Date:

Actuarial Cost Method: Entry-Age Normal

Amortization Method: Prior to 2015, the total City contribution was generated by a tax equal to 2.00 times the contributions by the policemen to the Fund two years prior to the year of the tax levy. For tax levy years 2015-2019, the statutory contributions are equal to \$420 million, \$464 million, \$500 million, \$557 million and \$579 million, respectively. For tax levy years on and after 2020, the statutory contributions are equal to a level percentage of pay contribution determined so that the Plan attains a 90% funded ratio by the end of 2055 on an open group basis.

Remaining Amortization Period: Not applicable. An amortization payment is not directly calculated. The amortization payment is the difference between the total statutory contribution and the employer normal cost contribution.

Asset Valuation Method: Five-year smoothed market

Inflation: 2.75% as of the December 31, 2018 and 2017 actuarial valuations

Salary Increases: Salary increase rates based on wage inflation rate of 3.75% plus service based increases consistent with bargaining contracts

Postretirement Benefit Increases: A retiree born before January 1, 1966, with at least 20 years of service or receiving a mandatory retirement minimum annuity, receives an increase of 3% of the original annuity, starting on the first of the month following the first anniversary of his retirement or the first of the month following attainment of age 55, whichever is later, and shall not be subject to a 30% maximum increase. For retirees born on or after January 1, 1966, automatic increases are 1.5% of the original annuity, commencing at age 60, or the first anniversary of retirement, if later, to a maximum of 30%. For participants that first became members on or after January 1, 2011, increases are equal to the lesser of 3% and 50% of CPI-U of the original benefit, commencing at age 60.

Investment Rate of Return: 7.25% as of the December 31, 2018 and 2017 actuarial valuations

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Required Supplementary Information

Notes to Schedule of Contributions—Pension (*continued*)

(Unaudited)

Methods and Assumptions Used to Determine Contribution Rates as of the Valuation Date (*continued*):

Retirement Age:	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the December 31, 2014, actuarial valuation pursuant to an experience study for the period January 1, 2009 through December 31, 2013.
Mortality:	<p>Post-Retirement Healthy mortality rates: Sex Distinct Retirement Plans 2014 Healthy Annuitant mortality table weighted 108% for males and 97% for females.</p> <p>Pre-retirement mortality rates: Sex Distinct Retirement Plans 2014 Total Employee mortality table weighted 85% for males and 115% for females.</p> <p>Disabled Mortality: Sex Distinct Retirement Plans 2014 Healthy Annuitant mortality table weighted 115% for males and 115% for females.</p>
Other:	The actuarial valuation is based on the statutes in effect as of December 31, 2018.

Methods and Assumptions Used for Accounting Purposes as of the Valuation Date:

Actuarial Cost Method:	Entry Age Normal
Asset Method:	Market value
Discount Rate:	7.18% as of the December 31, 2018 actuarial valuation 7.00% as of the December 31, 2017 actuarial valuation

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Required Supplementary Information

Schedule of Money-Weighted Rate of Return—Pension

(Unaudited)

<u>Year Ended</u>	<u>Annual Money-Weighted Rate of Return, Net of Investment Expense</u>
12/31/14	6.24 %
12/31/15	(0.41)
12/31/16	6.6
12/31/17	16.7
12/31/18	(5.7)

The above information is required beginning in 2014. Information for the next five years will be presented in future years.

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Required Supplementary Information

Schedule of Changes in Total OPEB Liability – Staff Retiree Healthcare Plan

For the Years Ended December 31, 2018 and 2017

(Unaudited)

Fiscal year ended December 31, 2018*Total OPEB liability*

Service cost	\$ 93,951
Interest on the total OPEB liability	75,485
Changes of assumptions	(101,657)
Benefit payments	<u>(117,063)</u>
Net change in total OPEB liability	<u>\$ (49,284)</u>

Total Plan Asset**\$ -****Total OPEB liability - beginning****\$ 2,291,968****Total OPEB liability - ending****\$ 2,242,684****Covered-employee payroll****\$ 1,630,338****Total OPEB liability as a percentage
of covered-employee payroll****137.56%**

The above information is required beginning in 2018. Information for the next nine years will be presented in future years.

SUPPLEMENTARY INFORMATION

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Schedule of Administrative Expenses

For the Years Ended December 31, 2018 and 2017

	2018	2017
<i>Administrative expenses</i>		
Actuary services	\$ 88,500	\$ 91,000
Benefits disbursement	337,621	211,202
Equipment service and rent	104,084	146,159
External auditors	36,707	97,029
Fiduciary insurance	168,766	150,724
Legal services	418,541	567,610
Medical consultants	288,641	311,430
Miscellaneous	206,675	211,622
Pension administration	147,000	110,000
Occupancy and utilities	331,253	265,833
Personnel salaries and benefits	1,827,761	2,604,426
Postage	4,942	11,000
Supplies	10,043	12,042
Trustee election	94,268	52,935
Total administrative expenses	\$ 4,064,802	\$ 4,843,012

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Schedule of Consulting Costs

For the Years Ended December 31, 2018 and 2017

	2018	2017
<i>Payments to consultants</i>		
External auditors	\$ 36,707	\$ 97,029
Medical consultants	288,641	311,430
Legal services	418,541	567,610
Actuary service	88,500	91,000
Investment management fees	8,802,097	9,053,006
Custodial fees	390,145	255,135
Investment consulting and other fees	423,295	821,236
Total consulting costs	\$ 10,447,926	\$ 11,196,446

POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO

(A Component Unit of the City of Chicago)

Schedule of Investment Fees

For the Years Ended December 31, 2018 and 2017

	2018	2017
<i>Investment managers</i>		
Acadian Asset Management	\$ 1,000,806	\$ 1,005,529
Artisan Partners	797,244	796,259
Blueprint Capital	275,385	59,375
Chicago Equity Partners	132,258	-
Denali Advisors	279,366	280,992
Earnest Partners	531,614	913,913
Fisher Investments	780,474	819,596
Great Lakes Advisors	229,313	330,750
HGK Asset Management	116,069	67,163
Holland Capital Management	-	247,789
ING Clarion	94,716	94,922
Invesco Capital Management	-	281,250
Lazard Asset Management	618,311	708,402
LM Capital Group	202,729	209,703
MacKay Shields LLC	327,673	332,243
Manulife Asset Management	531,293	436,027
Montag & Caldwell	188,136	187,163
Northern Trust Global Investments - Index Funds	44,270	7,174
Pluscios Management, LLC	160,189	-
UBS Global Asset Management	488,913	451,194
Ullico Infrastructure Fund	162,237	-
Wellington Management	288,667	297,243
Wells Capital Management	246,941	290,600
William Blair & Co.	1,305,493	1,235,719
Total investment manager fees	<u>8,802,097</u>	<u>9,053,006</u>
<i>Investment consultants and other</i>		
Elkins McSherry Inc.	20,000	20,000
Evercore Group	-	429,385
NEPC LLC	403,295	371,851
Total investment consultants and other fees	<u>423,295</u>	<u>821,236</u>
<i>Master custodian</i>		
The Northern Trust Company	390,145	255,135
Total investment fees	<u><u>\$ 9,615,537</u></u>	<u><u>\$ 10,129,377</u></u>



Investment Section



NEPC, LLC

Investmentsⁱ

(Compiled by NEPC, LLC Investment Consultant to the Fund)

Investment Authority

Since December 16, 1987, the Policemen's Annuity & Benefit Fund of Chicago has operated in accordance with the Illinois Public Act 85-964, which is the Prudent Person rule for the Policemen's Pension Fund. The Prudent-Person rule states that fiduciariesⁱⁱ must discharge their duties with care, skill, prudence, and diligence that a prudent person acting in a like capacity and familiar with such matters would use under the prevailing conditions.

Investment Policy

In 1984, the Trustees undertook a restructuring of the Fund's investment policy to improve the Fund's investment diversification. The revised policy allows for investments in additional asset classes (e.g., international stocks and bonds, real estate and private equity investments). As a result of this policy change, the Fund was restructured. The Trustees allocated monies among new asset classes and added several new investment managers. The Trustees also allocated monies to passive investments (index funds), which provides a low-cost means of achieving market-like returns. The Trustees consistently review the investment policy and make changes when deemed appropriate. NEPC reviews the Fund's asset allocation policy annually. The most recent asset allocation policy review was presented to the Board during February 2018.

Distinction of Responsibilities

To clarify the roles and responsibilities of the Trustees and the various investment professionals engaged by the Trustees, the Trustees divided the responsibilities for the Fund as follows:

The Trustees assume the responsibility for establishing the investment policy that is to guide the investment of the Fund's assets. The investment policy describes the degree of investment risk that the Trustees deem appropriate.

Investment managers are appointed to execute the policy and invest pension assets in accordance with the policy and applicable statutes, but apply their own judgments concerning relative investment values. Investment managers are accorded full discretion, within policy limits, to (1) select individual investment, (2) make periodic adjustments to the proportions of equity and fixed income investments, and (3) diversify pension assets.

ⁱNEPC provides PABF with quarterly economic and investment market updates and performance reviews, investment manager monitoring and selection advice, and related investment services for traditional and non-traditional asset classes. Investment performance analysis and comparisons produced by NEPC have been calculated using standard performance evaluation methodologies and are consistent with industry standards. The Board's goal of achieving market rates of return, while mitigating unwarranted risk, is measured against appropriate benchmarks and comparative universes on a quarterly basis. Performance is measured on a most recent quarter, year-to-date, and accumulated trailing annual periods, as well as 3 and 5 year periods (full market cycle). This review process allows the Board to evaluate and determine whether established goals and objective are being achieved. Data on traditional assets held by the Fund is provided by the Fund's custodian to NEPC. Data on alternative investments held by the Fund is provided by the investment manager to NEPC.

ⁱⁱA fiduciary is any person who has authority or control with respect to the management or administration of plan assets.

ⁱⁱⁱIF and eVestment universe returns are presented gross of fees.

Diversification

The Fund's assets are diversified in several ways to minimize the potential for overexposure to individual investments and provide a broad opportunity set for the portfolio while trying to minimize risk. Since 1984, the Trustees have expanded the number of asset classes available for investment and expanded on the current manager line up. As of December 31, 2018, the Fund had allocations to 11 broad asset classes.

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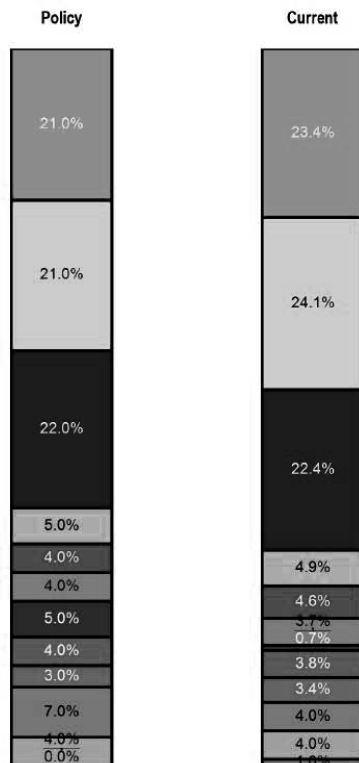


Investment Objective

The Fund's investment objective is to match or exceed its policy index return on a net of fees basis and over the long term meet or exceed the actuarial required rate of return. The Total Fund's return will also be compared to the InvestorForce total public fund universe.

2018 Asset Allocation

As of December 31, 2018, compared to the target allocation, the Fund was overweight to US equity, non-US equity, fixed income, opportunistic credit, long/short equities and cash. The Fund was underweighting to GAA, private equity, private debt and real estate. The Fund's asset allocation at the end of 2018 is shown below.



Asset Allocation vs. Target				
	Current	Policy	Current	Difference*
U.S. Equity	\$545,195,269	21.00%	23.44%	2.44%
Non-US Equity	\$559,652,460	21.00%	24.06%	3.06%
Fixed Income	\$520,263,294	22.00%	22.37%	0.37%
Global Asset Allocation	\$115,108,700	5.00%	4.95%	-0.05%
Opportunistic Credit	\$105,884,014	4.00%	4.55%	0.55%
Private Debt	\$86,884,514	4.00%	3.74%	-0.26%
Private Equity	\$16,994,495	5.00%	0.73%	-4.27%
Hedge Funds	\$88,827,326	4.00%	3.82%	-0.18%
Long/Short Equity	\$79,691,107	3.00%	3.43%	0.43%
Real Estate	\$91,997,023	7.00%	3.96%	-3.04%
Infrastructure	\$93,180,435	4.00%	4.01%	0.01%
Cash	\$22,096,941	0.00%	0.95%	0.95%
Total	\$2,325,775,578	100.00%	100.00%	

*Difference between Policy and Current Allocation



Fair Value and Asset Allocation
(as of December 31, 2018)

Asset Class	Investment Manager/ Account Name	Market Value as of 12/31/18	% of Total Fund
Cash	Transition Account	-	0.0%
	Cash Flow	27,393,573	1.1%
	Tax Reclaims	1,251,884	0.1%
Domestic Equity	NTGI Russell 1000	87,794,527	3.6%
	Montag & Caldwell	55,535,892	2.2%
	Denali Advisors	56,826,527	2.3%
	Great Lakes	98,144,218	4.0%
	William Blair SMID Growth	112,640,419	4.6%
	Chicago Equity SMID Value	47,985,695	1.9%
	Fisher Investments	102,482,972	4.2%
	BMO Micro Cap Equity	47,873,430	1.9%
Fixed Income	GAM Unconstrained Bond Fd	39,463,794	1.6%
	LM	87,278,881	3.5%
	Mackay Shields	58,892,263	2.4%
	Manulife Asset Management	117,076,392	4.7%
	Wellington	94,612,054	3.8%
	Wells Capital	119,540,214	4.8%
	HGK Asset Management	71,034,162	2.9%
GAA	GMO	13,199,254	0.5%
	PIMCO/SEI	103,373,855	4.2%
Hedge Funds	Entrustpermal Fund LLC	56,020,384	2.3%
	Pluscios Fund, LLC	32,923,652	1.3%
Infrastructure	Carlyle Group (The)	1,296,202	0.1%
	Global Infra Partners III	19,732,678	0.8%
	Global Infrastructure Partners	18,551,844	0.8%
	Ullico Infra Taxable	51,201,389	2.1%
International Equity	Artisan Partners	109,916,771	4.5%
	UBS Int'l	101,679,110	4.1%
	William Blair Int'l Growth	110,667,945	4.5%
	Acadian	112,062,760	4.5%
	Earnest Partners	76,095,701	3.1%
	Lazard	79,710,880	3.2%
Long/Short Equity	Pluscios L/S EQ FD	29,842,771	1.2%
	UBS Bucktown CPD LLC	50,000,000	2.0%
Opportunistic Credit	Beach Point LP	23,370,229	0.9%
	Blueprint Capital Advis	37,635,146	1.5%
	Clareant Euro Dir	22,294,230	0.9%
	Clareant Euro Dir III	-	0.0%
	Crestline Opportunity FD III	10,933,438	0.4%
	Dorchester Secondaries OP	27,761,062	1.1%
	Eagle Point Credit Management	2,078,844	0.1%
	Monroe Direct Lending Fund II	20,901,510	0.8%
	Monroe Direct Lending Fund III	426,946	0.0%
	Voya (CF)	21,389,488	0.9%

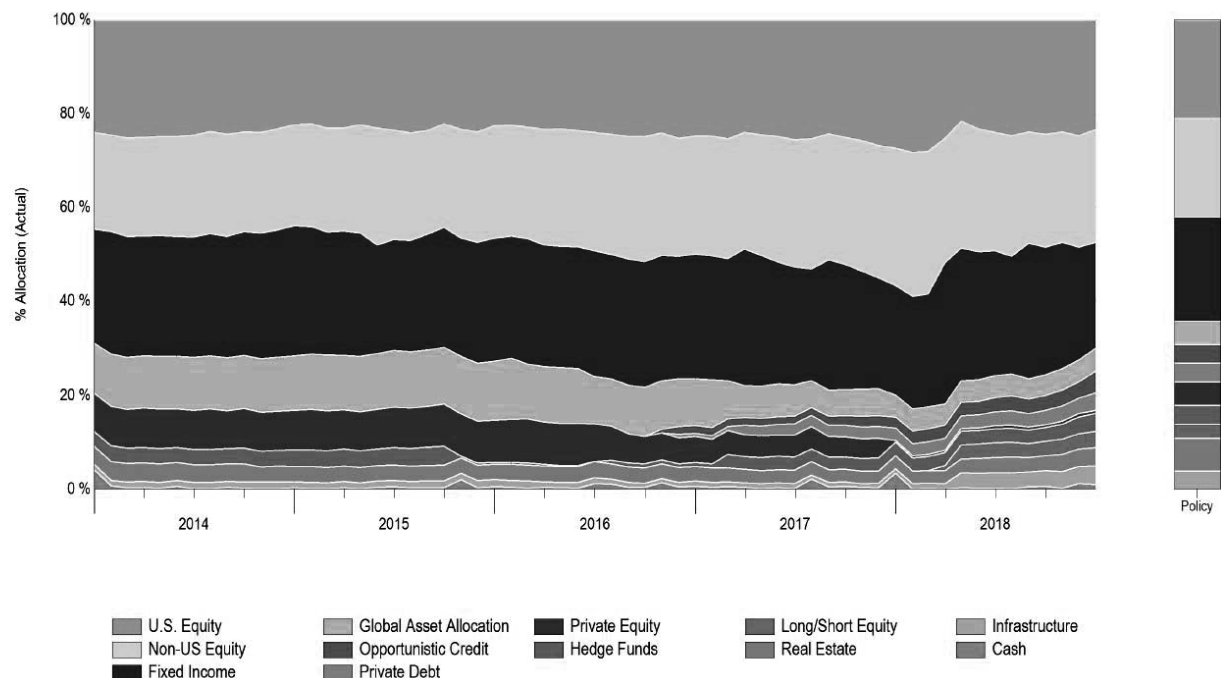


Fair Value and Asset Allocation (continued)
(as of December 31, 2018)

Asset Class	Investment Manager/ Account Name	Market Value as of 12/31/18	% of Total Fund
Private Equity	Adams Street Partners	3,932,728	0.2%
	Chancellor	14,097	0.0%
	Invesco Vent Alpha Fund	12,902,819	0.5%
Real Estate	ABR Chesapeake III	1,586,445	0.1%
	AG Core Plus Realty II	454,424	0.0%
	Apollo Real Estate Advisors	407,028	0.0%
	Blackrock Asia III	35,855	0.0%
	Brookfield RE Fund V	2,882,861	0.1%
	DRA Advisors	387,257	0.0%
	Lone Star Fund VI (U.S.)	1,730,979	0.1%
	Lone Star Real Estate (U.S.)	617,925	0.0%
	Lone Star X	7,315,463	0.3%
	Mesirow FIN RE Val III	3,842,483	0.2%
	Mesirow RE Value Fund	1,918,439	0.1%
	Morgan Stanley MSREF VI Int'l	227,541	0.0%
	Morgan Stanley PRIME	20,495,485	0.8%
	Newport Capital Partners	629,617	0.0%
	Shamrock-Hostmark	2,784	0.0%
	Sound Mark Partners LLC	17,543,860	0.7%
	UBS Realty Investors	18,986,882	0.8%
	CBRE Clarion Securities	14,394,101	0.6%



Historic Asset Allocation by Asset Class



Summary of 2018 Investment Activity

Investment Manager Changes

During 2018, the Board of Trustees voted to retain 11 investment managers. The list of these managers and their mandates can be found in the chart below:

Investment Manager Name	Strategy
Chicago Equity Partners	US Small/Mid Cap Value
BMO Harris	US Micro Cap Core
Pluscios	Long/Short Equity Hedge Fund
UBS Bucktown	Long/Short Equity Hedge Fund
Ullico	Infrastructure
Mesirow RE Value III Fund	Private Real Estate
Eagle Point	Opportunistic Credit/Income Generating
Clareant European Direct Lending Fund III	Private Lending
TA Realty	Value Add Real Estate
Terra Capital	Value Add Real Estate
Brookfield	Core Plus Real Estate

For this same period one investment manager, GAM Unconstrained Fixed Income was terminated.



Total Fund Fiscal Year End Performance (net of fees)

For 2018, on a net of fee basis, the Total Fund returned -5.36% which underperformed the policy index return of -5.19%. This ranked the Fund in the 75th percentile (1% being the highest, 100% being the lowest) of the IF Public DB Universe. Over the trailing three year period, the Fund's 5.75% return outperformed the policy index return of 5.58%. Over the trailing five years, the Fund's 4.58% return outperformed the policy index return of 4.44%. For both the three and five year period, the Fund is underperforming its actuarial rate of return, which is 7.25%

Asset Class Fiscal Year End Performance (net of fees)

The US equity portfolio posted a return of -8.34% for the one year period ending December 31, 2018, underperforming the Russell 3000 index. The portfolio was hurt by underperformance in large cap (which returned -8.09% vs its index return of -4.78%), SMID, although negative for the quarter outperformed relative to its index, with a return of -2.00% versus the index return of -7.47%. For the three year period, the US equity portfolio returned 7.53% lagging its index (which returned 8.97%) by 132 basis points.

The non-US equity portfolio posted a return of -15.30% for the one year period ending December 31, 2018, underperforming the MSCI ACWI ex US index. The developed international equity portfolio, helped performance, returning -14.02% for the year and outpacing its index by 21 basis points. The international small cap portfolio detracted from performance, with a return of -18.92% versus the index return of 17.89% (lagging by 125 basis points). The emerging market equity portfolio also lagged for the year, returning -15.46% versus the index return of -14.58%. For the three year period, the international equity portfolio outpaced its index by 89 basis points with a return of 5.41% versus the index return of 4.48%.

The fixed income portfolio posted a return of -0.38% for the one year period ending December 31, 2018, underperforming the Bloomberg Barclays US Aggregate index. The portfolio was hurt by underperformance within the core/core plus, diversified and absolute return portfolios, all of which underperformed their respective indices for the quarter. The global multi sector portfolio outperformed its index for the quarter, with a return of 1.83% versus the index return of -0.39%. For the three year period, the fixed income portfolio outpaced its index by 64 basis points with a return of 2.70% versus the index return of 2.06%.

The Income Generating/Credit Opportunities portfolio ended the year with a since inception IRR of 8.14%. Since inception, the total value to paid in capital multiple (current valuation plus cumulative distributions, divided by total capital calls) was 1.15. As of December 31, 2018, Chicago PABF had commitments totaling \$125.0 million to 6 credit opportunities funds. All of the 6 fund in the portfolio are in the investing stage. Since inception, the credit opportunities program has gained \$16.29 million in value for Chicago PABF; Direct Lending gained \$7.13 million, Distressed has gained \$0.73 million, and Credit Opportunities has gained \$8.43 million. The portfolio is well diversified with 57% of the portfolio allocated to opportunistic credit funds, 33% allocated to direct lending funds and 10% allocated to distressed debt funds.

The real estate portfolio ended the year with a since inception IRR of 3.51%. Since inception, the Total Value to Paid In Capital multiple (current valuation plus cumulative distributions, divided by total capital calls) was 1.18. As of December 31, 2018, Chicago PABF had commitments totaling \$279.28 million to 23 real estate funds. Of the 23 funds in the real estate portfolio, 4 are in the investing stage, 2 are in the harvesting stage, 7 are in the liquidating stage, 7 are completed, and 3 are in open end real estate. Since inception, the real estate program has gained \$42.58 million in value for Chicago PABF. The investment strategies



adding value are: Credit Opps, \$0.93 million, RE Debt, \$8.60 million; RE Long, \$14.22 million; RE Value Add, \$7.87 million and RE Core, \$15.17 million. The investment strategy losing value is RE Opportunistic, (\$4.21) million. As of December 31, 2018, the 23 real estate funds in the real estate portfolio were diversified by investment strategy, 19% allocated to real estate credit opportunity funds, 15% allocated to REITs, 4% allocated to real estate debt, 12% allocated to opportunistic real estate, 47% allocated to core real estate and 3% allocated to value-add real estate.

The infrastructure portfolio ended the year with a since inception IRR of 10.61%. Since inception, the total value to paid in capital multiple (current valuation plus cumulative distributions, divided by total capital calls) was 1.40. As of December 31, 2018, Chicago PABF had commitments totaling \$135.00 million to 4 infrastructure funds. Of the 4 funds in the infrastructure portfolio, 2 are in the investing stage, 1 is in the harvesting stage, and 1 is in the liquidating stage. Since inception, the infrastructure portfolio has gained \$50.68 million in value for Chicago PABF in Infrastructure.



Annual and Trailing Investment Returns (net of fees) – December 31, 2018

Below is a detailed analysis of the Fund's net of fee performance has been provided both on a trailing and calendar year basis. Calculations are prepared utilizing a time weighted rate of return.

	Market Value (\$)	% of Portfolio	Ending December 31, 2018										Inception (%)
			3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	
Composite	2,325,775,578	100.00	-6.92	21	-4.93	68	6.24	22	5.01	24	8.71	20	8.48
Allocation Index			-7.04	25	-5.19	74	5.58	51	4.44	53	8.31	35	–
Policy Index			-5.51	7	-2.53	10	6.23	22	4.55	47	7.70	65	–
Beta Index			-0.79	1	-3.32	24	0.04	99	1.45	99	1.89	99	–
90% / 10% Index			-6.39	14	-5.03	70	5.24	69	4.31	63	7.70	65	–
Total Equity	1,184,538,836	50.93	-13.49	51	-10.70	60	7.35	25	5.16	36	11.10	27	7.21
MSCI ACWI			-12.75	44	-9.42	50	6.60	34	4.26	52	9.46	54	5.87
Total Domestic Equity	545,195,269	23.44	-15.73	47	-7.65	50	8.08	38	7.44	29	13.34	36	10.46
Russell 3000			-14.30	33	-5.24	36	8.97	28	7.91	23	13.18	40	10.52
Total International Equity	559,652,460	24.06	-12.73	36	-14.70	40	6.14	17	2.58	27	8.34	42	8.92
MSCI ACWI ex USA			-11.46	21	-14.20	36	4.48	38	0.68	58	6.57	70	–
Total Fixed Income	520,263,294	22.37	0.41	60	-0.08	56	3.06	37	2.92	38	4.78	43	7.22
BBgBarc US Aggregate TR			1.64	11	0.01	55	2.06	58	2.52	51	3.48	63	6.98
Total Private Equity	16,994,495	0.73	0.86	–	12.68	–	3.38	–	8.10	–	7.02	–	9.37
Private Equity Benchmark (1 Qtr. Lag)			3.79	–	18.01	–	14.51	–	13.40	–	9.08	–	17.13
Total Infrastructure	93,180,435	4.01	5.89	–	9.55	–	25.98	–	23.32	–	14.54	–	8.76
NCREIF Property Index			1.37	–	6.71	–	7.22	–	9.33	–	7.49	–	6.34
Total Real Estate	91,997,023	3.96	0.24	–	2.19	–	5.31	–	6.93	–	5.86	–	5.95
NCREIF Property Index 1 Qtr. Lag			1.67	–	7.16	–	7.76	–	9.57	–	6.42	–	9.52
Total Hedge Funds	128,080,150	5.51	-0.02	7	4.59	5	–	–	–	–	–	–	5.69
HFRI Fund of Funds Composite Index			-5.00	56	-4.08	66	1.29	70	1.38	71	3.11	88	2.07
Total Global Asset Allocation	115,108,700	4.95	-3.68	23	-5.31	30	5.50	11	2.20	38	–	–	4.37
60% MSCI ACWI (Net) / 40% FTSE WGBI			-7.06	51	-5.85	35	5.19	18	3.01	23	6.46	45	5.17
Opportunistic Credit	66,631,190	2.86	-0.57	–	2.64	–	–	–	–	–	–	–	4.88
Opportunistic Credit Custom Index			-3.46	–	-0.43	–	5.69	–	–	–	–	–	2.96
Private Debt	86,884,514	3.74	2.14	–	10.52	–	–	–	–	–	–	–	7.13
Private Debt Custom Index			1.43	–	5.43	–	4.51	–	–	–	–	–	4.82



Asset Class	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
TOTAL FUND										
Police Fund	21.9%	12.7%	0.8%	12.4%	14.5%	6.2%	-0.4%	6.7%	17.15%	-5.24%
Policy Portfolio	16.7%	12.8%	0.2%	12.6%	13.3%	4.9%	-0.7%	5.9%	12.98%	-5.19%
U.S. EQUITY										
Police Fund	33.0%	17.3%	0.3%	15.0%	34.1%	10.2%	2.1%	9.9%	23.45%	-7.98%
Russell 3000 Index	28.3%	16.9%	1.0%	16.4%	33.6%	12.6%	0.5%	12.7%	21.13%	-5.24%
NON-U.S. EQUITY										
Police Fund	40.1%	11.5%	-13.5%	20.6%	17.5%	-1.9%	-4.3%	2.7%	34.71%	-15.27%
Performance Benchmark	41.5%	11.2%	-13.7%	16.8%	15.3%	-3.9%	-5.7%	4.5%	27.19%	-14.20%
FIXED INCOME										
Police Fund	11.6%	7.8%	8.0%	6.7%	-1.2%	6.0%	-1.1%	4.4%	4.18%	-0.36%
Barclays Capital Aggregate Index	5.9%	6.5%	7.8%	4.2%	-2.0%	6.0%	0.6%	2.7%	3.54%	1.00%
REAL ESTATE										
Police Fund	-9.1%	7.3%	6.5%	10.1%	6.9%	12.4%	5.0%	6.0%	5.43%	1.51%
NCREIF Net Property Index (1 Quarter lag)	-16.9%	13.1%	16.1%	11.0%	8.0%	11.0%	13.5%	9.2%	6.90%	7.16%
INFRASTRUCTURE										
Police Fund	-6.0%	15.0%	9.0%	-3.0%	19.0%	23.0%	15.9%	29.2%	38.60%	14.20%
NCREIF Net Property Index	-22.1%	5.8%	16.1%	11.0%	11.0%	11.3%	13.5%	7.1%	7.11%	6.71%
PRIVATE EQUITY										
Police Fund	-21.3%	13.0%	16.9%	9.3%	15.1%	20.0%	10.6%	7.9%	-6.87%	12.42%
Custom Index	-26.3%	15.8%	12.0%	14.4%	16.3%	17.9%	5.9%	4.2%	11.75%	18.01%
PRIVATE DEBT										
Police Fund	---	---	---	---	---	---	---	---	---	10.52%
Custom Index	---	---	---	---	---	---	---	---	---	5.43%
OPPORTUNISTIC CREDIT										
Police Fund	---	---	---	---	---	---	---	---	---	2.64%
Custom Index	---	---	---	---	---	---	---	---	---	-0.43%
HEDGE FUND										
Police Fund	---	---	---	---	---	---	---	---	5.82%	4.59%
Custom Index	---	---	---	---	---	---	---	---	7.73%	-4.08%
GLOBAL ASSET ALLOCATION										
Police Fund	---	---	---	13.2%	7.5%	1.1%	-6.0%	8.1%	14.67%	-5.31%
Custom Index	---	---	---	10.3%	11.4%	2.4%	-2.6%	5.3%	16.24%	-5.85%

¹ All Chicago PABF performance presented net of fees. IF and eVestment universe returns are presented gross of fees

Largest Stock Holdings as of December 31, 2018

	Shares	Stocks	Market Value
1	237,767	SAMSUNG ELECTRONIC KRW5000	\$ 8,246,624
2	889,462	AIA GROUP LTD NPV	7,384,397
3	40,526	LINDE PLC COMMON STOCK	6,418,647
4	50,119	DEUTSCHE BOERSE AG NPV (REGD)	6,012,957
5	37,723	WIRECARD AG NPV	5,726,741
6	530,723	ADR ICICI BK LTD	5,461,140
7	25,853	BERKSHIRE HATHAWAY INC-CL B	5,278,666
8	51,452	AIRBUS SE EUR1	4,938,305
9	46,960	ADR HDFC BK LTD ADR REPSTG 3 SHS	4,864,586
10	55,650	NESTLE SA CHFO.10(REGD)	4,504,839

Largest Bond Holdings as of December 31, 2018

	Par	Bonds	Market Value
1	14,700,000	FNMA SINGLE FAMILY MORTGAGE 3.5% 30 YEARS	\$ 14,675,877
2	5,215,000	UNITED STATES TREAS NTS 2.875% DUE 11-15-2021	5,273,059
3	4,500,000	FNMA SINGLE FAMILY MORTGAGE 4.0% 30 YEARS	4,587,188
4	4,525,000	UNITED STATES TREAS NTS 2.75% DUE 2-15-2028	4,548,331
5	3,900,000	FHLMC GOLD SINGLE FAMILY 4% 30 YEARS	3,975,793
6	4,004,000	UNITED STATES TREAS NTS 1.875% DUE 1-31-2022	3,932,681
7	3,719,000	UNITED STATES TREAS BOND 3.125% DUE 11-15-2028	3,857,592
8	3,900,000	UNITED STATES TREAS NTS 2 DUE 11-15-2021	3,849,573
9	3,740,000	UNITED STATES TREAS NTS 2.875% DUE 10-31-2023	3,802,237
10	3,530,000	US TREASURY N/B US GOVT NATIONAL 1.5% DUE 7-15-2020	3,474,706

A complete list of portfolio holdings is available upon request.

Commissions Paid by Investment Managers in 2018

Manager	Total Number of Trades	Total Number of Shares	Total Commission
Acadian Asset Management	2,690	43,308,714	\$ 55,943
Artisan Partners	2,559	5,626,772	117,863
BMO	2,052	5,414,801	37,370
Chicago Equity	1,127	2,698,001	57,792
Denali Advisors	275	1,733,200	23,484
Earnest Partners	282	24,247,797	67,578
Fisher Investments	84	770,917	18,802
Great Lakes Advisors	150	1,458,106	51,034
ING Clarion	2,886	2,687,311	29,636
Lazard Asset Management	1,231	36,205,250	131,713
Montag & Caldwell	106	488,037	13,834
UBS Global Asset Management	417	10,049,112	35,477
William Blair & Company	3,579	10,476,862	186,369
Totals	17,438	145,164,880	\$ 826,895

Commissions Paid to Brokers in 2018

Broker	Total Number of Shares	Total Commission	Commission Per Share
BNP Paribas	16,586,171	16,225	0.001
BNY Convergen Execution Solutions	10,495,625	57,739	0.006
Cabrera Capital Markets	601,451	13,001	0.022
Citigroup Global Markets	4,246,645	23,233	0.005
CLSA Securities	13,187,496	24,260	0.002
Cowen & Company, LLC	416,463	12,549	0.030
Credit Suisse	3,011,407	26,694	0.009
Deutsche Securities	6,465,418	22,968	0.004
Drexel Hamilton LLC	600,818	21,029	0.035
Goldman Sachs & Co	2,323,057	31,193	0.013
HSBC	7,701,504	11,541	0.001
Instinet	12,767,392	49,179	0.004
ITG, Inc.	2,279,713	9,482	0.004
JP Morgan Securities	7,293,070	40,979	0.006
Jefferies & Co	2,827,121	18,374	0.006
Liquidnet, Inc.	758,988	15,024	0.020
Loop Capital Markets	2,822,187	82,191	0.029
Macquarie	2,961,517	7,040	0.002
Merrill Lynch	8,153,641	40,064	0.005
Mirae Asset Daewoo Co., Ltd.	22,491	8,725	0.388
Morgan Stanley	7,031,867	63,153	0.009
Penserra Securities	1,217,112	28,858	0.024
RBC	968,148	16,265	0.017
Stanford C. Bernstein	4,198,773	10,675	0.003
Societe Generale	2,003,138	14,621	0.007
UBS	5,330,977	30,610	0.006
Brokers with less than \$7,000 in commissions	18,892,690	131,224	0.007
Totals	145,164,880	826,895	0.006

**Investment Summary
as of December 31, 2018**

<u>Investment Type</u>	<u>Fair Value</u>	<u>Percent of Total Fair Value</u>
<u>Fixed Income</u>		
Government Bonds	\$ 233,564,965	9.77%
Corporate Bonds	259,749,303	10.86%
Total Bonds	493,314,268	
Fixed Income Funds	212,115,398	8.87%
Total Fixed Income	\$ 705,429,666	29.50%
<u>Equities</u>		
U.S. Equities	\$ 460,527,370	19.26%
International Equities	527,687,517	22.07%
Stock Index Funds	110,441,181	4.62%
Total Equities	\$ 1,098,656,068	45.94%
<u>Other Investments</u>		
Hedge fund-of-funds	\$ 188,406,726	7.88%
Infrastructure	92,520,576	3.87%
Real Estate	90,782,832	3.80%
Swaps	151,271	0.01%
Forward Contracts	22,042,824	0.92%
Venture Capital	84,919,513	3.55%
Total Other	\$ 478,823,742	20.02%
Short-term funds and Cash	\$ 108,459,004	4.54%
Total Assets at Fair Value	\$ 2,391,368,480	100.00%



Actuarial Section

May 1, 2019

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

Subject: Actuarial Valuation Report for the Year Ending December 31, 2018

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Policemen's Annuity and Benefit Fund of Chicago ("the PABF" or "the Fund") as of December 31, 2018. The primary purposes of this actuarial valuation are to determine the statutory contribution for tax levy year 2020 (i.e., payment year 2021) and to measure the funded status of the Fund as of December 31, 2018, based on the statutes in effect as of December 31, 2018. This report also provides the development of the plan year end 2019 Actuarially Determined Contribution ("ADC") as required by GASB Statement Nos. 67 and 68. Other information required under GASB Statement Nos. 67 and 68 is provided in a separate report. The actuarial assumptions and methods used were recommended by the actuary and approved by the Board.

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

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

This actuarial valuation is based upon:

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

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

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

Actuarial Assumptions – All actuarial assumptions remain unchanged from the prior actuarial valuation and reflect the results of the experience study performed for the period of January 1, 2009 through December 31, 2013, approved by the Board on March 16, 2015, and the investment return and inflation assumptions first effective with the December 31, 2016, actuarial valuation. The assumptions used are set forth in Appendix 4: Actuarial Methods and Assumptions of the Valuation Report. In our opinion, the actuarial assumptions and actuarial methods used for this actuarial valuation as of December 31, 2018 comply with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

At its regularly scheduled meeting of May 31, 2019, the Retirement Board of the Policemen's Annuity and Benefit Fund of Chicago authorized Gabriel, Roeder, Smith & Company to perform an experience study of the actuarial assumptions for the five year period January 1, 2014 through December 31, 2018. The primary purpose of the study is to determine the continued appropriateness of the current actuarial assumptions by comparing actual experience to expected experience. The study will be completed in the summer of 2019.

Plan Provisions – The actuarial valuation is based on plan provisions and statutes in effect as of December 31, 2018.

The funding objective of the Fund is to provide employer and employee contributions sufficient to provide the benefits of the Fund when due. Pursuant to Public Act ("P.A.") 99-0506, effective May 30, 2016, the funding policy was amended and requires City contributions to be equal to \$420 million in payment year 2016, \$464 million in payment year 2017, \$500 million in payment year 2018, \$557 million in payment year 2019 and \$579 million in payment year 2020. For payment years after 2020, the City is required to make level percent of pay contributions for plan years 2020 through 2055 that along with member contributions and investment earnings are expected to generate a projected funded ratio of 90% by plan year end 2055. The projections are based on an open group, level percent of pay financing and the Entry-Age Normal cost method.

This is a severely underfunded plan. The funded ratio is only 23.8% (using actuarial value of assets) and the unfunded liability is approximately \$10 billion as of December 31, 2018. The funded ratio is not projected to even reach 50% funded for another 25 years until 2043.

The funding policy defined in P.A. 99-0506 significantly defers contributions when compared to the provisions of the prior funding policy defined in P.A. 96-1495. The amount of annual contributions defined under P.A. 99-0506 does not even cover normal cost plus interest on the unfunded liability for the next 14 years. This means the unfunded liability is actually projected to increase to a high of \$12.0 billion in 2032, when contributions are finally sufficient to start reducing the unfunded liability.

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

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

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

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

The funding actuarial valuation results contained in this report were prepared based on the statutes in effect as of December 31, 2018. The projected contributions contained in this report will be used to develop the blended discount rate under GASB Statement Nos. 67 and 68.

The actuarial valuation results set forth in this report are based on the data and actuarial techniques described above, and upon the provisions of the Fund as of the actuarial valuation date. To the best of our knowledge, this actuarial statement is complete and accurate based on the statutes in effect as of December 31, 2018, and fairly presents the actuarial position of the Fund as of December 31, 2018. Based on these items, we certify these results to be true and correct.

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

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

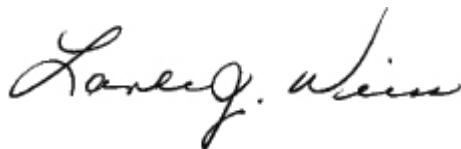
This report should not be relied on for any purpose other than the purpose stated.

This report was prepared at the request of the Board and is intended for use by the Fund and those designated or approved by the Board. This report may be provided to parties other than the Fund only in its entirety and only with the permission of the Fund. GRS is not responsible for unauthorized use of this report.

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

The signing actuaries are independent of the plan sponsor.

Respectfully yours,

Handwritten signature of Lance J. Weiss in cursive script.

Lance J. Weiss, EA, MAAA, FCA
Senior Consultant

Handwritten signature of Alex Rivera in cursive script.

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

Summary of Actuarial Valuation Results

Five-Year Projection of Statutory Contributions

Following is a five-year projection of the statutory contributions based on fixed dollar contributions for payment years 2019 through 2020 and statutory actuarial calculations after payment year 2020.

City Contributions as of December 31, 2018 \$ in thousands		
Tax Levy Year	Payment Year	Statutory Contribution
2018	2019	\$ 557,000
2019	2020	579,000
2020	2021	737,527
2021	2022	763,981
2022	2023	785,718
2020 & Thereafter as % of Projected Pay	2021 & Thereafter	57.0%

Statutory Contributions for tax levy years 2021 and 2022 are projected amounts

The statutory contribution for payment year 2021 is \$737.5 million, which is approximately 57.0% of projected payroll in 2021. After 2021, the projected city contribution is 57.0% of projected payroll but will increase as a dollar amount as payroll increases. Full projection results through 2055 are shown in Table 3a. The Statutory contributions set forth in this report represent the contribution amount determined consistent with the state Statute.

Actuarial Methods and Assumptions as of December 31, 2018

I. Actuarial Cost Method

An Actuarial Cost Method is a set of techniques used by the actuary to develop contribution levels under a retirement plan. The Actuarial Cost Method used in this valuation for statutory funding and State reporting purposes and GASB accounting purposes is the Entry-Age Normal actuarial cost method.

Under the Entry-Age Normal Cost Method, each participant's projected benefit is allocated on a level percent of pay basis from entry age to assumed exit age. The Actuarial Accrued Liability is the portion of the present value associated with pay prior to the valuation date. The Normal Cost is the portion of the present value associated with pay during the current plan year.

To the extent that current assets and future Normal Costs do not support participants' expected future benefits, an Unfunded Actuarial Accrued Liability ("UAAL") develops. The UAAL is generally amortized over a fixed period of time (e.g., 30 years) from the date incurred. The total contribution developed under this method is the sum of the Normal Cost and the payment toward the UAAL.

II. Current Actuarial Assumptions

The current actuarial assumptions except for the investment return and general inflation assumptions were adopted and became effective December 31, 2014, and were based on an experience study for the period January 1, 2009 to December 31, 2013. The investment return and general inflation assumptions were adopted and became effective December 31, 2016.

A. Demographic Assumptions

Mortality:

Pre-Retirement mortality rates: Sex distinct Retirement Plans 2014 Total Employee mortality table weighted 85% for males and 115% for females.

Post-Retirement Healthy mortality rates: Sex distinct Retirement Plans 2014 Healthy Annuitant mortality table weighted 108% for males and 97% for females. When compared to observed experience, the recommended rates include a 23% margin for future mortality improvements when the experience study was performed.

Disabled Mortality:

Sex distinct Retirement Plans 2014 Healthy Annuitant mortality table weighted 115% for males and 115% for females.

Actuarial Methods and Assumptions as of December 31, 2018

Rate of Disability:

Rates at which members are assumed to become disabled under the provisions of the Fund. Sample rates assumed are as follows:

ATTAINED AGE	RATE
22	.0003
27	.0007
32	.0007
37	.0020
42	.0030
47	.0040
52	.0050
57	.0060
62	.0060

The assumed distribution of disability types is assumed to be as follows:

Duty Disability	55%
Occupational Disease Disability	10%
Ordinary Disability	35%

Rate of Retirement:

Rates at which members are assumed to retire under the provisions of the Fund. The rates assumed are as follows:
For members hired before January 1, 2011:

ATTAINED AGE	RATE ¹
50	.05
51	.05
52	.05
53	.05
54	.05
55	.19
56	.19
57	.19
58	.25
59	.25
--	--

Actuarial Methods and Assumptions as of December 31, 2018

For members hired on or after January 1, 2011:

ATTAINED AGE	RATE ¹
50	.02
51	.02
52	.02
53	.02
54	.03
55	.21
56	.21
57	.21
58	.27
59	.27
60	.25
61	.30
62	.30
63	1.00

¹ Only for members eligible for a formula annuity.

Turnover Rates:

The following sample rates exemplify the table:

YEARS OF SERVICE	RATE
0	0.030
1	0.028
2	0.020
3	0.015
4-5	0.010
6-10	0.009
11	0.008
12	0.007
13-24	0.006

B. Economic Assumptions

Investment Return Rate: 7.25% per annum effective as of December 31, 2016.

General Inflation: The 7.25% Investment Return Rate assumption is comprised of a 2.75% inflation assumption and a 4.50% real rate of return assumption for pension.

Actuarial Methods and Assumptions as of December 31, 2018

Future Salary Increases: Assumed rates of individual salary increase at 3.75% per year, plus an additional percentage based on the following service scale:

COMPLETED YEARS OF SERVICE *	SCALE
1	0.3625
2	0.0325
3	0.0325
4	0.0325
5	0.0225
6-9	0.0000
10	0.0225
11-14	0.0000
15	0.0225
16-19	0.0000
20	0.0225
21-24	0.0000
25	0.0225
26-29	0.0000
30	0.0225
Over 30	0.0000

* Includes increases at 12 and 18 months of service.

Asset Value: For Book-value of Assets, bonds are at amortized value and stocks are at cost.

For statutory funding, the actuarial value of assets is smoothed by recognizing each year's difference between actual and expected investment return at the rate of 20% per year over a five-year period.

The actuarial value of assets was marked to the market value as of January 1, 2012, and is smoothed by using a five-year phase-in of each year's unexpected investment gains and losses.

C. Other Assumptions

Marital Status: It is assumed that 85% of members have an eligible spouse. The male spouse is assumed to be three years older than the female spouse. No assumption is made about other dependents.

Actuarial Methods and Assumptions as of December 31, 2018

Beneficiary COLA
Approximation:

For current retirees with eligible reversionary annuitants, liabilities are calculated for the beneficiary's benefit by using 50 percent of the retiree's benefit as of the valuation date plus 35 percent of the retiree's future increase in benefit from the COLA each year after the valuation date.

D. Projection Assumptions

The projections under the provisions of P.A. 99-0506 were based on the following assumptions and methods:

Active Population:

Active members who terminate, retire, become disabled or die during the year are replaced by new entrants such that the number of active members remains level during the projection period based on the most recent actuarial valuation. The number of active members as of the valuation at December 31, 2018 is 13,438.

New Entrant Profile:

The entry age of future new entrants, which is summarized below, is based on the profile of current active members hired over the last five years with one or more years of service as of December 31, 2018. These members were hired from January 1, 2014 through December 31, 2017.

Entry Age	Number
20 to 25	624
25 to 30	986
30 to 35	505
35 to 40	234
40 to 55	6

Approximately 75% of the new entrants are assumed to be male.

New Entrant Pay:

Based on the most recent employment contract, new entrants were assumed to earn \$48,078 for the plan year ending December 31, 2018. This amount does not include duty availability pay. The new entrant pay for members hired after 2018 is assumed to increase by the wage inflation assumption of 3.75% plus duty availability pay after three years, increased by CPI compounded.

New Entrant Pay Increases:

Pay for a specific new entrant is assumed to increase in the future by the wage inflation and the service based increases disclosed in this actuarial valuation.

The projections assume a pay cap of \$114,951.83 for plan year 2019, increasing by 1.375% per year after plan year 2019. The annual increase of 1.375% per year is based on 50% of the CPI-U increase which is assumed to be 2.75% per year.

Actuarial Methods and Assumptions as of December 31, 2018

Administrative Expenses: Statutory funding projections include an explicit administrative expense assumption of \$4,627,000 for plan year end December 31, 2018, increased by 2.75% per year.

Exhibit K

History of Average Annual Salaries

Year End	Members in Service	Increase	Current Year Salary	Increase	Average Salary	Increase	Actuarial Assumptions	CPI Chicago
1989	12,060	(3.5)%	\$ 437,121,504	(1.5)%	\$ 36,246	2.1 %	6.00	5.1 %
1990	12,039	(0.2)	471,544,173	7.9	39,168	8.1	6.00	5.5
1991	12,513	3.9	520,015,930	10.3	41,558	6.1	6.00	3.0
1992	12,570	0.5	538,404,098	3.5	42,832	3.1	5.80	3.3
1993	12,591	0.2	561,156,282	4.2	44,568	4.1	5.80	2.3
1994	13,095	4.0	599,073,276	6.8	45,748	2.6	5.80	2.9
1995	13,437	2.6	622,413,737	3.9	46,321	1.3	5.80	2.2
1996	13,475	0.3	654,149,310	5.1	48,545	4.8	5.80	3.8
1997	13,435	(0.3)	675,515,532	3.7	50,280	3.6	5.80	1.7
1998 ¹	13,586	1.1	736,401,756	9.0	54,203	7.8	5.50	1.5
1999	13,829	1.8	755,303,667	2.6	54,617	0.8	5.50	2.6
2000	13,858	0.2	759,343,026	0.5	54,795	0.3	5.50	4.0
2001	13,889	0.2	763,352,475	0.5	54,961	0.3	5.50	0.8
2002	13,720	(1.2)	866,531,789	13.5	63,158	14.9	5.50	2.5
2003	13,746	0.2	887,555,791	2.4	64,568	2.2	5.50	1.7
2004	13,569	(1.3)	874,301,958	(1.5)	64,434	(0.2)	5.50	2.2
2005	13,462	(0.8)	948,973,732	8.5	70,493	9.4	5.50	3.6
2006	13,749	2.1	1,012,983,635	6.7	73,677	4.5	5.50	0.7
2007	13,748	0.0	1,038,957,026	2.6	75,572	2.6	5.50	4.7
2008	13,373	(2.7)	1,023,580,667	(1.5)	76,541	1.3	5.50	(0.6)
2009	13,154	(1.6)	1,011,205,359	(1.2)	76,874	0.4	5.50	2.5
2010	12,737	(3.2)	1,048,084,301	3.6	82,287	7.0	5.50	1.2
2011	12,236	(3.9)	1,034,403,526	(1.3)	84,538	2.7	5.50	2.1
2012	12,026	(1.7)	1,015,170,686	(1.9)	84,415	(0.1)	5.50	1.7
2013	12,161	1.1	1,015,426,126	0.0	83,499	(1.1)	5.50	0.5
2014	12,020	(1.2)	1,074,333,318	5.8	89,379	7.0	4.80	1.5
2015	12,061	0.3	1,086,607,979	1.1	90,093	0.8	4.80	0.0
2016	12,177	1.0	1,119,526,987	3.0	91,938	2.0	4.80	1.9
2017	12,633	3.7	1,150,406,094	2.8	91,064	(1.0)	4.80	1.7
2018	13,438	6.4	1,205,324,445 ²	4.8	89,695	(1.5)	4.80 ³	1.1
Average Increase (Decrease) for the last 5 years:								
		2.0 %			3.5 %	1.5 %	1.2 %	

¹ Figures do not include retroactive raise.

² See Appendix 4 for a complete description of the current assumptions.

³ Pay definition changed to include duty availability pay. Of the \$1,205,324,445 current year salary, \$37,578,279 is duty availability pay.

Exhibit A

Summary of Changes in Active Participants For Fiscal Year Ending December 31, 2018

	Male	Female	Total
Number of Active Participants at Beginning of Fiscal Year ²	9,772	2,861	12,633
Increases:			
Participants Added During Year	907	346	1,253
Participants Returning From Inactive or Disability Status	<u>18</u>	<u>6</u>	<u>24</u>
Totals	10,697	3,213	13,910
Decreases:			
Terminations During Year ³	<u>374</u>	<u>98</u>	<u>472</u>
Number of Active Participants at End of Fiscal Year	10,323	3,115	13,438
Total Inactive Participants			721
<u>Terminations:</u>			
Withdrawal (With Refunds) ¹	15	5	20
Withdrawal (Without Refunds)	85	15	100
Ordinary Disability Benefit	3	7	10
Occupational Disease Disability Benefit	0	0	0
Duty Disability Benefit	3	0	3
Retirements	247	67	314
Deaths (Occupational)	4	0	4
Deaths (Non-occupational)	<u>17</u>	<u>4</u>	<u>21</u>
Totals	374	98	472

¹ This total differs from the total of 93 shown in Exhibit D due to the fact that only 20 of the refunds were paid to participants who were considered to be active as of December 31, 2017.

² Includes five active members reclassified from male to female and five active members reclassified from female to male.

³ Includes data correction for one female.

Exhibit B

Summary of Changes in Annuitants and Beneficiaries For Fiscal Year Ending December 31, 2018

	Number at Beginning of Year	Additions During Year	Terminations During Year	Number at End of Year
Service Retirement Annuities	9,899	343 ¹	312	9,930
Widow Annuities	3,059	179	184	3,054
Children's Annuities	185	22	17	190
Ordinary Disability Benefit (Non-Occupational)	40	11	15	36
Occupational Disease Disability Benefit	31	2	4	29
Duty Disability Benefit (Occupational)	197	8	23	182
Children's Disability Benefit	154	18	25	147
Widows' Compensation Annuities (Service Connected Death)	63	2	2	63
Totals	13,628	585	582	13,631
Annual Benefits	\$738,460,675	\$ 45,340,881	\$ 23,913,307	\$759,888,249

¹ Includes four retirees whose benefit was previously classified as suspended annuities.

POLICEMEN’S ANNUITY AND BENEFIT FUND OF CHICAGO
TOTAL ANNUITANTS AND BENEFICIARIES (LAST SEVEN YEARS)

Year	Annuitants and Beneficiaries Beginning Year	Additions During Year	Terminations During Year	Annuitants and Beneficiaries Year-End	Average Annuitants and Beneficiaries
2012	12,663	811	508	12,966	12,830
2013	12,966	683	490	13,159	13,078
2014	13,159	596	525	13,230	13,195
2015	13,230	588	608	13,210	13,220
2016	13,210	697	513	13,394	13,302
2017	13,394	806	572	13,628	13,511
2018	13,628	585	582	13,631	13,630

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

Yr.	Added		Removed		End of Year		Average Annual Benefits	Increase to Avg. Benefits
	No.	Annual Benefits.	No.	Annual Benefits	No.	Annual Benefits		
Employee Annuitants (Male and Female)								
2010	551	\$ 44,873,260	283	\$ 12,055,142	8,495	\$ 450,742,884	\$ 53,060	4.5%
2011	500	42,603,517	232	10,471,101	8,763	482,875,300	55,104	3.9%
2012	539	43,830,960	267	12,652,422	9,035	514,053,838	56,896	3.3%
2013	401	36,004,890	242	11,690,500	9,194	538,368,228	58,556	2.9%
2014	392	34,915,092	275	13,594,175	9,311	559,689,145	60,111	2.7%
2015	363	34,830,781	289	15,450,195	9,385	579,069,731	61,702	2.6%
2016	494	44,891,597	276	15,314,830	9,603	608,646,498	63,381	2.7%
2017	581	56,599,441	285	15,718,884	9,899	649,527,055	65,615	3.5%
2018	343	37,905,119	312	17,816,794	9,930	669,615,380	67,434	2.8%
Widow/Widower Annuitants (Not Including Compensation) ¹								
2010	145	\$ 2,838,113	177	\$ 2,598,598	3,079	\$ 53,621,501	\$ 17,415	1.5%
2011	144	3,709,829	132	2,007,664	3,091	55,323,666	17,898	2.8%
2012	174	4,436,964	143	2,110,153	3,122	57,650,477	18,466	3.2%
2013	157	3,969,877	149	2,259,835	3,130	59,360,519	18,965	2.7%
2014	128	3,403,918	149	2,515,975	3,109	60,248,462	19,379	2.2%
2015	147	4,022,206	178	2,831,532	3,078	61,439,136	19,961	3.0%
2016	140	4,231,504	116	1,939,517	3,102	63,731,123	20,545	2.9%
2017	158	7,074,268	201	3,335,935	3,059	67,469,456	22,056	7.4%
2018	179	5,804,968	184	3,533,975	3,054	69,740,449	22,836	3.5%

¹ Not including Compensation Annuitants.

Actuarial Accrued Liability Prioritized Solvency Test

Table 8

Valuation Date 12/31	(1) Active and Inactive Member Contribution	(2) Retirees and Beneficiaries	(3) Active and Inactive Members (ER Financed Portion)	Actuarial Value of Assets	Portion (%) of Present Value Covered By Assets		
					(1)	(2)	(3)
2004 ²	\$ 910,480,098	\$ 4,313,531,046	\$ 1,810,260,330	\$ 3,933,031,342	100.00%	70.07%	0.00%
2005 ^{1,2}	950,764,942	4,677,632,909	2,094,339,296	3,914,431,654	100.00%	63.36%	0.00%
2006	1,016,217,810	4,858,554,051	2,241,771,313	3,997,990,919	100.00%	61.37%	0.00%
2007	1,082,742,927	5,006,931,293	2,309,718,259	4,231,681,817	100.00%	62.89%	0.00%
2008	1,144,380,257	5,208,199,833	2,299,966,099	4,093,719,894	100.00%	56.63%	0.00%
2009 ¹	1,217,645,647	5,391,373,730	2,291,882,108	3,884,978,241	100.00%	49.47%	0.00%
2010	1,251,147,487	5,717,654,520	2,406,050,870	3,718,954,539	100.00%	43.16%	0.00%
2011	1,286,345,939	6,041,684,411	2,360,319,555	3,444,690,362	100.00%	35.72%	0.00%
2012 ¹	1,309,825,828	6,475,282,318	2,435,530,363	3,148,929,770	100.00%	28.40%	0.00%
2013 ²	1,358,193,244	6,594,792,197	2,127,620,103	3,053,881,777	100.00%	25.71%	0.00%
2014 ¹	1,410,544,951	7,159,705,456	2,477,941,780	2,954,318,954	100.00%	21.56%	0.00%
2015	1,484,316,625	7,279,289,531	2,524,630,892	3,186,423,762	100.00%	23.38%	0.00%
2016 ^{1,2}	1,518,846,208	8,018,211,337	3,319,492,854	3,052,056,555	100.00%	19.12%	0.00%
2017	1,532,514,218	8,344,902,504	3,216,465,846	3,103,989,602	100.00%	18.83%	0.00%
2018	1,602,674,638	8,390,112,363	3,221,871,110	3,145,136,204	100.00%	18.38%	0.00%

¹Change in actuarial assumptions.

²Change in benefits.

Development of Statutory Contribution

Table 3b

	<u>Total</u>
<u>(1) Total Normal Cost for 2020</u>	\$ 236,072,393
<u>(2) Actuarial Accrued Liability (AAL) at 12/31/2019¹</u>	\$ 13,595,697,436
<u>(3) Unfunded AAL (UAAL)</u>	
(a) Actuarial Value of Assets at 12/31/2019	\$ 3,116,086,747
(b) UAAL (2-3(a))	10,479,610,689
<u>(4) Estimated Member Contributions during 2020</u>	\$ 124,317,000
<u>(5) Estimated City Contribution for Tax Levy Year 2020</u>	\$ 737,527,285

¹ Pension liabilities were discounted at 7.25% per year.

Development of Actuarial Gains and Losses for 2018

Table 5

UNFUNDED ACTUARIAL ACCRUED LIABILITY - BEGINNING OF 2018

(1) Actuarial Accrued Liability - 12/31/2017	\$13,093,882,568
(2) Actuarial Value of Assets - 12/31/2017	<u>3,103,989,602</u>
(3) Unfunded Accrued Actuarial Liability - 12/31/2017	\$9,989,892,966

EXPECTED UNFUNDED ACTUARIAL ACCRUED LIABILITY - END OF 2018

(4) Normal Cost for 2018	\$ 224,238,368
(5) Total Contributions for 2018	696,821,770
(6) Interest on (3), (4), & (5) at Valuation Rates	<u>715,706,686</u>
(7) Expected Unfunded Actuarial Accrued Liability - 12/31/2018	\$10,233,016,250
((3)+(4)-(5)+(6))	

DEVIATIONS FROM EXPECTED

(8) (Gain)/Loss on Investment Return (Smoothed (Actuarial) Value)	\$106,964,339
(9) (Gain)/Loss from Salary Changes	(136,041,297)
(10) (Gain)/Loss from Retirement	(29,865,357)
(11) (Gain)/Loss from Turnover	5,238,913
(12) (Gain)/Loss from Mortality	(13,936,553)
(13) (Gain)/Loss from Disability	(14,707,645)
(14) (Gain)/Loss from New Entrants and Rehired Members	3,146,691
(15) (Gain)/Loss from All Other Sources	<u>(84,293,434)</u>
(16) Composite Actuarial (Gain)/Loss	(\$163,494,343)
(17) (Gain)/Loss as a percentage of Expected UAAL (16)/(7)	(1.6)%
(18) (Gain)/Loss from Actuarial Cost Method Change	\$0
(19) (Gain)/Loss from Provision Changes	\$0
(20) (Gain)/Loss from Assumption Changes	\$0

UNFUNDED ACTUARIAL ACCRUED LIABILITY - END OF 2018

(21) Unfunded Accrued Actuarial Liability - 12/31/2018	\$10,069,521,907
((7)+(16)+(18)+(19)+(20))	

Summary of Basic Actuarial Values

Table 2

	Actuarial Present Value (APV) of Projected Benefits As of 12/31/2018	Actuarial Accrued Liability (AAL) As of 12/31/2018
<u>(1) Values for Active Members</u>		
(a) Retirement	\$6,368,190,525	\$4,549,392,072
(b) Termination	102,670,455	13,051,503
(c) Disability	485,833,402	183,094,952
(d) Death	<u>68,012,771</u>	<u>29,827,843</u>
Total for Actives	\$7,024,707,153	\$4,775,366,370
<u>(2) Values for Inactive Members</u>		
(a) Retired	\$7,518,434,109	\$7,518,434,109
(b) Survivor	626,165,999	626,165,999
(c) Disability	235,944,824	235,944,824
(d) Inactive (Deferred Vested/ Terminated Pending Refund)	49,179,378	49,179,378
(e) Children	<u>9,567,431</u>	<u>9,567,431</u>
Total for Inactives	\$8,439,291,741	\$8,439,291,741
<u>(3) Grand Totals</u>	<u>\$15,463,998,894</u>	<u>\$13,214,658,111</u>
<u>(4) Normal Cost for Active Members</u>	\$ 231,774,186	
<u>(5) Actuarial Present Value of Future Compensation</u>	\$13,379,286,380	

Exhibit Q

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

Monthly Benefit	Retirement		Disability		Widow ¹		Child		Totals	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Under \$100	4								4	0
\$100 to under \$250	9	3					93	71	102	74
\$250 to under \$500	18	9					25	20	43	29
\$500 to under \$750	20	5					50	45	70	50
\$750 to under \$1,000	7	4					12	4	19	8
\$1,000 to under \$2,000	53	39			37	1,858	11	6	101	1,903
\$2,000 to under \$3,000	187	22			22	920			209	942
\$3,000 to under \$4,000	660	186	12	19	3	182			675	387
\$4,000 to under \$5,000	1,548	546	65	43	1	39			1,614	628
\$5,000 to under \$6,000	2,081	404	59	27	4	30			2,144	461
\$6,000 to under \$7,000	2,347	356	10	8		14			2,357	378
\$7,000 to under \$8,000	814	112	4			3			818	115
\$8,000 to under \$9,000	231	31				1			231	32
\$9,000 to under \$10,000	89	5				1			89	6
\$10,000 and over	120	20				2			120	22
Totals:	8,188	1,742	150	97	67	3,050	191	146	8,596	5,035

¹ Includes reversionary.

Exhibit R

Schedule of Average Benefit Payments for New Annuities Granted during 2018

Years of Service:		0-9	10-14	15-19	20-24	25-29	30-34	>= 35	Total
2010	Number of Retired Members	0	1	13	105	161	140	131	551
	Average annual salary used	\$0	\$81,122	\$70,339	\$80,639	\$88,735	\$91,739	\$92,194	\$88,330
	Average Monthly Benefit	\$0	\$2,535	\$2,667	\$3,837	\$5,385	\$5,734	\$5,762	\$5,199
2011	Number of Retired Members	1	8	16	95	175	103	102	500
	Average annual salary used	\$18,730	\$76,848	\$70,140	\$82,778	\$92,829	\$93,780	\$98,280	\$91,097
	Average Monthly Benefit	\$390	\$2,158	\$2,728	\$3,949	\$5,497	\$5,861	\$6,142	\$5,257
2012	Number of Retired Members	0	9	22	123	217	88	80	539
	Average annual salary used	\$0	\$72,245	\$65,305	\$85,175	\$92,825	\$94,854	\$98,415	\$90,773
	Average Monthly Benefit	\$0	\$2,066	\$2,511	\$4,002	\$5,408	\$5,928	\$6,151	\$5,108
2013	Number of Retired Members	0	6	20	118	161	62	34	401
	Average annual salary used	\$0	\$62,730	\$75,088	\$86,979	\$94,193	\$99,759	\$102,980	\$92,252
	Average Monthly Benefit	\$0	\$1,809	\$2,857	\$4,164	\$5,427	\$6,235	\$6,436	\$5,084
2014	Number of Retired Members	0	4	18	122	180	44	24	392
	Average annual salary used	\$0	\$64,795	\$72,985	\$87,586	\$95,372	\$94,991	\$104,035	\$92,097
	Average Monthly Benefit	\$0	\$1,907	\$2,815	\$4,230	\$5,746	\$6,052	\$6,634	\$5,189
2015	Number of Retired Members	0	7	14	105	184	42	11	363
	Average annual salary used	\$0	\$34,263	\$85,670	\$90,037	\$100,124	\$104,876	\$102,529	\$96,001
	Average Monthly Benefit	\$0	\$951	\$3,334	\$4,271	\$6,005	\$6,555	\$6,408	\$5,379
2016	Number of Retired Members ¹	1	5	14	124	257	80	12	493
	Average annual salary used	\$50,400	\$23,820	\$78,131	\$91,293	\$101,855	\$108,887	\$109,058	\$98,945
	Average Monthly Benefit	\$1,050	\$622	\$2,966	\$4,292	\$6,123	\$6,805	\$6,816	\$5,634
2017	Number of Retired Members	1	2	21	166	258	118	15	581
	Average annual salary used	\$94,501	\$19,905	\$74,798	\$93,477	\$98,445	\$103,641	\$104,267	\$97,099
	Average Monthly Benefit	\$5,709	\$630	\$2,904	\$4,456	\$5,735	\$6,478	\$6,517	\$5,421
2018	Number of Retired Members ²	0	1	15	105	112	95	11	339
	Average annual salary used	\$0	\$96,236	\$85,713	\$95,577	\$100,721	\$111,692	\$130,922	\$102,505
	Average Monthly Benefit	\$0	\$2,606	\$3,301	\$4,569	\$5,901	\$6,981	\$8,183	\$5,740

¹Excludes data correction for one retiree previously valued as deceased.

²Excludes four retirees whose annuities were reinstated after previously being classified as suspended.

Summary of Principal Eligibility and Benefit Provisions As of December 31, 2018

PARTICIPANTS

An employee in the police department of the City of Chicago appointed and sworn or designated by law as a peace officer with the title of policeman, policewoman, chief surgeon, police surgeon, police dog catcher, police kennelman, police matron and members of the police force of the police department.

SERVICE

In computing service rendered by a police officer, the following periods shall be counted, in addition to all periods during which he performed the duties of his position, as periods of service for annuity purposes only: All periods of (a) vacation; (b) leave of absence with pay; (c) military service; (d) disability for which the police officer receives disability benefit. The calculation of service is based on a day-to-day basis for most purposes. For the purpose of calculating benefits under the Dominant Formula, one year of Service is credited for a year in any portion of which a police officer is compensated.

RETIREMENT

Eligibility

Attainment of age 50 with at least 10 years of service.

For participants who first became members on or after January 1, 2011, attainment of age 55 with at least 10 years of service. Participants may retire at attainment of age 50 with 10 years of service with a reduced benefit.

Mandatory

Effective in plan year 2003, retirement is mandatory for a participant who has attained age 63.

Accumulation Annuity

At age 50 or more, with 10 or more years of service, the employee is entitled to an annuity based on the sums accumulated for age and service annuity plus 1/10 of the sum accumulated from the contributions by the City for the age and service annuity for each completed year of service after the first 10 years. At age 50 or more with 20 or more years, the employee is entitled to an annuity based on all sums accumulated.

Formula Minimum Annuity

While there are several alternative formulas available with 20 or more years of service, the Dominant Formula is 50% of highest average salary (including duty availability pay) in 48 consecutive months within the last 10 years of service plus 2.5% for each year or fraction of service over 20 years, limited to 75% of average salary.

Summary of Principal Eligibility and Benefit Provisions As of December 31, 2018

Mandatory Retirement Minimum Annuity

A police officer who is required to withdraw from service due to attainment of mandatory retirement age who has less than 20 years of service credit may elect to receive an annuity equal to 30% of average salary for the first 10 years of service, plus 2% of average salary for each completed year of service in excess of 10, to a maximum of 48% of average salary. This benefit qualifies for post-retirement increases.

Post-Retirement Increase

A retiree born before January 1, 1966, with at least 20 years of service or receiving a mandatory retirement minimum annuity, receives an increase of 3% of the original annuity, starting on the first of the month following the first anniversary of his retirement or the first of the month following attainment of age 55, whichever is later, and shall not be subject to a 30% maximum increase. For retirees born on and after January 1, 1966, automatic increases are 1.5% of the original annuity, commencing at age 60, or the first anniversary of retirement, if later, to a maximum of 30%.

For participants who first became members on or after January 1, 2011, increases are equal to the lesser of 3.00% and 50% of CPI-U of the original benefit, commencing at age 60.

Summary of Principal Eligibility and Benefit Provisions As of December 31, 2018

Minimum Annuity

Beginning with the monthly annuity payment due on January 1, 2016, the fixed and granted monthly annuity payment for any policeman who retired from the service before January 1, 2016, at age 50 or over with 20 or more years of service, and for any policeman who retired from service due to termination of disability and who is entitled to an annuity on January 1, 2016, shall be no less than 125% of the Federal Poverty Level.

For participants who first became members on or after January 1, 2011, the member is entitled to an annuity based on an accrual rate of 2.5% of the final average salary for each fraction of service. Maximum is 75% of the final average salary. Final average salary is calculated using salary from the eight highest consecutive years within the last 10 years of service prior to retirement. Pensionable salary is limited to \$106,800 in 2011, increased by the lesser of 3% and one-half of the annual unadjusted percentage increase in the Consumer Price Index-U (but not less than zero) as measured in the preceding 12- month period ending with the September preceding the November 1, which is the date that the new amount will be calculated and made available to the pension funds.

For participants who first became members on or after January 1, 2011, who retire after age 50 but before age 55 is attained, the member is entitled to an annuity based on an accrual rate of 2.5% of the final average salary for each fraction of service, reduced by one half of one percent per month for retirement prior to age 55, subject to a maximum benefit of 75%.

Reversionary Annuity

A member, prior to retirement, may elect to reduce his own annuity, and provide a reversionary annuity, to begin upon the officer's death, for the officer's spouse.

SURVIVOR INCOME BENEFITS PAYABLE ON DEATH

Death in Service (Non-Duty):

Generally, a money-purchase benefit is provided, based on total salary deductions and City contributions. However, if a policeman dies in service after December 31, 1985, with at least 1.5 years of service, the widow's annuity is the greater of (a) 30% of the annual maximum salary attached to the classified civil service position of a first class patrolman at the time of his death (without dollar limit) or (b) 50% of the benefit accrued by the policeman at date of death.

The lifetime benefit is payable until death.

Summary of Principal Eligibility and Benefit Provisions As of December 31, 2018

Death in Service (Duty Related)

Compensation Annuity 75% of the member's salary attached to the civil service position that would ordinarily have been paid to such member as though in active discharge of his duties at the time of death payable until the date the policeman would have attained age 63.

Supplemental Annuity Payable for life and is equal to the difference between the money purchase annuity for the spouse and an amount equal to 75% of the annual salary (including all salary increases and longevity raises) the police officer would have been receiving when he attained age 63 if the police officer had continued in service at the same rank last held in the department.

Death after Retirement If a police officer retires on or after January 1, 1986, and subsequently dies, the widow's annuity is 40% before 1988 and 50% on and after January 1, 1988 of the retired policeman's annuity at the time of death (without dollar limit).

Maximum Annuity \$500 a month (after discount for age difference) under both the accumulation method and the old formula method. There is no dollar limit on the 30%, 40% or 50% benefit.

Minimum Annuity The minimum widow's annuity shall be no less than 125% of the Federal Poverty Level.

For participants who first became members on or after January 1, 2011, widow benefits are equal to 66-2/3% of the officer's earned annuity at the date of death. Automatic increases to the annuity are equal to the lesser of 3.00% and 50% of CPI-U, commencing when the survivor reaches age 60, and applied to the original granted retirement annuity.

CHILDREN'S ANNUITIES

Eligibility Payable at death of the policeman to all unmarried children less than 18 years of age.

Benefit 10% of the annual maximum salary of a first class patrolman during widow (widower) life, 15% otherwise.

Summary of Principal Eligibility and Benefit Provisions As of December 31, 2018

<i>Payable Until</i>	Age 18. If the child is disabled, benefit is payable for life or as long as such disablement exists.
<i>Family Maximum</i>	60% (non-duty death) or 100% (duty death) of the salary that would ordinarily been paid to the policeman, if he had been in the active discharge of his duties.
<i>Parent's Annuities Eligibility</i>	Payable to a dependent parent at the death of a policeman who is in either active service, or receiving a disability benefit, or on leave of absence, or in receipt of an annuity granted after 20 years of service, or waiting to start receiving an annuity granted for 20 years of service. The benefit is only payable if there are no surviving spouses or children eligible for benefits.
<i>Benefit</i>	18% of the current salary attached to the rank at separation from service.
<i>Payable until</i>	Death of the dependent parent.

DUTY DISABILITY BENEFIT

<i>Eligibility</i>	Disabling condition incurred in the performance of duty.
<i>Benefit</i>	75% of salary at the time the disability is allowed plus \$100.00 per month for each unmarried child less than age 18, (total amount of child's benefits shall not exceed 25% of salary). Beginning January 1, 2000, after seven years of payment, the benefit shall not be less than 60% of the current salary attached to the rank held by the policemen at the time of disability. Payable to employee's age 63 or by operation of law, whichever is later. Salary deductions are contributed by the City.

OCCUPATIONAL DISEASE DISABILITY BENEFIT

<i>Eligibility</i>	Heart attack or any disability heart disease after 10 years of service.
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Summary of Principal Eligibility and Benefit Provisions As of December 31, 2018

Benefit	65% of salary attached to the rank held by the police officer at the time of his or her removal from the police department payroll with a minimum after 10 years of 50% of the current salary attached to the rank. Each natural or legally adopted unmarried child of the officer under the age of 18 is entitled to a benefit of \$100 per month. This benefit is not terminated at age 18 if the child is then dependent by reason of physical or mental disability. Salary deductions are contributed by the City.
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ORDINARY DISABILITY BENEFIT

Eligibility Disabling condition other than duty or occupational related.

Benefit 50% of salary at the time of injury, payable for a period not more than 25% of service (excluding any previous disability time) rendered prior to injury, nor more than five years. Disability shall cease at age 63. Salary deductions are contributed by the City.

DEATH BENEFIT

Eligibility Payable upon the death of a police officer whose death occurs while in active service; on authorized leave of absence; within 60 days of receipt of salary; while receiving duty or ordinary disability benefit; occurring within 60 days of termination of such benefit; or occurring on retirement while in receipt of annuity and separation was effective after 20 years of service. This benefit is payable to beneficiaries or, if none, to estate.

Benefit

Death in Service:

<u>AGE AT DEATH</u>	<u>BENEFIT</u>
49 and under	\$12,000
50-62	\$12,000 less \$400 for each year by which age at death exceeds 49

Death after Retirement:

<u>AGE AT DEATH</u>	<u>BENEFIT</u>
50 and over	\$6,000

If death results from injury incurred in performance of duty before retirement on annuity, the benefit payable is \$12,000 regardless of the attained age.

Summary of Principal Eligibility and Benefit Provisions As of December 31, 2018

REFUNDS

Policemen	Without regard to service and under age 50, or with less than 10 years of service and under age 57 at withdrawal: a refund of all salary deductions together with 1.5% simple interest until the date of withdrawal.
For Spouse's Annuity	Upon retirement an unmarried policeman will receive a refund of contributions for spouse's annuity, accumulated at 3% compounded annually.
Of Remaining Amounts	If at death of a retired policeman the total member contributions paid while active exceed the total retirement benefits paid to date of death, the difference is payable.

CONTRIBUTIONS

Salary Deductions	Employee	7 %	
	Spouse	1½%	
	Annuity Increase	½%	
		9 %	
City Contributions ¹	Employee	9-5/7%	
	Spouse	2%	
	Annuity Increase	½%	Unallocated
		12-3/14%	

¹ Credited to Participant's Accumulation Annuity and Widow's Annuity Account

In addition to the above contributions, a contribution is made to support the Death Benefit. Policemen contribute \$2.50 per month. City contributes a total of \$224,000 for all policemen.

Summary of Principal Eligibility and Benefit Provisions As of December 31, 2018

**"PICK UP" OF EMPLOYEE
SALARY DEDUCTIONS**

Beginning January 1, 1982, the employee contributions were "picked up" by the employer. The W-2 salary is therefore reduced by the amount of contribution. For pension purposes the salary remains unchanged. Income tax will be paid when a refund or annuity is received. For the purpose of benefits, refunds or contributions, these contributions will be treated as employee contributions.

SALARY CAP AND COLA DEVELOPMENT FOR MEMBERS HIRED ON OR AFTER JANUARY 1, 2011

Year Ending	CPI-U	½ CPI-U	COLA	Maximum Annual Pensionable Earnings
2011			3.00%	\$106,800.00
2012	3.90%	1.95%	1.95%	\$108,882.60
2013	2.00%	1.00%	1.00%	\$109,971.43
2014	1.20%	0.60%	0.60%	\$110,631.26
2015	1.70%	0.85%	0.85%	\$111,571.63
2016	0.00%	0.00%	0.00%	\$111,571.63
2017	1.50%	0.75%	0.75%	\$112,408.42
2018	2.20%	1.10%	1.10%	\$113,644.91
2019	2.30%	1.15%	1.15%	\$114,951.83

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Statistical Section

SUPPLEMENTAL INFORMATION

The following section contains special schedules designed to supplement benefit payment data contained elsewhere in this Comprehensive Annual Financial Report.

- **Revenue by Source and Expenses by Type** details the specific sources and uses of funds: Employee contributions obtained from participants through payroll deductions, employer contributions from the City of Chicago's real estate tax levy and finally, net investment income derived from the Fund's portfolio of assets. On the expense side, the largest component is benefit payments to participants, followed by refunds of contributions to participants and finally, the Fund's administrative expenses.
- **Schedule of Benefit Expenses by Type (Last 10 Years)** further details the total annual benefit expense by breaking it down into payments to annuitants, survivors, disability payments, death benefits, and health insurance supplements.
- **Average Employee Retirement Benefits Payable** provides some key demographics of the annuitant population including average annual benefit paid, average current age, average age at retirement, and average years of service prior to retirement.
- **Retirees and Beneficiaries by Type of Benefit** provides totals for each type of benefit payment including those to annuitants and their survivors as well as receiving disability benefits from the Fund.
- **Retirees and Beneficiaries by Type of Benefit** provides totals for each type of benefit payment including those to annuitants and their survivors as well as receiving disability benefits from the Fund.

REVENUE BY SOURCE AND EXPENSES BY TYPE

Year	Employee Contributions(1)	Employer Contributions(2)	Net Investment Income(3)	Total	Employer Contribution % of Current Year Payroll
2009	\$ 95,614,390	\$ 181,310,215	\$ 567,314,823	\$ 844,239,428	17.85%
2010	108,402,353	183,854,670	369,558,055	661,815,078	17.54%
2011	98,222,258	183,625,994	33,656,109	315,504,361	17.51%
2012	95,892,052	207,651,238	353,176,346	656,719,636	20.41%
2013	93,328,944	189,368,568	415,293,612	697,991,124	18.60%
2014	95,675,538	187,815,255	181,901,293	465,392,086	17.41%
2015	107,626,311	585,369,179	(5,333,795)	687,661,695	53.59%
2016	101,475,864	282,996,000	142,699,124	527,170,988	25.15%
2017	103,011,250	494,580,430	412,190,404	1,009,782,084	42.99%
2018	107,186,492	589,635,278	(137,885,926)	558,935,844	48.92%

Year	Benefits Expenses	Administrative Expenses(4)	Refunds	Total	Income less Payouts
2009	\$ 508,515,984	\$ 4,303,599	\$ 6,193,872	\$ 519,013,455	\$ 325,225,973
2010	536,244,720	4,364,979	7,587,436	548,197,135	113,617,943
2011	567,968,186	4,358,957	7,337,234	579,664,377	(264,160,016)
2012	602,756,032	4,888,486	11,150,565	618,795,083	37,924,553
2013	633,839,274	4,297,512	8,087,018	646,223,804	51,767,320
2014	655,346,057	4,240,625	8,991,636	668,578,318	(203,186,232)
2015	678,391,614	4,508,519	7,826,847	690,726,980	(3,065,285)
2016	705,646,617	4,749,762	10,704,842	721,101,221	(193,930,233)
2017	737,873,928	4,843,012	10,017,655	752,734,595	257,047,489
2018	764,367,368	4,064,802	6,737,073	775,169,243	(216,233,399)

(1) Includes deductions in lieu for disability.

(2) Net tax levy and miscellaneous income.

(3) Includes realized net gain or loss on sale and exchange of assets, and net of investment expense.

(4) Includes OPEB expense.

SCHEDULE OF BENEFIT EXPENSES BY TYPE (LAST 10 YEARS)

Year	Employee	Spouse	Dependent	Ordinary, Duty, and Children Disability	Death	Hospitalization	Total
2009	\$ 417,879,734	\$ 56,616,500	\$ 1,326,895	\$ 21,803,624	\$ 1,622,800	\$ 9,266,431	\$ 508,515,984
2010	442,653,907	57,739,825	1,344,265	23,370,160	1,782,400	9,354,163	536,244,720
2011	472,856,232	59,935,287	1,340,422	22,184,051	1,510,800	9,591,394	567,418,186
2012	506,760,531	61,250,640	1,416,014	21,427,161	1,543,000	9,756,686	602,154,032
2013	538,536,309	63,523,734	1,315,842	18,981,479	1,634,600	9,847,310	633,839,274
2014	559,600,101	64,434,631	1,293,297	18,793,972	1,566,933	9,657,123	655,346,057
2015	582,438,574	65,651,185	1,355,124	17,595,977	1,909,200	9,441,534	678,391,594
2016	609,713,604	67,839,603	1,266,204	16,101,692	1,570,000	9,155,514	705,646,617
2017	645,040,385	70,591,423	1,562,416	18,832,104	1,847,600	-	737,873,928
2018	667,186,632	75,809,241	1,386,152	17,841,384	2,071,800	-	764,295,209

Exhibit N

Average Employee Retirement Benefits Payable

Years Ended	Average Annual Benefit	Average Current Age of Retirees	Average Age at Retirement Current Year ¹	Average Years of Benefit Service at Retirement Current Year ¹
1989	\$ 19,315	67	58.6	30.7
1990	21,120	68	58.9	30.2
1991	21,782	68	58.4	30.8
1992	23,128	68	57.7	30.3
1993	24,724	68	56.9	29.6
1994	25,636	68	55.7	29.5
1995	26,996	67	55.3	29.2
1996	28,412	67	55.5	29.8
1997	29,867	67	55.0	29.3
1998	31,682	66	54.6	30.0
1999	33,220	66	54.8	29.9
2000	34,880	66	56.3	31.6
2001	36,428	66	56.4	29.8
2002	38,199	66	55.6	29.4
2003	38,998	66	57.1	30.2
2004	41,914	66	57.5	30.4
2005	43,930	67	57.3	30.6
2006	45,680	67	58.0	29.6
2007	47,392	67	58.1	29.3
2008	49,239	68	58.3	29.4
2009	50,799	68	59.2	28.6
2010	53,060	68	59.1	28.1
2011	55,104	68	59.5	27.4
2012	56,896	69	58.7	26.7
2013	58,556	69	58.2	26.1
2014	60,111	69	57.6	26.2
2015	61,702	69	57.5	26.5
2016	63,381	69	57.5	26.9
2017	65,615	69	57.5	26.6
2018	67,434	70	57.7	26.6

¹ Averages for New Annuitants in 2018.

Exhibit M

Retirees and Beneficiaries by Type of Benefit

Years	ANNUITANTS			DISABILITY				Widow	Total
	Employee	Spouse ¹	Child	Ordinary	Duty	Occup.	Child ²	Comp.	
1989	4,772	3,202	335	58	179			71	8,617
1990	4,936	3,214	335	51	187			66	8,789
1991	5,033	3,137	329	75	192			68	8,834
1992	5,109	3,129	310	83	204			66	8,901
1993	5,195	3,151	294	59	211		160	66	9,136
1994	5,309	3,123	281	51	221		159	64	9,208
1995	5,510	3,133	254	51	231	1	144	60	9,384
1996	5,714	3,120	252	67	256	12	158	59	9,638
1997	5,945	3,104	240	59	270	36	130	59	9,843
1998	6,241	3,093	228	56	279	57	150	57	10,161
1999	6,520	3,118	249	57	291	76	150	58	10,519
2000	6,876	3,107	267	48	274	87	149	59	10,867
2001	7,192	3,114	255	52	265	95	143	59	11,175
2002	7,392	3,092	235	38	289	103	150	59	11,358
2003	7,498	3,083	247	29	285	97	139	63	11,441
2004	7,815	3,133	249	44	287	85	130	65	11,808
2005	8,026	3,107	247	35	298	82	139	65	11,999
2006	8,083	3,093	255	39	291	69	132	64	12,026
2007	8,155	3,137	242	52	284	65	136	64	12,135
2008	8,210	3,148	237	39	286	58	139	66	12,183
2009	8,227	3,111	232	44	284	52	138	66	12,154
2010	8,495	3,079	222	37	284	40	155	69	12,381
2011	8,763	3,091	214	43	270	36	176	70	12,663
2012	9,035	3,122	214	47	263	36	180	69	12,966
2013	9,194	3,130	206	46	269	35	213	66	13,159
2014	9,311	3,109	197	48	259	36	204	66	13,230
2015	9,385	3,078	198	41	230	35	178	65	13,210
2016	9,603	3,102	186	40	202	33	164	64	13,394
2017	9,899	3,059	185	40	197	31	154	63	13,628
2018	9,930	3,054	190	36	182	29	147	63	13,631

¹ Includes reversionary.

² Children's Disability Benefit not tracked before 1993.

Schedule of Active Members Data - Last 10 Years

Year	Number of Members at Year End	Annual Average Salary	% Change in Average Salary
2009	13,154	76,874	0.4%
2010	12,737	82,287	7.0%
2011	12,236	84,538	2.7%
2012	12,026	84,414	(0.1)%
2013	12,161	83,499	(1.1)%
2014	12,020	89,379	7.0%
2015	12,061	90,093	0.8%
2016	12,177	91,938	2.0%
2017	12,633	91,064	(1.0)%
2018	13,438	89,695	(1.5)%

Schedule of Retired Members Data - Last 10 Years

Year	Number of Annuitants at Year End	Average Annual Benefit	Average Monthly Benefit	Average Age at Retirement	Average Age of Current Retirees	Average Years of Service at Retirement
2009	8,227	50,799	4,233	59.2	68	28.6
2010	8,495	53,060	4,422	59.1	68	28.1
2011	8,763	55,104	4,592	59.5	68	27.4
2012	9,035	56,896	4,741	58.7	69	26.7
2013	9,194	58,556	4,880	58.2	69	26.1
2014	9,311	60,111	5,009	57.6	69	26.2
2015	9,385	61,702	5,142	57.5	69	26.5
2016	9,603	63,381	5,282	57.5	69	26.9
2017	9,899	65,615	5,468	57.5	69	26.6
2018	9,930	67,434	5,620	57.7	70	26.6

Schedule of Widow Annuitants - Last 10 Years

Year	Number at Year End	Average Annual Benefit	% Change in Average Benefit
2009	3,111	17,159	1.0%
2010	3,079	17,415	1.5%
2011	3,091	17,898	2.8%
2012	3,122	18,466	3.2%
2013	3,130	18,965	2.7%
2014	3,109	19,379	2.2%
2015	3,078	19,961	3.0%
2016	3,102	20,545	2.9%
2017	3,059	22,056	7.4%
2018	3,054	22,836	3.5%

Schedule of Children's Annuities - Last 10 Years

Year	Number of Annuitants at Year End	Average Annual Benefit	% Change in Average Benefit
2009	232	5,749	2.4%
2010	222	5,683	(1.1)%
2011	214	5,992	5.4%
2012	214	6,365	6.2%
2013	206	6,388	0.4%
2014	197	6,565	2.8%
2015	198	6,844	4.2%
2016	186	6,808	(0.5)%
2017	185	6,947	2.0%
2018	190	7,187	3.5%

Schedule of Ordinary Disability Recipients Data - Last 10 Years

Year	Number of Recipients at Year End	Average Annual Benefit	% Change in Average Benefit
2009	44	38,081	1.8%
2010	37	40,665	6.8%
2011	43	41,864	2.9%
2012	47	42,164	0.7%
2013	46	41,958	(0.5)%
2014	48	41,917	(0.1)%
2015	41	44,184	5.4%
2016	40	45,373	2.7%
2017	40	47,255	4.1%
2018	36	47,615	(0.8)%

Schedule of Duty Disability Recipients Data - Last 10 Years

Year	Number of Recipients at Year End	Average Annual Benefit	% Change in Average Benefit
2009	284	49,842	2.4%
2010	284	52,822	6.0%
2011	270	54,703	3.6%
2012	263	54,910	0.4%
2013	269	55,587	1.2%
2014	259	56,301	1.3%
2015	230	59,057	4.9%
2016	202	60,244	2.0%
2017	197	61,411	1.9%
2018	182	62,166	1.2%

Schedule of Occupational Disease Disability Recipients Data - Last 10 Years

Year	Number of Recipients at Year End	Average Annual Benefit	% Change in Average Benefit
2009	52	46,427	1.9%
2010	40	48,439	4.3%
2011	36	49,341	1.9%
2012	36	50,375	2.1%
2013	35	52,191	3.6%
2014	36	53,579	2.7%
2015	35	56,287	5.1%
2016	33	57,573	2.3%
2017	31	58,140	1.0%
2018	29	58,348	0.4%

Schedule of Children's Disability Recipients Data - Last 10 Years

Year	Number of Recipients at Year End	Average Annual Benefit	% Change in Average Benefit
2009	138	1,200	0%
2010	155	1,200	0%
2011	176	1,200	0%
2012	180	1,200	0%
2013	213	1,200	0%
2014	204	1,200	0%
2015	178	1,200	0%
2016	164	1,200	0%
2017	154	1,200	0%
2018	147	1,200	0%

NOTE: Child disability benefits are \$100 per month.

Schedule of Widows' Compensation Annuities - Last 10 Years

Year	Number of Annuitants at Year End	Average Annual Benefit	% Change in Average Benefit
2009	66	56,596	2.2%
2010	69	57,529	1.6%
2011	70	61,122	6.2%
2012	69	61,566	0.7%
2013	66	63,079	2.5%
2014	66	63,427	0.6%
2015	65	64,801	2.2%
2016	64	64,195	(0.9)%
2017	63	66,654	3.8%
2018	63	67,780	1.7%

Schedule of Health Insurance Supplement Data – Last 8 Years

Year	Number of Members at Year End	Annual Average Benefit Subsidy	% Increase in Average Benefit Subsidy
2011	10,368	\$925	0.0%
2012	10,738	\$909	(1.7)%
2013	10,809	\$911	0.2%
2014	10,676	\$905	(0.7)%
2015	10,405	\$907	0.2%
2016	10,268	\$892	(1.7)%
2017	0	\$0	0.0%
2018	0	\$0	0.0%

Note: Health Insurance Supplement benefits were \$95 per month for each annuitant that was not qualified to receive Medicare benefits or \$65 per month for each annuitant that was qualified to receive Medicare benefits. Health insurance supplement benefits were not based upon final average salary or credited service year. The benefit amount was exclusively determined by Medicare eligibility. Health Insurance Supplement benefits expired December 31, 2016.

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