



Municipal Employees' Annuity and Benefit Fund of Chicago

A Pension Trust Fund of the City of Chicago
Chicago, Illinois

2017

Comprehensive Annual Financial Report
For the Fiscal Years Ended December 31, 2017 and 2016





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Annuity and Benefit Fund of Chicago**



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Chicago, Illinois**

2017

**Comprehensive Annual Financial Report
For the Fiscal Years Ended December 31, 2017 and 2016**

**Prepared by Administrative Staff of the
Municipal Employees' Annuity and Benefit Fund of Chicago
321 North Clark Street, Suite 700
Chicago, Illinois 60654**

Introductory Section

Table of Contents

| | |
|---|----|
| Introduction Section | |
| Certificate of Achievement | 1 |
| Retirement Board | 2 |
| Letter of Transmittal | 3 |
| Organization Chart, Consultants and Advisors | 11 |
| Administrative Staff | 12 |
| Financial Section | |
| Independent's Auditor's Report | 14 |
| Management's Discussion and Analysis | 16 |
| Financial Statements | |
| Statements of Fiduciary Net Position | 23 |
| Statements of Changes in Fiduciary Net Position | 24 |
| Notes to Financial Statements | 25 |
| Required Supplementary Information | |
| Schedule of Changes in Employer's Net Pension Liability (Pension) | 55 |
| Schedule of Employer's Net Pension Liability (Pension) | 55 |
| Schedule of Employer Contributions (Pension) | 56 |
| Schedule of Investment Returns | 56 |
| Notes to Required Supplementary Information (Pension) | 56 |
| Schedule of Funding Progress (Post-employment Healthcare) | 57 |
| Schedule of Employer Contributions (Post-employment Healthcare) | 57 |
| Note to Schedules of Funding Progress and Employer Contributions (Post-employment Healthcare) | 58 |
| Schedule of Funding Progress (Post employment Healthcare-Staff Retiree Healthcare) | 58 |
| Schedule of Employer Contributions (Post employment Healthcare-Staff Retiree Healthcare) | 59 |
| Note to Schedules of Funding Progress and Employer Contributions (Post-employment Healthcare-Staff Retiree Healthcare) | 59 |
| Schedule of Administrative and OPEB Expenses | 60 |
| Schedule of Investment Management Compensation | 61 |
| Schedule of Professional and Consulting Costs | 63 |
| Investment Section | |
| Letter from Investment Consultant | 65 |
| Master Custodian's Certification | 66 |
| Investment Authority and Responsibility | 67 |
| List of Investment Managers | 69 |
| Portfolio Performance | 71 |
| Portfolio Summary | 74 |
| Portfolio Asset Allocation | 75 |
| Domestic Equity Portfolio Summary | 77 |
| International Equity Portfolio Summary | 78 |

Introductory Section

Table of Contents (continued)

| | |
|---|-----|
| Investment Section (continued) | |
| Fixed Income Portfolio Summary | 80 |
| Domestic Equity Brokerage Commissions | 81 |
| International Equity Brokerage Commissions | 82 |
| Investment Fees | 83 |
| Actuarial Section | |
| Actuarial Certification | 85 |
| Valuation Summary | 88 |
| Summary of Key Valuation Results | 91 |
| Plan Membership | 95 |
| Actuarial Experience | 96 |
| Administrative Expenses and Other Experience | 97 |
| Development of Unfunded Actuarial Accrued Liability | 98 |
| Development of Employer Costs | 99 |
| Schedule of Funding Progress | 101 |
| Solvency Test | 101 |
| Reconciliation of Member Data | 102 |
| History of Active Member Valuation Data | 102 |
| Retirees and Beneficiaries Added To and Removed From Payrolls | 103 |
| Actuarial Reserve Liabilities and Statutory Reserves | 104 |
| Actuarial Assumptions and Actuarial Cost Method | 105 |
| Summary of Plan Provisions | 108 |
| Statistical Section | |
| Changes in Fiduciary Net Position | 115 |
| Summary of Changes in Fiduciary Net Position | 117 |
| Additions to Fiduciary Net Position By Source | 118 |
| Deductions from Fiduciary Net Position By Type | 119 |
| Refunds By Type | 120 |
| Benefits By Type | 121 |
| History of Average Pension Benefit Payments to New Retirees | 122 |
| Average Employee Retirement Benefits Payable | 123 |
| Current Retirees & Beneficiaries By Range of Pension Amounts | 123 |
| History of Retirees and Beneficiaries By Type of Benefit | 124 |
| Covered Employees By Age & Years of Service | 124 |
| 10-Year History of Plan Membership | 125 |
| 10-Year History of Covered Employees | 125 |
| Legislative Changes in Plan Provisions 2007 Through 2016 (Appendix A) | 127 |



Government Finance Officers Association

**Certificate of
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Presented to

**Municipal Employees' Annuity
and Benefit Fund of Chicago
Illinois**

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

December 31, 2016

Christopher P. Morill

Executive Director/CEO

Introductory Section

RETIREMENT BOARD As of June 30, 2018

JEFFREY J. JOHNSON

Fire Communications Operator II
Office of Emergency Management and Communications
Elected Trustee

THOMAS J. MCMAHON

General Foreman – Hoisting Engineers
Department of Water Management
Elected Trustee

VERNA R. THOMPSON

Supervisor of Traffic Control Aides
Office of Emergency Management and Communications
Elected Trustee

ERIN KEANE

City Comptroller
Department of Finance
Ex-Officio Trustee

THE HONORABLE KURT A. SUMMERS, JR.

City Treasurer
Ex-Officio Trustee

A five-member Retirement Board is the governing body of the Municipal Employees' Annuity and Benefit Fund of Chicago (MEABF). By statute, the Retirement Board shall consist of two ex-officio members, the City Comptroller and the City Treasurer, and three members who are eligible employees and elected by the contributing members.

The Retirement Board is ultimately responsible for the operation, administration and management of all the activities of MEABF. Having oversight of the investment activities, the Retirement Board sets investment policies and objectives, hires investment managers and investment consultants and reviews investment performance. The Retirement Board also approves the MEABF operating budget and approves or denies benefit claims.

The Retirement Board appoints the Executive Director, and retains consultants for investment, actuarial, audit, medical, legal and other provisional services necessary for the transaction of business.

The Retirement Board meets monthly and holds special meetings as needed. As members of the Retirement Board, they receive no compensation.



Municipal Employees' Annuity and Benefit Fund of Chicago
A Pension Trust Fund of the City of Chicago
321 North Clark Street, Suite 700,
Chicago, Illinois 60654
Telephone: 312-236-4700 Fax: 312-527-0192
www.meabf.org
Jim Mohler, Executive Director

Retirement Board

Jeffrey J. Johnson
President (Elective Member)
Erin Keane
Vice President (City Comptroller, Ex-Officio Member)
Kurt A. Summers Jr.
Treasurer (City Treasurer, Ex-Officio Member)
Thomas J. McMahon
Recording Secretary (Elective Member)
Verna R. Thompson
Trustee (Elective Member)

LETTER OF TRANSMITTAL

June 30, 2018

To the Retirement Board of the Municipal Employees' Annuity & Benefit Fund of Chicago

It is with great pleasure that we submit the Comprehensive Annual Financial Report (CAFR) for the Municipal Employees' Annuity and Benefit Fund of Chicago (MEABF or the Plan), a pension trust fund of the City of Chicago, for the fiscal years ended December 31, 2017 and 2016.

The CAFR provides an overview of the Plan, comprehensive accounting of Plan activities and operations, detailed financial and actuarial information, investment performance, statistical information and Plan stewardship. A full version of the report is available on the web at <http://www.meabf.org/publications.php>.

Bansley and Kiener, LLP, Certified Public Accountants, have issued an unqualified ("clean") opinion on the Plan's financial statements as of December 31, 2017 and 2016. The independent auditor's report is located at the front of the Financial Section of this report.

Financial Reporting

Management Responsibility - Responsibility for the preparation, accuracy, completeness and fairness of the presentation, including all disclosures, made in this report rests with management. To the best of our knowledge and belief, the information contained in this report is complete; all disclosures necessary to enable the reader to gain an understanding of MEABF activities have been included.

Plan management is responsible for establishing and maintaining a system of internal controls. The system provides management with reasonable, but not absolute, assurance regarding the safeguarding of assets against loss, theft, or unauthorized disposition and the reliability of the financial records from which the financial reports are prepared. The concept of reasonable assurance recognizes that the cost of a control should not exceed anticipated benefits.

Accounting System – The Plan's financial statements have been prepared in accordance with generally accepted accounting principles applied on a consistent basis, in accordance with the standards and requirements of the Governmental Accounting Standards Board (GASB). The financial statements are prepared on the accrual basis of accounting.

Management's Discussion and Analysis – Management's discussion and analysis (MD&A), which immediately follows the Independent Auditor's Report in the Financial Section, provides an additional narrative introduction, and an overview and analysis of the basic financial statements. This transmittal is designed to complement the MD&A and should be read in conjunction with it.

Introductory Section

Plan Administration

MEABF is administered under the direction of a Retirement Board responsible for the oversight, management and administration of the Plan. The Retirement Board is comprised of three elected members and two ex-officio members (the City Treasurer and the City Comptroller). The Retirement Board has a fiduciary duty to act solely in the best interests of the Plan members.

To help carry out their responsibilities, the Retirement Board appoints an Executive Director and retains consultants for investment, actuarial, audit, legal and other provisional services necessary for the transaction of business. The Executive Director oversees the administration of the Plan and reports to the Retirement Board.

Plan Profile

MEABF is a pension trust fund of the City of Chicago and is administered under Chapter 40, Act 5, Article 1,8 and 20 of the Illinois Compiled Statutes (Statutes). The Plan is a defined benefit single employer plan that was established in 1921 by the Illinois State legislature, which is the governing body that sets benefit levels, as well as employee and employer contribution levels for financing the Plan.

In accordance with the Statutes, MEABF administers age and service retirement benefits, survivor benefits, post-retirement increases and duty and ordinary disability benefits to eligible members. As of December 31, 2017, MEABF served a total of 30,922 active members (19,586 Tier 1 members (60%), 9,349 Tier 2 members (30%) and 1,987 Tier 3 members (6%); 25,383 retirees and beneficiaries; and 17,549 inactive members. For a more detailed description of the Plan, its membership, benefit provisions and eligibility requirements, please read Note 7 of the Notes to Financial Statements in the Financial Section.

Changes in Plan Provision

On July 6, 2017 Public Acct 100-0023 was signed into law and changed the Plan's benefit and funding provisions as follow:

- All members hired on or after July 6, 2017 are classified as Tier 3 members.
- All current Tier 2 members were given a one-time option to switch to Tier 3 ("Elective Tier 3 Member").
- Tier 3 benefits structure is the same as the Tier 2 benefit structure except:
 - Unreduced annuity retirement age lowered from age 67 to age 65.
 - Reduced annuity retirement age lowered from age 62 to age 60.
 - Age eligible for the first annual increase in employee annuity lowered from age 67 to age 65.
 - Member contribution rate increased from 8.5% of capped salary to 11.5% of capped salary or the annual normal cost rate if less.
- For 2018 through 2022, employer contributions are specified amounts. Previous years employer contributions were based on an employee contribution multiple from the prior two years.
- Starting in 2023, employer contributions are calculated as a level percent of payroll sufficient to bring the total assets of the Plan up to 90% of the actuarial accrued liability by the end of 2058.

Introductory Section

Experience Study

Segal Consulting, the Plan's independent actuarial consultant, prepared an experience study based on census information provided by MEABF staff for the period from January 1, 2012 through December 31, 2016. The primary purpose of the study was to evaluate actuarial assumptions to be used in the annual actuarial valuation. Based on the results of the experience study, Segal recommended modifying some of the actuarial assumptions. For the year ended December 31, 2017 the Board adopted the recommendations in the demographic assumptions and economic assumptions. In regards to investment rate of return, the Board adopted a change of investment rate of return from 7.5% to 7.0% per year instead of the actuary recommendation from 7.5% to 6.75% per year. The total impact of all the changes in assumptions was an increase in the actuarial accrued liability of \$862 million, a decrease in the funded ratio of 150 basis points and an increase in the actuarially determined contribution of 1.0%.

Actuarial Funding Status

An actuarial valuation of the Plan is conducted annually and an experience review is performed and approved by the Retirement Board every five years. In the actuarial valuation as of December 31, 2017, performed by the Plan's independent actuary, Segal Consulting, the actuarial accrued liability, actuarial value of assets and unfunded actuarial accrued liability of MEABF amounted to \$16,282.4 million, \$4,456.8 million and \$11,825.6 million, respectively. As of December 31, 2017 MEABF has a funded ratio of 27.37% (actuarial value of assets divided by actuarial liabilities for pension).

Beginning in 2014, the Plan incorporated GASB 67, which required certain disclosure requirements and a calculation of a blended discount rate that varies from the discount rate used for funding purposes if a projection of the Plan's assets and future contributions are insufficient to pay benefits to current members. Due to Public Act 100-0023 being enacted to provide a funding mechanism that is projected to make all benefit payments to current members, the GASB blended discount rate calculation results in the same discount rate as used for funding purposes. As a result the total pension liability for financial reporting (GASB 67) equals the actuarial accrued liability for funding purposes. For 2017, utilizing the requirements of GASB 67, the total pension liability was \$16,282.4 million, leaving a net pension liability of \$11,728.4 million. In 2017, based on the requirements of GASB 68, the Plan Sponsor (City of Chicago) must reflect this liability on their financial statements. The 2017 net pension liability was a decrease of 37.8% compared to 2016.

MEABF is funded by employer and member contributions in accordance with the funding policy specified under the Illinois Pension Code (40 ILCS 5/8). As of December 31 2017 as mandated by state statute, member contributions are set at 8.5% of pensionable salary for Tier 1 and Tier 2 members and 11.5% of pensionable salary for Tier 3 members. Employer contributions are specified amounts of \$266 million in 2018, \$344 million in 2019, \$421 million in 2020, \$499 million in 2021 and \$576 million in 2022. Starting in 2023 employer contributions are calculated as a level percent of payroll sufficient to bring the total assets of the Plan up to 90% of the actuarial accrued liability by the end of 2058. In prior years, the employer contributions were equal to employee contributions from two years prior times 1.25 (the contribution multiple). The statutory employer contributions have been less than the actuarially determined contributions for the past fifteen years growing over time.

In the opinion of Segal Consulting, the Plan's Consulting Actuary, **the new funding method mandated by the Illinois Pension Code, does not guarantee solvency of the Plan. Given the low funded ratio, the Plan is still at risk of potential insolvency if an economic recession or investment market downturn were to occur in the near term. The fixed dollar contributions through 2022 leave the Plan vulnerable to adverse experience.** Additional discussion relating to funding is provided in the Actuarial Section.

Introductory Section

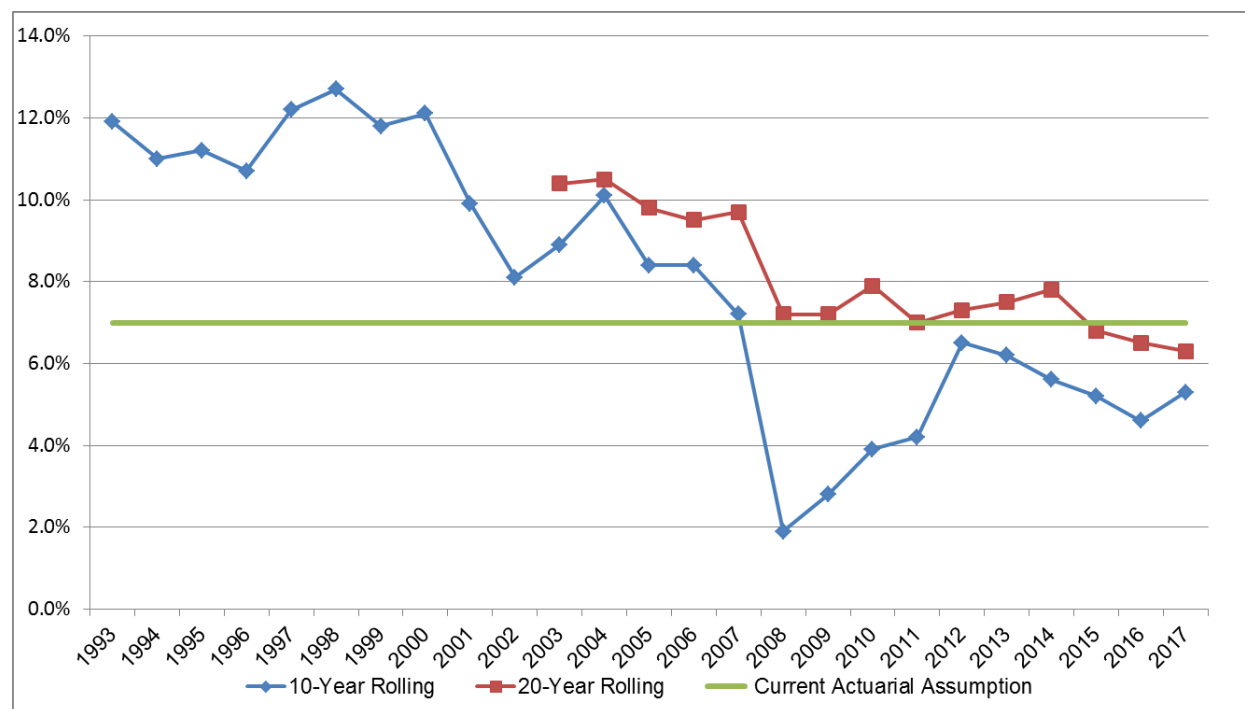
Investments

Plan assets are invested in accordance with the “Prudent Person Rule” for the sole purpose of providing benefits to Plan members. The Plan’s portfolio is diversified globally amongst various asset classes, investment styles, and economic sectors in an effort to achieve optimal long-term return, at a pre-determined level of risk. The Plan’s Actuary assumes a long-term investment return of 7.0%. In 2017, the Plan’s investment portfolio returned, net-of-fees, 15.1% compared to 14.5% of the policy benchmark. Going forward, the Plan’s ability to meet its return objective over the long term will continue to be challenged as invested assets are liquidated to pay monthly benefits. During fiscal year 2017, approximately \$606.44 million was liquidated to assist in meeting benefit payment obligations.

Economic Condition and Outlook

During 2017, the U.S. economy and other developed economies experienced GDP growth of 2.3%, and emerging economies experienced GDP growth rate at roughly 4.8%. The U.S. unemployment rate continued to decrease, ending the year at 4.1%. Economic and regulatory policies benefitted capital markets in 2017. Due to positive economic news and strong financial markets, consumer confidence is exceeding pre-recession levels. Consumer spending is up, and the personal savings rate is near its all-time low. This trend has been a tailwind for GDP growth, and may result in higher inflation should this spending pattern continue. Continued economic growth and strength in the capital markets are essential for the Plan to meet its future obligations.

The chart below compares ten and twenty-year rolling returns to the actuarially assumed rate of return. Over the long-term, MEABF has historically outperformed the assumed rate of return. The effects of the “Tech Bubble” (2000-2002) and the “Great Recession” (2008-2009) pulled down the rolling returns considerably. Even though they have not returned to their pre-crises levels, we are pleased that returns have been strong over the last eight years averaging 8.9% annually, net of fees. The Retirement Board will continue to structure the portfolio in accordance with the target allocation mix, which should reduce downside risk and best position the portfolio to achieve long-term performance goals and objectives.



Introductory Section

The Investment Section contains a summary of the Retirement Board's investment policy, including goals and objectives, and a comprehensive analysis of the Plan's portfolio performance for the fiscal year 2017.

Plan Initiatives

Investments:

The Retirement Board took the following actions in 2017:

- Domestic Equity: Mid-cap growth manager with roughly \$79 million and large-cap growth manager with roughly \$64 million were terminated. The proceeds were awarded to a mid-cap growth index and large-cap core index manager, respectively. Search for a small-cap value manager was initiated. Our emerging manager of managers provider was placed on watch.
- Fixed Income: The Board approved a search for a core fixed income mandate. The search is to be conducted in the first half of 2018.
- Defensive Equity: The Board awarded two defensive equity mandates with initial amount of \$50 million each to Parametric and Neuberger Berman.

The Investment staff took the following actions in 2017:

- Investment staff successfully transitioned investment team personnel to fill vacancies created by the departure of senior staff members.
- Investment staff developed and implemented written procedures to enhance and streamline department functions.

Introductory Section

Operations:

The following quantifies some of the accomplishments of the Plan and the volume of services provided during fiscal year 2017:

Accomplishments

- The Benefits Department implemented a third benefit structure established by Public Act 100-0023, passed July 6, 2017, which added a third tier of membership to the Plan.
- Incorporated procedures and analyzed membership data to ensure that all current and future members are categorized properly due to the addition of the Tier 3 membership level.
- Phase 1 of the Plan's Pension Benefit System was completed and Phase II system development was initiated, thus allowing for quicker processing of both disability and retirement benefits.
- Annuitant Service integrated newly available information from the Illinois Department of Public Health ("IDPH") potentially identifying deceased members in a timelier manner, thus limiting overpayments to members whose death was not reported to the Plan.
- Established secure transmittal of data and incorporated a review of data from IDPH for use by various operational departments.
- Completed data exchange with non-reciprocal City funds to identify any matches of member data.
- Cross-trained part-time personnel to support multiple departments of the Plan to assist annual high-volume projects.
- Plan staff responded to approximately 40 requests made in accordance with Illinois Freedom of Information Act.
- The Plan established a social media presence on Facebook to provide timely updates on the Plan news and events.
- The Benefits department promoted three staff members to supervisory positions and hired and trained two benefit counselors to fill vacancies created by staff promotions.
- The Annuitant Services department hired and trained a new member representative to fill a vacancy created by a staff departure.
- The Accounting department hired and trained two staff accountants to fill vacancies created by staff retirements and departures.

Introductory Section

Administrative Services Provided:

Benefit Payment Services

- 303,096 annuity benefit payments to retirees and beneficiaries totaling \$842.6 million. Of these, 93% were paid via electronic funds transfer with the remaining 7% by check.
- 25,383 annuitants at year-end 2017, 21,916 or 86% remained Illinois residents and 3,467 or 14% were out-of-state residents. About 15,826 annuitants residing in the City of Chicago received benefit payments totaling \$541.7 million annually.
- 25,243 annual benefit statements showing new benefit amounts and deductions for 2017 were mailed to annuity benefit recipients.
- 1,449 new retirees, spouse/reversionary/child annuitants added to annuity payroll. 1,301 retirees, spouse/reversionary/child annuitants removed from payroll due to death or termination.
- 5,290 disability benefit payments to disabled participants totaling \$11.7 million. At year-end, there were 162 disabled participants receiving ordinary disability benefits and 211 disabled participants were receiving duty disability benefits.
- 29,152 1099Rs issued for tax reporting purposes.
- 24,349 pension verification forms sent to benefit recipients to confirm that the intended recipients were still alive and therefore eligible to receive benefits.

Member Services

- 27,239 printed statements of contributions to active participants.
- 2,994 individualized benefit counseling sessions conducted.
- 2,897 benefit estimates mailed.
- 116,393 phone calls received.
- Quarterly pre-retirement seminars held.

Withdrawals of Contributions

- 1,018 lump sum payments to members not eligible for retirement.
- 585 lump sum payments of spousal contributions.
- 29 lump sum payments in lieu of annuity.
- 79 lump sum payments to beneficiaries.

Document management

- 86,097 documents (169,914 pages) indexed and scanned during 2017

Introductory Section

Certificate of Achievement for Excellence in Financial Reporting

The Plan was awarded a Certificate of Achievement for Excellence in Financial Reporting for its CAFR for the year ended December 31, 2016 by the Government Finance Officers Association of the United States and Canada (GFOA). The Plan has received this prestigious award in each of the last 28 years.

To be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized CAFR that satisfies both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one-year only. We believe this report conforms to the program requirements and we are submitting it to the GFOA to determine its eligibility for award.

Acknowledgments

We extend our profound gratitude to the entire Retirement Board for their commitment, leadership and continued support and to the advisors and consultants. We thank the dedicated MEABF staff for their tireless efforts in serving the needs of members. We are grateful to all those who contributed to this project.

Respectively submitted,



Jim Mohler
Executive Director



Sandra Shelby
Comptroller

Introductory Section

ORGANIZATION CHART



CONSULTANTS AND ADVISORS

Investment Consultant

Brian Wrubel
James R. Wesner
Marquette Associates
Chicago, IL

Auditor

Gerard J. Pater, C.P.A.
Bansley & Kiener, L.L.P.
Chicago, IL

Master Custodian

Anton Britton
The Northern Trust Company
Chicago, IL

Actuary

Kim M. Nichol, FSA, MAAA, EA, FSA
Matthew A. Strom, FSA, MAAA, EA, FSA
Jacob Libauskas, ASA, MAAA, EA
Segal Consulting
Chicago, IL

Custodian

Kurt A. Summers, Jr.
City Treasurer
Chicago, IL

Legal Advisor

Mary Pat Burns
Burke, Burns & Pinelli, Ltd
Chicago, IL

Medical Advisor

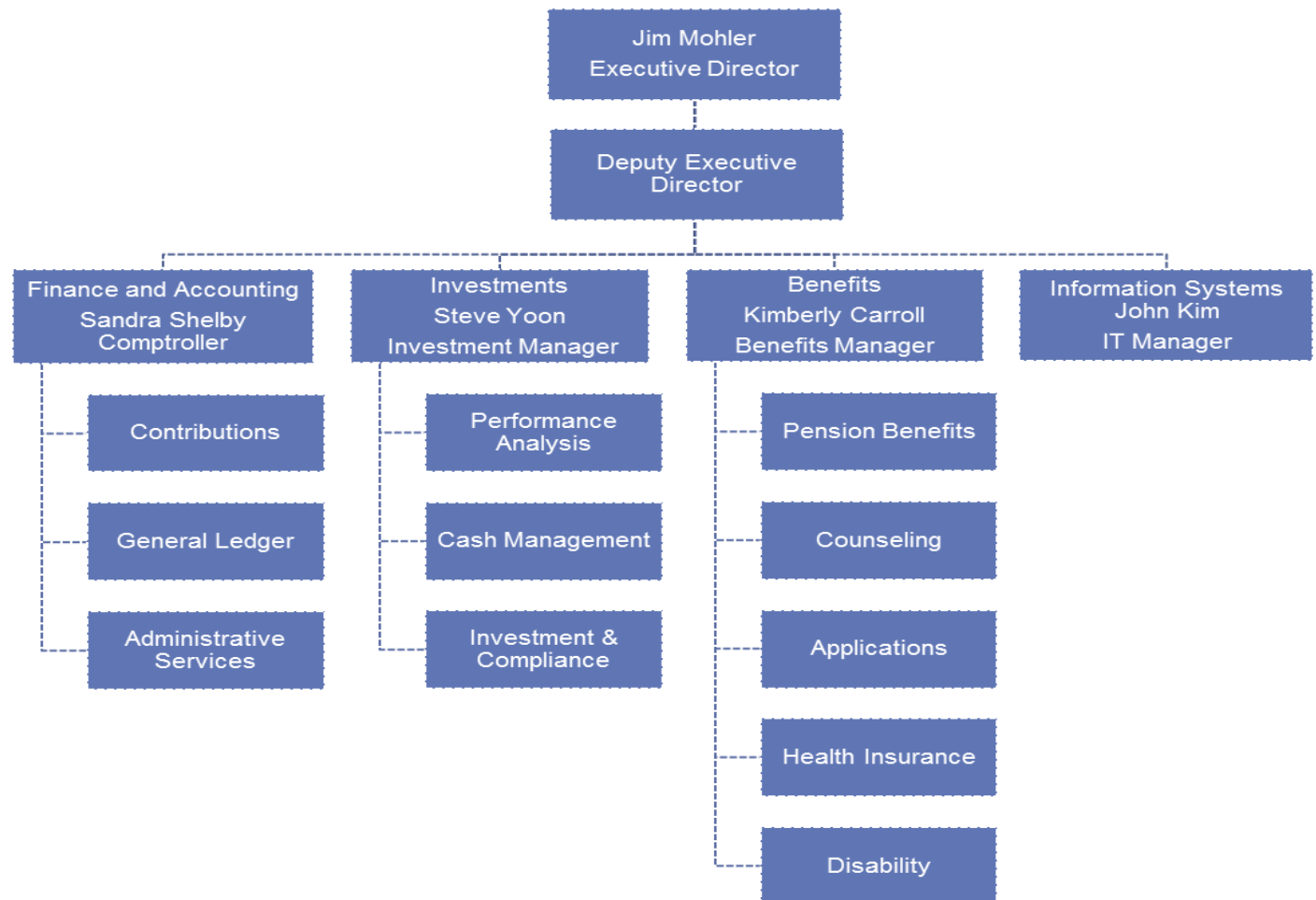
Terence Sullivan, M.D.
Chicago, IL

Investment Managers and Investment Fees - are listed on pages 69-70 and 61-62

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

Introductory Section

Administrative Staff (as of June 30, 2018)



Appointed by the Retirement Board, the Executive Director and his staff are responsible for the day-to-day administration and operation of the Plan under the Retirement Board's direction. The administrative staff also implements the investment policies and decisions of the Retirement Board and the benefit provisions of the Plan. The administrative staff of forty-eight (48) employees serves 30,922 actively contributing members; 25,383 retirees and surviving beneficiaries; and 16,876 inactive members.

FINANCIAL

INDEPENDENT AUDITOR'S REPORT

The Retirement Board
Municipal Employees' Annuity & Benefit Fund
of Chicago
Chicago, Illinois

We have audited the statements of fiduciary net position of Municipal Employees' Annuity & Benefit Fund of Chicago (the Plan), a Component Unit of the City of Chicago, as of December 31, 2017 and 2016, and the related statements of changes in fiduciary net position for the years then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statement 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 the 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 Plan's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

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

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of Municipal Employees' Annuity & Benefit Fund of Chicago as of December 31, 2017 and 2016, 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.

Financial Section

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and other supplementary information on pages 16 through 22 and pages 60 through 63 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquires of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audits were conducted for the purpose of forming an opinion on the financial statements taken as a whole. The schedules of administrative and OPEB expenses, investment management compensation, and professional and consulting costs are presented for purposes of additional analysis and are not a required part of the basic financial statements. The schedules of administrative and OPEB expenses, investment management compensation, and professional and consulting costs are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit 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 information is fairly stated in all material respects in relation to the basic financial statements as a whole.

Bansley and Kiener, L.L.P.

Certified Public Accountants

May 18, 2018

Management's Discussion and Analysis

This Management Discussion and Analysis (MD&A) of the Municipal Employees' Annuity and Benefit Fund of Chicago ("MEABF" or the "Plan") provides a narrative overview and analysis of the financial activities of MEABF for the years ended December 31, 2017 and 2016. Readers are encouraged to read the MD&A in conjunction with the financial statements to better understand the financial condition and performance of MEABF during the year ended December 31, 2017. Information for fiscal years 2016 and 2015 is presented for comparative purposes.

Financial Highlights

- The Plan's fiduciary net position increased by \$117.8 million to \$4,554.0 million as of December 31, 2017, compared to a decrease of \$305.2 million, from \$4,741.4 million to \$4,436.2 as of December 31, 2016.
- The Plan has continued to liquidate portfolio assets at a growing rate to supplement the disbursement of benefit payments. During fiscal year 2017, approximately \$606.4 million in portfolio assets were liquidated compared to \$586.6 million in fiscal year 2016 and \$552.1 million in fiscal year 2015.
- MEABF's total investment portfolio generated a return of 15.1 percent in 2017 on a net-of-fees basis. The net returns in 2016 and 2015 were 6.3 percent and 1.8 percent, respectively. The total portfolio return in 2017 was above the 7.0 percent actuarial investment return assumptions.
- On a fair value basis, this year's money weighted investment rate of return net of investment expense, was 14.9 percent, compared with the last year's return of 6.1 percent.
- Total additions as reported in the statements of changes in fiduciary net position increased by \$443.2 million or 77.9 percent to \$1,012.4 million in 2017 from \$569.2 million in 2016.
- Total deductions as reported in the statements of changes in fiduciary net position increased by \$20.2 million or 2.3 percent to \$894.6 million in 2017 from \$874.4 million in 2016.
- Annuity benefits paid to retirees and beneficiaries increased by \$29.5 million or 3.6 percent to \$842.6 million for fiscal year 2017, compared to an increase of \$31.0 million or 4.0 percent to \$813.1 million in fiscal year 2016 from \$782.1 million in fiscal year 2015.
- The December 31, 2017 financial actuarial valuation calculated a total pension liability at December 31, 2017, of \$16,282.4 million and the net pension liability at December 31, 2017, of \$11,728.4 million.
- As of the December 31, 2017, the most recent funding actuarial valuation, the Plan's unfunded actuarial accrued liability increased to \$11,825.6 million from \$10,464.9 million from the prior year. As of the December 31, 2017, the most recent funding actuarial valuation, the Plan's funded ratio was 27.4 percent compared with a funded ratio of 30.5 percent for the prior year.

Overview of the Financial Statements

This discussion and analysis is an introduction to the Plan's basic financial statements prepared on an accrual basis of accounting in accordance with Governmental Accounting Standards Board (GASB) pronouncements and reflect all financial activities. The Plan's basic financial statements include (1) Statements of fiduciary net position (2) Statements of changes in fiduciary net position (3) Notes to the financial statements. In addition to the basic financial statements, this financial report also contains required supplementary information and other supplementary schedules.

Basic Financial Statements

The *statements of fiduciary net position* restricted for pension benefits report Plan assets at fair value, liabilities and the resulting fiduciary net position (assets - liabilities = fiduciary net position) at year-end.

The *statements of changes in fiduciary net position* report the results of financial activities that occurred during the fiscal year, disclosing the additions to fiduciary net position, such as contributions and net investment income, and deductions from fiduciary net position such as benefit payments and administrative expenses. The resulting net increase (decrease) in fiduciary position (additions - deductions = net increase (decrease) in fiduciary position) reflects the change in net fiduciary position reported in the *statements of fiduciary net position*.

Notes to the Basic Financial Statements

The *notes to the financial statements* are an integral part of the financial statements and include additional information not readily evident in the statements themselves. The notes also include schedules to provide a better understanding of the data provided in the financial statements.

Required Supplementary Information

The required supplementary information following the notes to the financial statements is required by GASB. It provides historical information and additional details considered useful in evaluating the financial condition of the Plan. It includes schedules related to the net pension liability, contributions from employer, and the annual money weighted rate of return on pension plan investments. It also includes schedules of funding progress for the post-employment healthcare, schedule of employer contributions and related disclosures.

Other Supplementary Schedules

Additional supplemental schedules include detailed information regarding administrative expenses, consulting costs and investment management fees.

Financial Section: *Management's Discussion and Analysis*

Fiduciary Net Position Restricted for Pension Benefits (in millions)

(As of December 31, 2017, 2016 and 2015)

| | 2017 | 2016 | 2015 |
|---|-------------------|-------------------|-------------------|
| Assets | | | |
| Cash, receivables and other current assets | \$ 303.3 | \$ 238.6 | \$ 212.7 |
| Investments, at fair value | 4,296.1 | 4,285.7 | 4,619.4 |
| Invested securities lending collateral | 243.6 | 304.8 | 396.8 |
| Total assets | 4,843.0 | 4,829.1 | 5,228.9 |
| Liabilities | | | |
| Accrued expenses and othe liabilities | 45.4 | 88.1 | 90.6 |
| Securities lending collateral | 243.6 | 304.8 | 396.9 |
| Total liabilities | 289.0 | 392.9 | 487.5 |
| Fiduciary Net Position restricted for pension benefits | \$ 4,554.0 | \$ 4,436.2 | \$ 4,741.4 |

Fiduciary net position restricted for pension benefits increased by \$117.8 million during fiscal year 2017 to \$4,554.0 million from \$4,436.2 million in 2016. Invested assets at fair value increased by \$10.4 million in 2017 to \$4,296.1 from \$4,285.7 million in 2016. The growth in assets would have been significantly higher if portfolio assets were not liquidated to supplement the disbursement of benefit payments during the year. During 2017 approximately \$606.4 million in portfolio assets were liquidated compared to \$586.6 million during 2016 and \$552.1 million during 2015.

Summary of Investments (in millions)

(As of December 31, 2017, 2016 and 2015)

| | FY 2017 | FY 2016 | FY 2015 |
|------------------------|-------------------|-------------------|-------------------|
| Fixed Income | \$ 986.5 | \$ 1,007.4 | \$ 1,147.8 |
| Domestics equity | 1,208.0 | 1,058.2 | 1,094.9 |
| International equity | 881.7 | 868.4 | 938.9 |
| Hedged equity | 418.7 | 463.8 | 469.0 |
| Real estate | 431.4 | 458.2 | 520.7 |
| Private equity | 200.8 | 237.6 | 243.5 |
| Short-term investments | 169.0 | 192.1 | 204.6 |
| | \$ 4,296.1 | \$ 4,285.7 | \$ 4,619.4 |

The asset values reflected above fluctuate from year-to-year, both in aggregate and by asset class, based on the combination of factors such as investment performance, liquidations within certain asset classes, and rebalancing of assets within the overall portfolio.

Investment performance. For fiscal year 2017, the Plan's total investment portfolio generated a 15.1 percent return net-of fees, compared to 14.5 percent of the policy benchmark. 2017 returns were above the 6.3 percent return net-of fees generated in 2016. International equity composite (32.2 percent), led by Emerging Markets, performed well above its benchmark MSCI ACWI ex US 27.2 percent. Fixed Income (4.0 percent) and Hedge Fund asset (10.7 percent) classes slightly outperformed their respective benchmarks, Barclays Aggregate Bond Index of 3.5 percent and HFRX Equity Hedge Index of 10 percent. The remaining asset classes trailed their respective benchmarks; Domestic Equity (19.8 percent) compared to 21 percent of Wilshire 5000 Total Market Index, Real Estate (5.6 percent) compared to 7 percent of NCREIF Property Index.

Financial Section: *Management's Discussion and Analysis*

Liquidations within certain asset classes. Liquidations are due to the large operating cash flow deficits that the Plan faces as a result of the shortfall between inflows, in the form of contributions, and outflows, primarily comprised of retirement benefits and refunds. In total, MEABF had to liquidate approximately \$606.4 million of investments to meet the Plan's cash flow needs for 2017. Liquidity came from domestic equity, international equity, fixed income, hedge funds and real estate.

Rebalancing of assets within the overall portfolio. MEABF's target asset allocation remained unchanged in 2017. The regular sale of assets to meet the Plan's cash flow needs was done in accordance with aligning the Plan's investment portfolio with its target allocation.

Additions and Deductions to Fiduciary Net Position (in millions)

(Years ended December 31, 2017, 2016 and 2015)

| | 2017 | 2016 | 2015 |
|---|-------------------|-------------------|-------------------|
| Additions: | | | |
| Employer contributions | \$ 261.7 | \$ 157.4 | \$ 157.7 |
| Member contributions | 134.8 | 130.4 | 131.4 |
| Total contributions | 396.5 | 287.8 | 289.1 |
| Net investment income (loss) | 609.0 | 279.5 | 112.3 |
| Net security lending income (loss) | 1.5 | 1.9 | 1.7 |
| Other additions (OPEB termination) | 5.4 | - | - |
| Total additions | 1,012.4 | 569.2 | 403.1 |
| Deductions: | | | |
| Annuity benefits | 842.6 | 813.1 | 782.1 |
| Disability benefits | 11.7 | 12.0 | 12.2 |
| Healthcare subsidy | - | 7.7 | 8.5 |
| Refunds of contributions | 33.8 | 34.6 | 31.7 |
| Administrative expense | 6.5 | 7.0 | 6.7 |
| Total deductions | 894.6 | 874.4 | 841.2 |
| Net increase (decrease) | 117.8 | (305.2) | (438.1) |
| Fiduciary net position restricted for pensions beginning of year | 4,436.2 | 4,741.4 | 5,179.5 |
| Fiduciary net position restricted for pensions end of year | \$ 4,554.0 | \$ 4,436.2 | \$ 4,741.4 |

Additions

Total additions as reported in the Statements of Changes in Fiduciary Net Position increased by \$443.2 million or 77.9 percent in 2017 to \$1,012.4 million from \$569.2 million in 2016.

Additions from employer contributions increased by \$104.3 million to \$261.7 million in 2017 from \$157.4 million in 2016. The increase is due to the amendment of Public Act 100-0023 (new funding structure) that was put into law during 2017 that requires the employer to remit \$266.0 million in 2018 for 2017 contributions. For financial reporting purposes both the net contribution receivable and net employer contributions reflects the required amount. Prior year contributions amounts were based on a statutory set multiplier of 1.25 of employee contributions level in the second prior fiscal year. Additions from member contributions increased by \$4.4 million to \$134.8 million in 2017, from \$130.4 million in 2016. The net increase is the result of a \$2.6 million increase in contributions from the City of Chicago members and a \$1.8 million increase primarily from the purchases of permissive services. Detail regarding active member contribution requirement can be found in note 7 Pension and Other Postemployment Benefit.

Financial Section: *Management's Discussion and Analysis*

Additions from investment income increased by \$329.5 million in 2017 to \$609.0 million in 2017 from \$279.5 million in 2016. The increase was mainly due to the investment portfolio generating higher returns of 15.1 percent in 2017 compared to 6.3 percent in 2016. Other contributing factors were:

- Increase in net appreciation on investments by \$343.4 million to \$522.1 million in 2017 compared to \$178.7 million in 2016.
- Decrease in income from investments by \$15.0 million to \$106.3 million in 2017 compared to \$121.3 million in 2016.
- Decrease in direct investment fees by \$1.1 million to \$19.3 million in 2017 from \$20.4 million in 2016.

Other additions of \$5.4 million is the result of the Plan eliminating its OPEB liability from prior years. As of January 1, 2017 the Plan has discontinued OPEB for the Plan's retired employees.

MEABF can earn additional investment income by allowing a third party provider to lend a portion of its securities to borrowers on its behalf. The borrower provides collateral on borrowed securities, which is invested in order to earn interest. Securities lending activities generated net income of \$1.5 million in 2017 compared to \$1.9 million in 2016.

Deductions

MEABF's assets are primarily used to pay annuity benefits, disability benefits, refunds of contributions and the costs of administering the Plan. Deductions from fiduciary net position increased by \$20.2 million or 2.3 percent to \$894.6 million in 2017 from \$874.4 million in 2016. Benefits paid out exceed member and employer contributions by \$599.9 million, \$579.6 million, and \$545.4 million in fiscal years 2017, 2016 and 2015 respectively. In order to supplement benefit payments, the Plan liquidated portfolio assets by approximately \$606.4 million, \$586.6 million, and \$552.1 million in fiscal years 2017, 2016 and 2015, respectively.

Annuity benefits paid increased by \$29.5 million or 3.6 percent to \$842.6 million in 2017 from \$813.1 million in 2016. The increase is primarily due to the compounded annual 3.0 percent adjustment for eligible annuitants and an increase in the number of retirees and beneficiaries receiving benefits. The average annual employee annuity benefit increased to \$38,376 in 2017 from \$37,248 in 2016. The number of new employee annuities increased in 2017 to 1,449 from 1,368 in 2016. There were 25,383 retirees and beneficiaries at year-end December 31, 2017 compared to 25,236 at the beginning of the year.

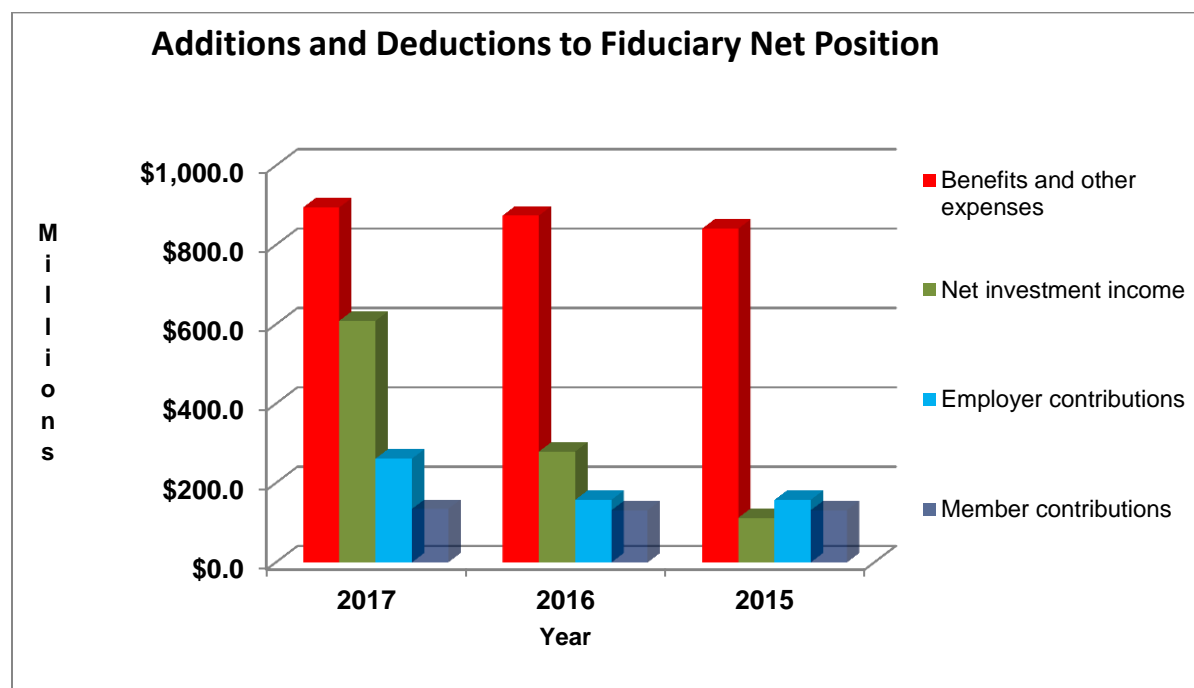
Disability benefits paid decreased by \$0.3 million or 2.5 percent to \$11.7 million in 2017 from \$12.0 million paid in 2016. This slight net decrease is attributable to a decrease in the number of participants receiving disability. There were 373 participants on disability at year-end December 31, 2017 compared to 394 at the beginning of the year.

Refunds of contributions decreased by \$0.8 million to \$33.8 million in 2017 from \$34.6 million in 2016. The net decrease is mainly due to:

- Increase in refund of spousal contributions. Refund of spousal contributions totaling \$9.2 million were refunded in 2017 compared to \$8.2 million refunded in 2016, an increase of \$1.0 million.
- Decrease in all other refunds of contributions distributed to employees not eligible for annuities. Other refunds of contributions decreased by \$1.8 million to \$24.6 million in 2017 from \$26.4 million in 2016.

Financial Section: *Management's Discussion and Analysis*

Administrative expenses expense decreased by \$0.5 million to \$6.5 million in 2017 from \$7.0 million in 2016. Detail relating to administrative expenses can be found in the Schedule of Administrative located under Supporting Schedules.



Total Pension Liability (TPL) and Net Pension Liability (NPL)

The total pension liability (TPL) determines the total obligation for the Plan's pension benefits related to costs incurred as a result of years of service, changes in benefit terms, changes in actuarial assumptions, and any differences between the actuarial assumptions and actual experience. The Plan's fiduciary net position (FNP) determines the assets available for future pension payment stream. Analogous to the unfunded actuarial accrued liability, Net Pension Liability (NPL) is the Total Pension Liability (TPL), net of the Plan's Fiduciary Net Position (FNP).

At December 31, 2017, the components of the net pension liability of the employer were as follows (in millions):

| | |
|---|--------------------|
| Total pension liability | \$ 16,282.4 |
| Plan fiduciary net position | 4,554.0 |
| Employer's net pension liability | <u>\$ 11,728.4</u> |
| Plan fiduciary net position as a percentage of the total pension liability | 27.97% |

Funding Status

The Plan, since inception, has been funded by utilizing a static multiple of employee contributions. This structure has led to significant underfunding of the Plan which continues to reduce assets as benefits paid far exceed contributions received.

Over the last few years, attempts to change the funding mechanism for the Plan to ensure the long-term solvency have been declared unconstitutional due to changes made to the existing benefit structure. On July 6, 2017 a new funding structure was included in Public Act 100-0023 to increase employer contributions from the City of Chicago.

Public Act 100-0023 requires contributions from the City of Chicago to be equal to \$266 million in payment year 2018; \$344 million in payment year 2019; \$421 million in payment year 2020; \$499 million in payment year 2021, and \$576 million in payment year 2022. For payment year 2023 through 2058, the City of Chicago is required to make contributions on an actuarial calculated funding plan that is projected to bring the Fund to 90% funding by 2058.

Request for Information

Additional information is available on our website www.meabf.org or by request. Please direct your request to Mr. Jim Mohler, Executive Director, Municipal Employees' Annuity and Benefit Fund of Chicago, 321 N. Clark Street, Suite 700, Chicago, IL 60654.

Financial Section

Statements of Fiduciary Net Position

December 31, 2017 and 2016

| | 2017 | 2016 |
|--|------------------|------------------|
| ASSETS | | |
| Cash and cash equivalents | \$ 492,001 | \$ 489,437 |
| Receivables | | |
| Contributions from City of Chicago, net of allowance for loss of \$13,285,086 in 2017 and \$13,885,879 in 2016 | 260,306,200 | 156,051,122 |
| Member contributions | 10,973,768 | 10,642,911 |
| Interests and dividends | 12,121,538 | 11,846,833 |
| Due from Broker | 18,482,922 | 59,113,273 |
| Miscellaneous | 819,751 | 421,566 |
| Total receivables | 302,704,179 | 238,075,705 |
| Investments, at fair value | | |
| Fixed income | 986,491,904 | 1,007,435,747 |
| Hedged equity | 418,747,415 | 463,825,386 |
| Domestic and international equity | 2,089,697,774 | 1,926,589,121 |
| Real estate | 431,421,604 | 458,150,837 |
| Private equity | 200,760,945 | 237,648,563 |
| Short-Term investments | 169,027,392 | 192,097,254 |
| Total investments | 4,296,147,034 | 4,285,746,908 |
| Invested securities lending collateral | 243,632,186 | 304,808,240 |
| Property and equipment, net of accumulated depreciation and amortization of \$20,039 in 2017 and \$14,229 in 2016 | 30,500 | 14,818 |
| Total assets | 4,843,005,900 | 4,829,135,108 |
| LIABILITIES | | |
| Due to Broker | 38,450,544 | 75,948,987 |
| Accounts payable and accrued expenses | 6,904,883 | 6,756,704 |
| Securities lending collateral | 243,632,186 | 304,808,240 |
| OPEB liability | - | 5,393,581 |
| Total liabilities | 288,987,613 | 392,907,512 |
| Net position restricted for pension benefits | \$ 4,554,018,287 | \$ 4,436,227,596 |

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

Financial Section

Statements of Changes in Fiduciary Net Position

Years ended December 31, 2017 and 2016

| | 2017 | 2016 |
|---|-------------------------|-------------------------|
| ADDITIONS | | |
| Contributions from the City of Chicago | \$ 261,763,635 | \$ 157,444,029 |
| Member contributions | 134,764,920 | 130,390,848 |
| Total contributions | <u>396,528,555</u> | <u>287,834,877</u> |
| Investment Income | | |
| Net appreciation in fair value of investments | 522,085,114 | 178,672,757 |
| Interest | 38,782,075 | 49,249,373 |
| Dividends | 49,218,319 | 50,922,223 |
| Income from real estate investments | 18,290,585 | 21,154,776 |
| | <u>628,376,093</u> | <u>299,999,129</u> |
| Less: investment expenses | 19,341,002 | 20,477,574 |
| Net income from investing activities | <u>609,035,091</u> | <u>279,521,555</u> |
| Security lending activities | | |
| Securities lending income | 3,732,703 | 2,013,113 |
| Borrower rebates | (2,124,012) | 49,475 |
| Bank fees | (128,686) | (164,997) |
| Net income from securities lending activities | <u>1,480,005</u> | <u>1,897,591</u> |
| Other additions - OPEB termination | 5,393,581 | - |
| Total additions | <u>1,012,437,232</u> | <u>569,254,023</u> |
| DEDUCTIONS | | |
| Benefits | | |
| Annuity benefits | 842,632,392 | 813,092,340 |
| Disability benefits | 11,711,092 | 12,004,051 |
| Post-employment healthcare subsidies | - | 7,725,538 |
| Total benefits | <u>854,343,484</u> | <u>832,821,929</u> |
| Refunds of member contributions | 33,830,051 | 34,575,271 |
| Administrative and OPEB expenses | 6,473,006 | 7,056,784 |
| Total deductions | <u>894,646,541</u> | <u>874,453,984</u> |
| Net increase (decrease) | 117,790,691 | (305,199,961) |
| Net position restricted for pension benefits | | |
| Beginning of year | 4,436,227,596 | 4,741,427,557 |
| End of year | <u>\$ 4,554,018,287</u> | <u>\$ 4,436,227,596</u> |

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

Financial Section

Note 1- Summary of Significant Accounting Policies

Reporting Entity

As defined by generally accepted accounting principles established by the Governmental Accounting Standards Board (GASB), the financial reporting entity consists of a primary government, as well as its component units, which are legally separate organizations for which the elected officials of the primary government are financially accountable. Financial accountability is defined as:

- (1) Appointment of a voting majority of the component unit's board and either a) the ability to impose will by the primary government, or b) the possibility that the component unit will provide a financial benefit to or impose a financial burden on the primary government; or
- (2) Fiscal dependency on the primary government.

Based upon the required criteria, the Plan has no component units. The Plan is considered a component unit fund of the City of Chicago and, as such, is included in the City of Chicago's financial statements as a pension trust fund. Accordingly, these financial statements present only Municipal Employees' Annuity & Benefit Fund of Chicago ("MEABF") and are not intended to present fairly the financial position of the City of Chicago and the result of its operations in conformity with generally accepted accounting principles.

Basis of Accounting

The financial statements are prepared using the accrual basis of accounting. Employee and employer contributions are recognized in the period when due, pursuant to formal commitments as well as statutory or contractual requirements. Benefits and refunds are recognized when due and payable in accordance with the terms of the Plan.

Use of Estimates

The preparation of financial statements in accordance with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts and fiduciary net position at the date of the financial statements and the actuarial information included in the required supplementary information as of the valuation date, the changes in fiduciary net position during the reporting period and, when applicable, disclosures of the contingent assets and liabilities at the date of the financial statements. Actual results may differ from those estimates.

Risks and Uncertainties

The Plan invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of the investment securities will occur in the near term and that such changes could materially affect the amounts reported in the statement of fiduciary net position.

Cash and Cash Equivalents

Cash and cash equivalents include cash on hand and on deposit with the Treasurer of the City of Chicago as well as investments held by the City Treasurer on behalf of the Plan with original maturities of less than 90 days.

Note 1 – Summary of Significant Accounting Policies (continued)

Investments

The Plan is authorized to invest in bonds, notes, and other obligations of the U.S. Government; corporate debentures and obligations; insured mortgage notes and loans; common and preferred stocks; stock options; real estate; and other investment vehicles as set forth in the Illinois Compiled Statutes. Income on all investments is recognized on the accrual basis. Gains and losses on sales and exchanges of investments are recognized on the transaction date of such sale or exchange. Dividend income is recognized based on dividends declared.

Investments are reported at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair values of marketable securities are based primarily on quotations from national security exchanges. Investments in short-term obligations are carried at cost which approximates fair value. Certain short-term obligations, such as United States Treasury Bills and discount paper, are carried at fair value. Fair values for bonds, stocks, forward contracts, future contracts, rights and warrants are determined by quoted market prices. Fair values of hedged equity investments are determined using quoted market prices of underlying funds, when available. If quoted market prices are not available, then fair value is determined by underlying fund managers. Fair values of real estate and commingled real estate are based upon independent appraisals. Fair values of private equity investments are primarily based on the general partner determined fair value.

Administrative Expenses

Administrative expenses are budgeted and approved by MEABF's Board of Trustees. Funding for these expenses is included in the employer contributions as mandated in the Illinois State Statutes Chapter 40, Pension Article 5/8-190.

Income Taxes

The Plan is exempt from federal and state income taxes and has received a favorable determination letter under Code section 401(a).

Recently Issued Accounting Pronouncements

GASB Statement No. 82, *Pension Issues*, was established to improve consistency in the application of pension accounting and financial reporting requirements by addressing certain issues that were raised with respect to Statement No. 67, *Financial Reporting for Pension Plans*, Statement No. 68, *Accounting and Financial Reporting for Pensions*, and Statement No. 73, *Accounting and Financial Reporting for Pension and Related Assets That Are Not within the Scope of GASB Statement 68, and Amendments to Certain Provisions of GASB Statements 67 and 68*. This statement established accounting and financial reporting requirements for pensions provided to employees of state or local governmental employers. This statement also established financial reporting requirements for pension plans administered through trusts that meet the criteria in paragraph three of Statement No. 67, The Plan adopted this statement for the year ended December 31, 2017.

GASB Statement No. 84, *Fiduciary Activities*, was established to enhance the consistency and comparability of fiduciary activity reporting by state and local governments. This Statement also is intended to improve the usefulness of fiduciary activity information primarily for assessing the accountability of governments in their roles as fiduciaries. MEABF is currently evaluating the financial statement impact of GASB Statement No. 84. If applicable, this statement will be implemented for the year ended December 31, 2019.

Note 1 – Summary of Significant Accounting Policies (continued)

Recently Issued Accounting Pronouncements (continued)

GASB Statement No. 85, *Omnibus 2017*, was established to address practice issues that have been identified during implementation and application of certain GASB Statements. This Statement addresses a variety of topics including issues related to blending component units, goodwill, fair value measurement and application, and postemployment benefits (pensions and other postemployment benefits [OPEB]). MEABF is currently evaluating the financial statement impact of GASB Statement No. 85. If applicable, this statement will be implemented for the year ended December 31, 2018.

Note 2 – Investment Policies, Asset Allocation and Money-Weighted Rate of Return

Investment Policy

The Plan's policy in regard to the allocation of invested assets is established and may be amended by the Board. It is the policy of the Board to pursue an investment strategy that reduces risk through prudent diversification of the portfolio across a broad selection of distinct asset classes. The Plan's investment policy discourages the use of cash equivalents, except to meet liquidity needs, and aims to refrain from dramatically shifting asset class allocations over the short term.

The following table represents the Board's adopted asset allocation policy for both years 2017 and 2016:

| <u>Asset Class</u> | <u>Target</u> |
|----------------------|---------------|
| Fixed income | 27% |
| Domestic equity | 26% |
| International equity | 22% |
| Hedge Funds | 10% |
| Private equity | 5% |
| Real Estate | 10% |
| | <u>100%</u> |

Money-Weighted Rate of Return

For the year ended December 31, 2017 and 2016, the annual money-weighted rate of return on Plan investments, net of investment expense, was 14.9 percent and 6.1 percent respectively. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Note 3 – Deposits and Investments

Deposits that are held locally in the Plan's name are held by the Treasurer of the City of Chicago, ex-officio Treasurer of the Plan. At December 31, 2017 and 2016, the Plan's book balances of cash are \$492,001 and \$489,437, respectively. The actual bank balances at December 31, 2017 and 2016 are \$491,601 and \$489,037, respectively. All non-investment related bank balances at year end are insured or collateralized at 102% of the principal amount.

Custodial credit risk is the risk that, in the event of a financial institution failure, the Plan will not be able to recover deposits or collateral securities that are in possession of an outside party. Deposits are exposed to custodial credit risk if they are not covered by deposit insurance and are (a) uncollateralized, (b) collateralized with securities held by the pledging financial institution or (c) collateralized with securities held by the pledging financial institution's trust department or agent but not in the Plan's name. The Plan does not have a formal policy relating to custodial risk. As of December 31, 2017 and 2016, \$6,209,425 and \$5,740,847, respectively, of the Plan's deposits with its custodian Northern Trust were exposed to custodial credit risk.

Certain Plan investments are held by a bank administered trust fund. There were no individual investments representing 5% or more of the Plan's net position as of December 31, 2017 or 2016.

The Plan's investments are reported at fair value in the accompanying statement of fiduciary net position. The methods used to measure fair value may produce an amount that may not be indicative of net realizable value or reflective of future fair values. Furthermore, although the Plan believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

Generally accepted accounting principles provides the framework for measuring fair value. That framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements).

The three levels of the fair value hierarchy are described as follows:

Level 1: Inputs to the valuation methodology are unadjusted quoted prices for identical assets or liabilities in active markets that the Plan has the ability to access.

Level 2: Inputs to the valuation methodology include:

- quoted prices for similar assets or liabilities in active markets;
- quoted prices for identical or similar assets or liabilities in inactive markets;
- inputs other than quoted prices that are observable for the asset or liability;
- inputs that are derived principally from or corroborated by observable market data by correlation or other means.

If the asset or liability has a specified (contractual) term, the Level 2 input must be observable for substantially the full term of the asset or liability.

Level 3: Inputs to the valuation methodology are unobservable and significant to the fair market value measurement.

Note 3 – Deposits and Investments (continued)

The asset or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques used need to maximize the use of observable inputs and minimize the use of unobservable inputs.

Following is a description of the valuation methodologies used for assets measured at fair value. There have been no changes in the methodologies used at December 31, 2017 and 2016.

Investments that are measured at fair value using the net asset value (NAV) per share (or its equivalent), as a practical expedient are not classified in the fair value hierarchy.

Equity and equity derivative securities classified in Level 1 are valued using prices quoted in active markets for those securities.

Debt securities and short-term investment securities classified in Level 2 are valued using matrix pricing techniques maintained by the various pricing vendors. Matrix pricing is used to value securities based on the securities relationship to a benchmark's quoted price. Equity securities classified in Level 2 are securities with a theoretical price calculated by applying a standardized formula to derive a price from a related security.

Equity securities and other assets classified in Level 3 are valued with last trade data having limited trading volume.

The valuation method for certain fixed income and alternative investments is based on the investments' NAV per share (or its equivalent), provided by the investment managers. The NAV is based on the fair value of the underlying investments held by the fixed income and alternative investment less their liabilities. This practical expedient is not used when it is determined to be probable that the Plan will sell the investment for an amount different than the reported NAV.

Financial Section: *Notes to Financial Statements*

Note 3 – Deposits and Investments (continued)

The following table summarizes the valuation of MEABF investments by the fair value hierarchy levels as of December 31, 2017.

Investments Measured at Fair Value

| Investment Measured at Fair Value | December 31, 2017 | Fair Value Measurements Using | | |
|---|------------------------|--|--|--|
| | | Quoted Prices in Active Markets for Identical Assets Level 1 | Significant Other Observable Inputs Level 2 | Significant Unobservable Inputs Level 3 |
| Equity securities | | | | |
| Common Stock | \$2,080,744,579 | \$2,078,004,194 | \$ 2,368,331 | \$372,054 |
| Preferred Stock | 5,123,254 | 5,122,364 | - | 890 |
| Stapled Securities | 3,490,379 | 3,490,379 | - | - |
| Rights/Warrants | 27,742 | 23,053 | 4,591 | 98 |
| Funds-Equities ETF | <u>311,820</u> | <u>311,820</u> | - | - |
| Total equity securities | <u>2,089,697,774</u> | <u>2,086,951,810</u> | <u>2,372,922</u> | <u>373,042</u> |
| Debt securities | | | | |
| Government Bonds | 133,739,757 | - | 133,739,757 | - |
| Government Agencies | 32,989,630 | - | 32,989,630 | - |
| Municipal/Provincial Bonds | 10,612,972 | - | 10,612,972 | - |
| Corporate Bonds | 407,988,476 | - | 407,988,098 | 378 |
| Corporate Convertible Bonds | 2,853,008 | - | 2,853,008 | - |
| Bank Loans | 184,424,093 | - | 184,424,093 | - |
| Government Mortgage-Backed Securities | 134,807,368 | - | 134,807,368 | - |
| Commercial Mortgage-Backed | 7,353,587 | - | 7,353,587 | - |
| Asset Backed Securities | 12,936,169 | - | 12,936,169 | - |
| Non-Government Backed CMO's | 7,179 | - | 7,179 | - |
| Index Linked Government Bonds | <u>2,714,757</u> | - | <u>2,714,757</u> | - |
| Total debt securities | <u>930,426,996</u> | <u>-</u> | <u>930,426,618</u> | <u>378</u> |
| Short-term investment securities | | | | |
| Short-term Bills & Notes | 9,538,359 | - | 9,538,359 | - |
| Funds-short-term investment | <u>159,489,033</u> | - | <u>159,463,772</u> | <u>25,261</u> |
| Total short-term investments securities | <u>169,027,392</u> | <u>-</u> | <u>169,002,131</u> | <u>25,261</u> |
| Total investments measured by fair value level | <u>3,189,152,162</u> | <u>\$2,086,951,810</u> | <u>\$1,101,801,671</u> | <u>\$398,681</u> |
| Investments measured at Net Asset Value (NAV) | | | | |
| Commingled Fixed Income Funds | 56,064,908 | | | |
| Hedge Funds | 418,747,415 | | | |
| Private Equity Partnerships | 200,760,945 | | | |
| Real Estate | <u>431,421,604</u> | | | |
| Total investments measured at NAV | <u>1,106,994,872</u> | | | |
| Total investments measured at fair value | <u>\$4,296,147,034</u> | | | |
| | | | | |
| Collateral from securities lending | <u>\$ 243,632,186</u> | | <u>\$ 243,632,186</u> | |

Financial Section: *Notes to Financial Statements*

Note 3 – Deposits and Investments (continued)

The following table summarizes the valuation of MEABF investments by the fair value hierarchy levels as of December 31, 2016.

Investments Measured at Fair Value

| Investment Measured at Fair Value | December 31, 2016 | Fair Value Measurements Using | | |
|---|------------------------|--|--|--|
| | | Quoted Prices in Active Markets for Identical Assets Level 1 | Significant Other Observable Inputs Level 2 | Significant Unobservable Inputs Level 3 |
| Equity securities | | | | |
| Common Stock | \$1,910,088,134 | \$1,903,667,525 | \$ 6,221,695 | \$198,914 |
| Preferred Stock | 11,930,377 | 11,930,377 | - | - |
| Stapled Securities | 4,295,171 | 4,295,171 | - | - |
| Rights/Warrants | 31,964 | 24,386 | 7,578 | - |
| Funds-Equities ETF | <u>243,475</u> | <u>243,475</u> | - | - |
| Total equity securities | <u>1,926,589,121</u> | <u>1,920,160,934</u> | <u>6,229,273</u> | <u>198,914</u> |
| Debt securities | | | | |
| Government Bonds | 127,495,868 | - | 127,495,868 | - |
| Government Agencies | 32,244,077 | - | 32,244,077 | - |
| Municipal/Provincial Bonds | 11,541,194 | - | 11,541,194 | - |
| Corporate Bonds | 418,195,272 | - | 418,195,272 | - |
| Corporate Convertible Bonds | 5,518,165 | - | 5,518,165 | - |
| Bank Loans | 197,581,008 | - | 197,581,008 | - |
| Government Mortgage-Backed Securities | 141,961,670 | - | 141,961,670 | - |
| Commercial Mortgage-Backed | 5,134,973 | - | 5,134,973 | - |
| Asset Backed Securities | 10,708,519 | - | 10,708,519 | - |
| Non-Government Backed CMO's | 57,017 | - | 57,017 | - |
| Index Linked Government Bonds | <u>3,866,010</u> | <u>-</u> | <u>3,866,010</u> | <u>-</u> |
| Total debt securities | <u>954,303,773</u> | <u>-</u> | <u>954,303,773</u> | <u>-</u> |
| Short-term investment securities | | | | |
| Short-term Bills & Notes | 8,996,832 | - | 8,996,832 | - |
| Funds-short-term investment | <u>183,100,422</u> | <u>-</u> | <u>183,100,422</u> | <u>-</u> |
| Total short-term investments securities | <u>192,097,254</u> | <u>-</u> | <u>192,097,254</u> | <u>-</u> |
| Total investments measured by fair value level | <u>3,072,990,148</u> | <u>\$1,920,160,934</u> | <u>\$1,152,630,300</u> | <u>\$198,914</u> |
| Investments measured at Net Asset Value (NAV) | | | | |
| Commingled Fixed Income Funds | 53,131,974 | | | |
| Hedge Funds | 463,825,386 | | | |
| Private Equity Partnerships | 237,648,563 | | | |
| Real Estate | <u>458,150,837</u> | | | |
| Total investments measured at NAV | <u>1,212,756,760</u> | | | |
| Total investments measured at fair value | <u>\$4,285,746,908</u> | | | |
| | | | | |
| Collateral from securities lending | <u>\$ 304,808,240</u> | | <u>\$ 304,808,240</u> | |

Financial Section: *Notes to Financial Statements*

Note 3 – Deposits and Investments (continued)

Investments measured at NAV for fair value are not subject to level classification. The valuation methods for investments measured at the NAV per share (or its equivalent) is presented on the following table.

Investments Measured at Net Asset Value (NAV)

| | Fair Value December 31, 2017 | Unfunded Commitments | Redemption Frequency (if Currently Eligible) | Redemption Notice Period |
|-------------------------------|------------------------------------|-------------------------|--|-----------------------------|
| Commingled Fixed Income Funds | \$ 56,064,908 | \$ - | Quarterly | 60 days |
| Hedge Funds | \$418,747,415 | \$ - | Quarterly | 90 days |
| Private Equity Funds | \$200,760,945 | \$34,499,632 | Not Eligible | N/A |
| Real Estate Funds | \$431,421,604 | \$ 2,192,621 | Quarterly - Open- end, Not Eligible - Closed-end | 90 days - Open- end |

Investments Measured at Net Asset Value (NAV)

| | Fair Value December 31, 2016 | Unfunded Commitments | Redemption Frequency (if Currently Eligible) | Redemption Notice Period |
|-------------------------------|------------------------------------|-------------------------|--|-----------------------------|
| Commingled Fixed Income Funds | \$ 53,131,974 | \$ - | Quarterly | 60 days |
| Hedge Funds | \$463,825,386 | \$ - | Quarterly | 90 days |
| Private Equity Funds | \$237,648,563 | \$43,086,416 | Not Eligible | N/A |
| Real Estate Funds | \$458,150,837 | \$ 2,703,774 | Quarterly - Open- end, Not Eligible - Closed-end | 90 days - Open- end |

Commingled Fixed Income Funds

This type of investment consists of fixed income securities diversified in high yield, bank loans, and private debt securities.

Hedge Funds

This type of investment consists of long/short equity hedge fund-of-funds.

Private Equity Funds

This type of investment includes limited partnerships. Generally, the types of partnership strategies included in these portfolios are venture capital, buyouts, special situations, mezzanine, and distressed debt. Private equity partnerships have an approximate life of 10-15 years and are considered illiquid. Redemptions are restricted over the life of the partnership. During the life of the partnerships, distributions are received as underlying investments are realized. The Plan has no plans to liquidate the total portfolio.

Real Estate Funds

This type includes investments in open and closed-end real estate funds. Investments in open-end funds have limited redemption availability as redemption opportunities are based on available liquidity. Closed-end funds do not offer redemptions. Distributions from closed-end funds will be received as the underlying investments are liquidated. The Plan has no plans to liquidate the total portfolio.

Financial Section: *Notes to Financial Statements*

Note 3 – Deposits and Investments (continued)

Foreign Currency Risk

Foreign currency risk is the risk that changes in currency exchange rates will adversely affect the fair value of an investment or a deposit. Forward currency contracts may be used to manage exposure to foreign currencies. The Plan has not adopted a formal policy related to foreign currency risk. The Plan's exposure to foreign currency risk at December 31, 2017 was as follows:

| <u>Currency</u> | <u>Equities*</u> | <u>Fixed Income</u> | <u>Short term Investments</u> | <u>Total</u> | <u>Percentage</u> |
|--------------------------------------|-----------------------------|-------------------------|-----------------------------------|-----------------------------|----------------------|
| Australian Dollar | \$ 38,845,775 | \$ - | \$ 834,010 | \$ 39,679,785 | 4.5% |
| Brazilian Real | 14,297,835 | - | 200,437 | 14,498,272 | 1.6% |
| British Pound Sterling | 128,274,268 | - | 678,684 | 128,952,952 | 14.5% |
| Canadian Dollar | 25,199,605 | - | 307,639 | 25,507,244 | 2.9% |
| Chilean Peso | 696,500 | - | 94,129 | 790,629 | 0.1% |
| Colombian Peso | 159,074 | - | 74,977 | 234,051 | 0.0% |
| Czech Koruna | 73,240 | - | 46,476 | 119,716 | 0.0% |
| Danish Krone | 18,741,856 | - | 19,658 | 18,761,514 | 2.1% |
| Egyptian Pound | 51,931 | - | 8,796 | 60,727 | 0.0% |
| Euro | 185,693,725 | - | 744,002 | 186,437,727 | 21.0% |
| HK offshore Chinese Yuan Renminbi | - | - | 1,287 | 1,287 | 0.0% |
| Hong Kong Dollar | 70,691,089 | - | 147,466 | 70,838,555 | 8.0% |
| Hungarian Forint | 1,234,571 | - | 4,820 | 1,239,391 | 0.1% |
| Indian Rupee | 43,170,809 | - | 112,365 | 43,283,174 | 4.9% |
| Indonesian Rupiah | 5,413,943 | - | 95,540 | 5,509,483 | 0.6% |
| Japanese Yen | 183,316,391 | - | 2,924,460 | 186,240,851 | 21.0% |
| Kenyan Shilling | 534,288 | - | - | 534,288 | 0.1% |
| Malaysian Ringgit | 1,061,254 | - | 96,069 | 1,157,323 | 0.1% |
| Mexican Peso | 2,718,212 | - | 19,602 | 2,737,814 | 0.3% |
| New Israeli Shekel | 4,151,034 | - | 60,052 | 4,211,086 | 0.5% |
| New Taiwan Dollar | 16,654,559 | - | 76,112 | 16,730,671 | 1.9% |
| New Zealand Dollar | 1,952,989 | - | 38,056 | 1,991,045 | 0.2% |
| Norwegian Krone | 7,470,135 | - | 60,475 | 7,530,610 | 0.8% |
| Philippine Peso | 3,477,490 | - | 42,716 | 3,520,206 | 0.4% |
| Polish Zloty | 1,117,183 | - | 15,095 | 1,132,278 | 0.1% |
| Qatari Rial | 210,437 | - | 21,302 | 231,739 | 0.0% |
| Russian Ruble | 961,927 | - | - | 961,927 | 0.1% |
| Singapore Dollar | 6,026,333 | - | 61,742 | 6,088,075 | 0.7% |
| South African Rand | 15,036,887 | - | 44,999 | 15,081,886 | 1.7% |
| South Korean Won | 22,549,874 | - | 57,900 | 22,607,774 | 2.5% |
| Swedish Krona | 21,413,171 | - | 239,076 | 21,652,247 | 2.4% |
| Swiss Franc | 47,737,515 | - | 250,736 | 47,988,251 | 5.4% |
| Thai Baht | 10,029,924 | - | (66,788) | 9,963,136 | 1.1% |
| Turkish Lira | 2,351,889 | - | 31,887 | 2,383,776 | 0.3% |
| United Arab Emirates Dirham | 403,695 | - | 47,464 | 451,159 | 0.1% |
| Held in Foreign Currency | 881,719,408 | - | 7,391,241 | 889,110,649 | 100.0% |
| Held in U.S Dollars | - | - | - | - | 0.0% |
| Total | <u>\$881,719,408</u> | <u>\$ -</u> | <u>\$7,391,241</u> | <u>\$889,110,649</u> | <u>100.0%</u> |

*Includes Forward contracts, rights and warrants.

Financial Section: *Notes to Financial Statements*

Note 3 – Deposits and Investments (continued)

For comparative purposes, the Plan's exposure to foreign currency risk at December 31, 2016 was as follows:

| <u>Currency</u> | <u>Equities*</u> | <u>Fixed Income</u> | <u>Short term Investments</u> | <u>Total</u> | <u>Percentage</u> |
|--------------------------------------|-----------------------------|-------------------------|-----------------------------------|-----------------------------|----------------------|
| Australian Dollar | \$ 40,429,703 | \$ - | \$ 307,015 | \$ 40,736,718 | 4.6% |
| Brazilian Real | 19,759,864 | - | 48,719 | 19,808,583 | 2.2% |
| British Pound Sterling | 118,886,257 | - | 1,260,278 | 120,146,535 | 13.5% |
| Canadian Dollar | 36,175,426 | - | 534,017 | 36,709,443 | 4.1% |
| Chilean Peso | 1,362,562 | - | 74,916 | 1,437,478 | 0.2% |
| Colombian Peso | 221,226 | - | 69,253 | 290,479 | 0.0% |
| Czech Koruna | 94,857 | - | 14,043 | 108,900 | 0.0% |
| Danish Krone | 13,149,451 | - | 66,754 | 13,216,205 | 1.5% |
| Egyptian Pound | 67,395 | - | 22,791 | 90,186 | 0.0% |
| Euro | 172,968,216 | - | 1,334,621 | 174,302,837 | 19.5% |
| HK offshore Chinese Yuan Renminbi | - | - | 1,203 | 1,203 | 0.0% |
| Hong Kong Dollar | 49,259,118 | - | 857,395 | 50,116,513 | 5.6% |
| Hungarian Forint | 1,769,975 | - | 31,111 | 1,801,086 | 0.2% |
| Indian Rupee | 28,331,859 | - | 262,098 | 28,593,957 | 3.2% |
| Indonesian Rupiah | 8,565,450 | - | 179,712 | 8,745,162 | 1.0% |
| Japanese Yen | 166,666,227 | - | 2,189,102 | 168,855,329 | 18.9% |
| Malaysian Ringgit | 2,887,319 | - | 62,851 | 2,950,170 | 0.3% |
| Mexican Peso | 5,003,239 | - | 62,648 | 5,065,887 | 0.6% |
| New Israeli Shekel | 3,747,887 | - | 68,946 | 3,816,833 | 0.4% |
| New Taiwan Dollar | 14,118,604 | - | 166,998 | 14,285,602 | 1.6% |
| New Zealand Dollar | 2,093,131 | - | 139,507 | 2,232,638 | 0.3% |
| Norwegian Krone | 6,483,770 | - | 70,107 | 6,553,877 | 0.7% |
| Philippine Peso | 4,709,231 | - | 27,621 | 4,736,852 | 0.5% |
| Polish Zloty | 540,737 | - | 55,883 | 596,620 | 0.1% |
| Qatari Rial | 420,335 | - | 49,741 | 470,076 | 0.1% |
| Russian Ruble | 1,614,481 | - | - | 1,614,481 | 0.2% |
| Singapore Dollar | 7,397,465 | - | 142,214 | 7,539,679 | 0.8% |
| South African Rand | 12,882,892 | - | 127,982 | 13,010,874 | 1.5% |
| South Korean Won | 21,381,928 | - | 99,447 | 21,481,375 | 2.4% |
| Swedish Krona | 22,023,853 | - | 86,000 | 22,109,853 | 2.5% |
| Swiss Franc | 44,972,853 | - | 244,154 | 45,217,007 | 5.1% |
| Thai Baht | 7,904,235 | - | 17,565 | 7,921,800 | 0.9% |
| Turkish Lira | 1,398,911 | - | 25,667 | 1,424,578 | 0.2% |
| United Arab Emirates Dirham | 2,908,990 | - | 63,467 | 2,972,457 | 0.3% |
| Held in Foreign Currency | 820,197,447 | - | 8,763,826 | 828,961,273 | 93.0% |
| Held in U.S Dollars | 62,176,486 | - | - | 62,176,486 | 7.0% |
| Total | <u>\$882,373,933</u> | <u>\$ -</u> | <u>\$8,763,826</u> | <u>\$891,137,759</u> | <u>100.0%</u> |

*Includes Forward contracts, rights and warrants.

Financial Section: Notes to Financial Statements

Note 3– Deposits and Investments (continued)

Interest Rate Risk

As of December 31, 2017, the Plan had the following investments and maturities:

| Investment Type | Total Fair Value | 1 year or Less | 1-6 yrs | 6-10 Years | 10 or More years | Maturity not Determined |
|---------------------------------------|-----------------------|----------------------|-----------------------|-----------------------|-----------------------|----------------------------|
| Asset backed | \$ 12,936,169 | \$ - | \$ 10,970,369 | \$ 1,959,826 | \$ 5,974 | \$ - |
| Bank Loans | 184,424,093 | 4,299,713 | 116,246,302 | 63,878,078 | - | - |
| Commercial Mortgage-Backed | 7,353,587 | - | - | - | 7,353,587 | - |
| Corporate Bonds | 407,988,476 | 7,042,037 | 227,206,085 | 132,061,862 | 41,678,492 | - |
| Corporate Convertible Bonds | 2,853,008 | - | 1,239,491 | 1,613,517 | - | - |
| Government Agencies | 32,989,630 | - | 18,928,329 | 13,223,994 | 837,307 | - |
| Government Bonds | 133,739,757 | - | 65,077,093 | 53,333,404 | 15,329,260 | - |
| Government Mortgage Backed Securities | 134,807,368 | 18,728 | 2,090,071 | 3,365,256 | 117,827,454 | 11,505,859 |
| Index Linked Government Bonds | 2,714,757 | - | - | 2,714,757 | - | - |
| Municipal/Provincial Bonds | 10,612,972 | 645,914 | 9,395,297 | 107,587 | 464,174 | - |
| Non-Government Backed C.M.O.s | 7,179 | - | - | - | 7,179 | - |
| Other Fixed Income | 56,064,908 | - | - | - | - | 56,064,908 |
| Total | \$ 986,491,904 | \$ 12,006,392 | \$ 451,153,037 | \$ 272,258,281 | \$ 183,503,427 | \$ 67,570,767 |

For comparative purposes as of December 31, 2016, the Plan had the following investments and maturities:

| Investment Type | Total Fair Value | 1 year or Less | 1-6 yrs | 6-10 Years | 10 or More years | Maturity not Determined |
|---------------------------------------|-------------------------|----------------------|-----------------------|-----------------------|-----------------------|----------------------------|
| Asset backed | \$ 10,708,519 | \$ - | \$ 10,302,930 | \$ 397,440 | \$ 8,149 | \$ - |
| Bank Loans | 197,581,008 | 6,886,951 | 128,249,836 | 62,444,221 | - | - |
| Commercial Mortgage-Backed | 5,134,973 | - | - | - | 5,134,973 | - |
| Corporate Bonds | 418,195,272 | 4,926,694 | 244,392,367 | 139,384,785 | 29,491,426 | - |
| Corporate Convertible Bonds | 5,518,165 | 1,409,960 | 2,135,682 | 1,609,573 | 362,950 | - |
| Government Agencies | 32,244,077 | - | 24,945,461 | 6,503,529 | 795,087 | - |
| Government Bonds | 127,495,868 | - | 65,010,820 | 51,933,525 | 10,551,523 | - |
| Government Mortgage Backed Securities | 141,961,670 | 15,153 | 2,619,131 | 4,208,075 | 115,372,659 | 19,746,652 |
| Index Linked Government Bonds | 3,866,010 | - | 769,257 | 2,978,944 | 117,809 | - |
| Municipal/Provincial Bonds | 11,541,194 | 482,347 | 10,515,839 | 105,877 | 437,131 | - |
| Non-Government Backed C.M.O.s | 57,017 | - | 49,132 | - | 7,885 | - |
| Other Fixed Income | 53,131,974 | - | - | - | - | 53,131,974 |
| Total | \$ 1,007,435,747 | \$ 13,721,105 | \$ 488,990,455 | \$ 269,565,969 | \$ 162,279,592 | \$ 72,878,626 |

The Plan does not have a formal investment policy that limits investment maturities as a means of managing its exposure to potential fair value losses arising from future changes in interest rate risk.

Financial Section: Notes to Financial Statements

Note 3 - Deposits and Investments

Credit Risk

The following table reflects credit ratings of fixed income securities held by the Plan as of December 31, 2017:

| S&P Credit Rating | Fair Value | Asset Backed Securities | Bank Loans | Comm'l Mortgage- Backed | Corporate Bonds | Corporate Convertible Bonds | Gov't Agencies | Gov't Bonds | Gov't Mortgage Backed | Linked Gov't Bonds | Municipal/ Provincial Bonds | Non-Gov't Backed CMO's | Other Fixed Income |
|-------------------------|-----------------------|-------------------------------|-----------------------|-------------------------------|-----------------------|-----------------------------------|----------------------|-----------------------|-----------------------------|--------------------------|-----------------------------------|------------------------------|--------------------------|
| US Govt. | \$ 268,368,700 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 492,129 | \$ 131,975,392 | \$ 133,186,422 | \$ 2,714,757 | \$ - | \$ - | \$ - |
| AAA | 12,727,803 | 5,847,731 | - | - | 2,939,750 | - | 628,071 | - | - | - | 3,312,251 | - | - |
| AA | 52,684,834 | 350,148 | - | - | 15,367,408 | - | 29,998,093 | - | - | - | 6,962,006 | 7,179 | - |
| A | 105,999,248 | 730,324 | - | - | 105,086,192 | - | - | 128,625 | - | - | 54,107 | - | - |
| BBB | 157,382,710 | 2,175,763 | 23,810,775 | - | 128,364,166 | - | 1,812,423 | 1,023,663 | - | - | 195,920 | - | - |
| BB | 129,504,801 | - | 46,727,704 | - | 82,777,097 | - | - | - | - | - | - | - | - |
| B | 114,384,661 | - | 57,703,115 | - | 56,148,365 | 533,181 | - | - | - | - | - | - | - |
| CCC | 16,522,427 | - | 6,446,099 | - | 9,452,962 | 623,366 | - | - | - | - | - | - | - |
| CC | 4,091,181 | - | 3,713,991 | - | 377,190 | - | - | - | - | - | - | - | - |
| D | 3,644,130 | - | 3,644,130 | - | - | - | - | - | - | - | - | - | - |
| NR | 121,181,409 | 3,832,203 | 42,378,279 | 7,353,587 | 7,475,346 | 1,696,461 | 58,914 | 612,077 | 1,620,946 | - | 88,688 | - | 56,064,908 |
| Total | \$ 986,491,904 | \$ 12,936,169 | \$ 184,424,093 | \$ 7,353,587 | \$ 407,988,476 | \$ 2,853,008 | \$ 32,989,630 | \$ 133,739,757 | \$ 134,807,368 | \$ 2,714,757 | \$ 10,612,972 | \$ 7,179 | \$ 56,064,908 |

The following table reflects credit ratings of fixed income securities held by the Plan as of December 31, 2016:

| S&P Credit Rating | Fair Value | Asset Backed Securities | Bank Loans | Comm'l Mortgage Backed | Corporate Bonds | Corporate Convertible Bonds | Gov't Agencies | Gov't Bonds | Gov't Mortgage Backed | Linked Gov't Bonds | Municipal/ Provincial Bonds | Non-Gov't Backed CMO's | Other Fixed Income |
|-------------------------|-------------------------|-------------------------------|-----------------------|------------------------------|-----------------------|-----------------------------------|----------------------|-----------------------|-----------------------------|--------------------------|-----------------------------------|------------------------------|--------------------------|
| US Govt. | \$ 268,896,469 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 454,300 | \$ 124,175,513 | \$ 140,400,646 | \$ 3,866,010 | \$ - | \$ - | \$ - |
| AAA | 15,280,677 | 7,703,082 | - | - | 2,135,091 | - | 263,309 | - | - | - | 5,179,195 | - | - |
| AA | 56,889,299 | 453,092 | - | - | 21,004,333 | - | 29,784,138 | 129,200 | 1,639 | - | 5,509,012 | 7,885 | - |
| A | 101,692,207 | 304,672 | - | 17,768 | 101,263,890 | - | - | - | - | - | 105,877 | - | - |
| BBB | 142,235,200 | 1,109,970 | 20,049,519 | 194,128 | 117,674,243 | - | 1,742,330 | 717,900 | - | - | 747,110 | - | - |
| BB | 155,505,411 | - | 73,247,303 | - | 82,258,108 | - | - | - | - | - | - | - | - |
| B | 129,360,815 | 2,472 | 57,190,723 | - | 71,410,767 | 756,853 | - | - | - | - | - | - | - |
| CCC | 29,926,653 | - | 13,624,334 | - | 15,206,637 | 1,095,682 | - | - | - | - | - | - | - |
| D | 1,048,688 | - | - | - | 1,048,688 | - | - | - | - | - | - | - | - |
| NR | 106,600,328 | 1,135,231 | 33,469,129 | 4,923,077 | 6,193,515 | 3,665,630 | - | 2,473,255 | 1,559,385 | - | - | 49,132 | 53,131,974 |
| Total | \$ 1,007,435,747 | \$ 10,708,519 | \$ 197,581,008 | \$ 5,134,973 | \$ 418,195,272 | \$ 5,518,165 | \$ 32,244,077 | \$ 127,495,868 | \$ 141,961,670 | \$ 3,866,010 | \$ 11,541,194 | \$ 57,017 | \$ 53,131,974 |

US Govt = Guaranteed by US Government

NR = Not Rated

The Plan does not have a formal policy in regard to aggregate credit quality of fixed income holdings. The Plan utilizes external investment management firms to invest in fixed income securities and credit quality is addressed within the guidelines of the mandate. Unless allowed by the mutually agreed upon guidelines of the mandate, all securities invested in are investment grade. If a holding falls below investment grade, the manager will either sell the security or will inform the Plan of the lower rating and why they believe that it is prudent to continue to hold the security as they believe that the security will return to investment grade.

Financial Section: *Notes to Financial Statements*

Note 4 – Derivatives

The derivative instruments were recorded at fair value as of December 31, 2017 and 2016. Derivative instruments include forward foreign exchange contracts, futures contracts, rights and warrants. Derivative transactions 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 market prices or currency rates will cause the value of a financial instrument to decrease or become more costly to settle. The Plan's investment managers may invest in derivatives if permitted by the guidelines of their mandate.

Foreign Currency Forward Contracts

Foreign currency forward contracts are used by certain investment managers to protect against the currency risk in the Plan's international equity portfolios. A foreign currency forward contract is an agreement to buy or sell a specific amount of a foreign currency at a specified delivery or maturity date for an agreed-upon price. Foreign currency forward contracts are marked-to-market on a daily basis. The gains or losses resulting from changes in contract values are included in investment income in the Statement of Changes in Fiduciary Net Position. The Plan experienced a realized gain (loss) of \$99,967 and \$112,214 on foreign currency forward contracts in 2017 and 2016, respectively. As of December 31, 2017, the Plan's outstanding foreign currency forward contracts were as follows:

| | Pending Foreign Exchange Purchases | Pending Foreign Exchange Sales | Unrealized Gain(Loss) | Change in Unrealized Gain(Loss) |
|------------------------|---|---|----------------------------------|--|
| Australian Dollar | \$ 16,830 | \$ - | \$ 333 | \$ (1,130) |
| British Pound Sterling | 339,503 | (182,077) | 313 | 1,834 |
| Canadian Dollar | 71,011 | - | 1,832 | 2,011 |
| Euro | 390,541 | (212,850) | 2,786 | 344 |
| Hong Kong Dollar | - | - | - | - |
| Indonesian Rupiah | - | - | - | - |
| Japanese Yen | 341,002 | (89,946) | (1,091) | (1,101) |
| New Taiwan Dollar | - | (404,895) | 936 | 913 |
| South Korean Won | - | - | - | 44 |
| Swiss Franc | 99,929 | - | 1,020 | 1,020 |
| Thai Baht | 407,577 | - | 1,304 | 1,304 |
| United States Dollar | 885,832 | (1,655,024) | - | - |
| | <u>\$ 2,552,225</u> | <u>\$ (2,544,792)</u> | <u>\$ 7,433</u> | <u>\$ 5,240</u> |

Financial Section: *Notes to Financial Statements*

Note 4 – Derivatives (continued)

For comparative purpose, as of December 31, 2016 the Plan's outstanding foreign currency forward contracts were as follows:

| | Pending Foreign Exchange Purchases | Pending Foreign Exchange Sales | Unrealized Gain(loss) | Change in Unrealized Gain(Loss) |
|------------------------|--|--------------------------------------|--------------------------|---------------------------------------|
| Australian Dollar | \$ 130,803 | \$ (176,372) | \$ 1,463 | \$ 2,296 |
| British Pound Sterling | 466,387 | - | (1,521) | (11,292) |
| Canadian Dollar | 74,633 | - | (179) | 647 |
| Euro | 248,182 | - | 2,442 | 8,841 |
| Hong Kong Dollar | - | - | - | 15 |
| Indonesian Rupiah | - | - | - | (12) |
| Japanese Yen | 429,128 | (130,468) | 9 | 197 |
| New Taiwan Dollar | - | (18,954) | 23 | 23 |
| South Korean Won | - | (38,020) | (44) | (82) |
| Swiss Franc | - | - | - | (404) |
| United States Dollar | 233,592 | (1,216,718) | - | - |
| | <u>\$ 1,582,725</u> | <u>\$ (1,580,532)</u> | <u>\$ 2,193</u> | <u>\$ 229</u> |

Futures Contracts

Certain international investment managers utilize equity futures contracts to replicate underlying securities they wish to gain exposure to in the portfolio. A financial futures contract is an agreement to buy or sell a specific amount of an asset at a specified delivery or maturity date for an agreed-upon price. Futures contracts are traded on organized exchanges, thereby minimizing credit risk. The net change in the futures contract value is settled daily in cash with the exchanges which results in the contract having a fair value of zero at the end of each trading day. The cash or securities to fulfill these obligations are held in the investment portfolio. As the fair value of the futures contract varies from the original contract price, a gain or loss is paid to or received from the clearinghouse and recognized in the Statement of Changes in Fiduciary Net Position. The realized gain on equity futures contracts as of December 31, 2017 and 2016 was \$1,065,262 and \$975,594, respectively.

As of December 31, 2017 and 2016, open futures contracts had the following values:

| | 2017 <u>National Value</u> | 2016 <u>National Value</u> |
|---------------|-------------------------------|-------------------------------|
| Total Futures | \$5,307,458 | \$7,608,467 |

Note 4 – Derivatives (continued)

Rights and Warrants

Rights and warrants provide investment managers the right, but not the obligation, to purchase or sell a company's stock at a fixed price until a specified expiration date. Rights are normally issued with common stock and expire after two to four weeks. Warrants typically are issued together with a bond or preferred stock and may not expire for several years. The fair value of rights and warrants is reported in the investments in the Statement of Fiduciary Net Position. The gain or loss from rights and warrants is included in the investment income in the Statement of Changes in Fiduciary Net Position. As of December 31, 2017 The Plan's investments in rights and warrants were as follows:

| | <u>Notional Value</u> | <u>Fair Value</u> | <u>Change in Fair Value</u> |
|---------------------------|-----------------------|-------------------|-----------------------------|
| Total Rights and Warrants | \$299,209 | \$27,742 | \$(4,149) |

For comparative purposes, as of December 31, 2016, The Plan's investments in rights and warrants were as follows:

| | <u>Notional Value</u> | <u>Fair Value</u> | <u>Change in Fair Value</u> |
|---------------------------|-----------------------|-------------------|-----------------------------|
| Total Rights and Warrants | \$766,814 | \$31,964 | \$(7,334) |

Note 5 – Securities Lending

Under the provisions of state statutes, the Plan utilizes a securities lending agent to lend securities (both equity and fixed income) to qualified third parties in exchange for collateral that will be returned for the same securities in the future. Citibank NA manages the securities lending program and receives cash, securities or irrevocable letters of credit as collateral. The collateral received cannot be pledged or sold by the Plan unless the borrower defaults. All loans can be terminated on demand by either the Plan or the borrower. At December 31, 2017 the average term of the loans was 75 days (54 days in 2016). Marking to market is performed every business day and the borrower is required to deliver additional collateral when necessary so that the collateral held for all loans to the borrower will at least equal the fair value of all borrowed securities. U.S. security loan agreements are initially collateralized at 102% of the fair value of loaned securities. International securities are initially collateralized at 105% of the fair value of loaned securities. Cash collateral is invested in tri-party repurchase agreements and bank deposits, which at December 31, 2017 had a weighted average maturity of 34 days (28 days in 2016). As of December 31, 2017 and 2016 the Plan had loaned to borrowers securities with a fair value of \$237,867,337 and \$296,437,445, respectively. As of December 31, 2017 and 2016, the Plan received from borrowers' cash collateral of \$243,632,186 and \$304,808,240, respectively. As of December 31, 2017 and 2016, the Plan received non-cash collateral from borrowers of \$635,588, and \$532,025 respectively.

Securities lending net income for the years ended December 31, 2017 and 2016 was \$1,480,005 and \$1,897,591, respectively.

Financial Section: *Notes to Financial Statements*

Note 5 – Securities Lending (continued)

A summary of securities loaned at fair value as of December 31:

| | 2017 | 2016 |
|---|----------------------|----------------------|
| Securities loaned – cash collateral | | |
| <i>Fixed income</i> | | |
| Domestic corporate fixed income | \$ 58,559,341 | \$ 35,964,732 |
| US Government agencies | - | 10,766,827 |
| US Government bonds | 16,469,706 | 16,254,182 |
| <i>Equity</i> | | |
| Domestic equities | 149,663,866 | 216,465,578 |
| International equities | <u>12,713,653</u> | <u>16,528,171</u> |
| Total securities loaned – cash collateral | <u>237,406,566</u> | <u>295,979,490</u> |
| Securities loaned – non-cash collateral | | |
| <i>Equity</i> | | |
| Domestic equities | - | 225,000 |
| International equities | <u>460,771</u> | <u>232,955</u> |
| Total securities loaned – non-cash collateral | <u>460,771</u> | <u>457,955</u> |
| Total | <u>\$237,867,337</u> | <u>\$296,437,445</u> |

Note 6 – Property and Equipment

Property and equipment are stated at cost. Depreciation has been provided using the straight-line method over periods ranging from 5-8 years. Leasehold improvements are amortized using the straight-line method over the remaining term of the lease. Major outlays for additions and improvements are capitalized if equal to or greater than \$4,000. Maintenance and repairs are charged to expense. A summary of property and equipment at December 31, 2017 and 2016 is as follows:

| | 2017 | 2016 |
|--|-----------------|-----------------|
| Computers | \$39,306 | \$22,115 |
| Office equipment | <u>11,233</u> | <u>6,932</u> |
| | 50,539 | 29,047 |
| Less accumulated depreciation and amortization | <u>20,039</u> | <u>14,229</u> |
| Net property and equipment | <u>\$30,500</u> | <u>\$14,818</u> |

Depreciation and amortization expense was \$5,809 and \$4,423 for 2017 and 2016, respectively.

Note 7 – Pension and Other Postemployment Benefit-Related Note Disclosures

A. Pension Plan Description

General

Municipal Employees' Annuity and Benefit Fund of Chicago (MEABF, or the Plan) is the administrator of a single employer defined benefit plan that was established in 1921 to provide retirement annuities and disability benefits for covered employees and for survivors and other beneficiaries of such employees. The Plan is administered under Chapter 40, Act 5, Article 8 of the Illinois Compiled Statutes. Benefit and contribution provisions are established by the Statutes and may be amended only by the Illinois state legislature. The Retirement Board, comprised of two ex-officio members (the City Comptroller and the City Treasurer) and three elected members, is authorized to carry out the provisions of Chapter 40, Act 5, Article 8 of the Illinois Compiled Statutes. The Retirement Board appoints the executive director, an actuary, an auditor, consultants and employees necessary for the transaction of business. The Retirement Board meets monthly and receives no compensation, but is reimbursed for necessary expenses. The Plan is included in the City of Chicago's financial reports as a component unit.

Membership

Any employee of the City of Chicago or the Board of Education employed under the provisions of the municipal personnel ordinance except for policemen, firemen, teachers, and those classified by the municipal personnel ordinance as labor service or any person employed by the Municipal Employees' Annuity and Benefit Fund of Chicago (Plan) who is not participating in any other pension fund or retirement system is also covered by the Plan. The payroll for employees covered by the Plan for the years ended December 31, 2017 and 2016 were \$1,686,532,720 and \$1,646,939,238, respectively.

Plan membership at December 31 is as follows:

| | <u>2017</u> | <u>2016</u> |
|--|---------------|---------------|
| Active employees (includes members currently receiving disability benefits): | | |
| Vested | 15,320 | 15,741 |
| Non-vested | <u>15,602</u> | <u>14,555</u> |
| | 30,922 | 30,296 |
| | | |
| Retirees and beneficiaries currently receiving benefits | 25,382 | 25,234 |
| Retirees not currently receiving benefits | 1 | 2 |
| | | |
| Terminated employees entitled to benefits but not yet receiving them | 1,933 | 1,956 |
| Terminated employees entitled to a refund of contributions | <u>15,616</u> | <u>14,920</u> |
| | | |
| Total | <u>73,854</u> | <u>72,408</u> |

Pension legislation (Public Act 96-0889) was approved during 2010 and established two distinct classes of membership with different retirement eligibility conditions and benefit provisions levels. On July 6, 2017 Illinois Public Act 100-0023 was enacted which added a third class of membership with different retirement eligibility conditions and contribution levels. For convenience, the Plan uses a tier concept to distinguish these groups, generally:

Tier 1 – Participants that became members before January 1, 2011.

Tier 2 – Participants that first became members on or after January 1, 2011.

Note 7 – Pension and Other Postemployment Benefit-Related Note Disclosures (continued)

Tier 3 – Participants that first became members on or after July 6, 2017; or a Tier 2 member who irrevocably elected between October 1 and November 15, 2017 to be subject to Tier 3 eligibility conditions and contribution levels (“Elective Tier 3 Member”).

A member’s classification is determined based upon the date the member becomes a contributing member in a designated reciprocal system/fund codified in the Illinois Pension Code.

Refunds of Employee Contributions

If an employee leaves covered employment without qualifying for an annuity, accumulated contributions are refunded with interest at 3% per annum, to the date of termination of services subject to certain exceptions. Certain disability pension credits are not refundable.

Employee Pension

Tier 1 employees age 55 or more with at least 10 years of service are entitled to receive a money purchase annuity with partial City contributions if under age 60 with less than 20 years of service. Employees age 60 or more with at least 10 years of service or age 55 or more with at least 20 years of service or age 50 or more with at least 30 years of service are entitled to receive a minimum formula annuity of 2.4% per year of service times the final average salary (highest (average or predominate, whichever is greater) annual salary for any 4 consecutive years within the last 10 years of service immediately preceding the date of retirement). If the employee retires prior to age 60, the annuity shall be reduced by $\frac{1}{4}$ of 1% for each month the employee is under age 60 if the employee has less than 25 years of service. The annuity is not discounted if the employee is age 50 with at least 30 years of service. An employee with at least 10, 20, or 30 years of service can withdraw and receive a minimum formula annuity at 60, 55, or 50, respectively. The original annuity is limited to 80% of the highest average annual salary, adjusted for annual Internal Revenue Code (IRC) §401(a) (17) and §415 limitations. Employees withdrawing from service at age 60 or older with at least 10 years of service are entitled to a minimum annuity of \$850 per month.

Tier 2 employees age 67 or more with at least 10 years of service are entitled to receive an unreduced annuity benefit or a reduced annuity benefit at age 62 with 10 years of service. The annuity is discounted $\frac{1}{2}$ percent for each full month the employee is under age 67. Final average salary is calculated using salary from the eight highest consecutive years within the last 10 years of service prior to retirement.

Tier 3 employees age 65 or more with at least 10 years of service are entitled to receive an unreduced annuity benefit or a reduced annuity benefit at age 60 with 10 years of service. The annuity is discounted $\frac{1}{2}$ percent for each full month the employee is under age 65. Final average salary is calculated using salary from the eight highest consecutive years within the last 10 years of service prior to retirement.

Under Tier 2 and Tier 3 pensionable salary was limited to \$112,408 in 2017 and \$111,572 in 2016, increased each year by the lesser of 3 percent or one-half of the annual unadjusted percentage increase in the Consumer Price Index-U (but not less than zero). These figures are provided to the Plan by the Illinois Department of Insurance.

Automatic Increase in Employee Annuity

Tier 1: An employee annuitant under Tier 1 is eligible to receive an increase of 3.0 percent of the currently payable annuity (compound). This increase begins in January of the year of the first payment date following the earlier of:

- 1) the later of the third anniversary of retirement or age 53, or
- 2) the later of the first anniversary of retirement or age 60

Note 7 – Pension and Other Postemployment Benefit-Related Note Disclosures (continued)

Tier 2: An employee annuitant under Tier 2 who is eligible to receive an increase in annuity benefit, shall receive an annual increase equal to the lesser of 3.0 percent or 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 increase. The increase is based on the amount of the originally granted benefit (simple). This increase begins in January of the year of the first payment date following the later of:

- 1) the attainment of age 67, or
- 2) the first anniversary of the annuity start date.

Tier 3: An employee annuitant under Tier 3 who is eligible to receive an increase in annuity benefit, shall receive an annual increase equal to the lesser of 3.0 percent or 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 increase. The increase is based on the amount of the originally granted benefit (simple). This increase begins in January of the year of the first payment date following the later of:

- 1) the attainment of age 65, or
- 2) the first anniversary of the annuity start date.

Surviving Spouse Pension

Tier 1: Upon the death of an employee under Tier 1, the surviving spouse meeting certain eligibility requirements, is entitled to a spouse annuity. There are three basic methods (“money purchase method”, “minimum formula annuity method” and the “minimum annuity method”) used to determine the amount of spouse’s annuity for an ordinary death (not duty-related death). The surviving spouse is entitled to the largest benefit but the annuity cannot exceed an amount equal to 50% of the highest salary earned by the employee.

Under Tier 2 and Tier 3: The annuity payable to the surviving spouse of an employee is equal to 66 2/3% of the participant’s earned retirement annuity at the date of death without a reduction due to age.

Automatic Increase in Spouse Annuity

Under Tier 2 and Tier 3: The surviving spouse of an employee shall receive an annual increase equal to the lesser of 3.0 percent or 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 date of the increase. This increase is based on the amount of the originally granted survivor’s benefit (simple). This annual increase begins on January 1 following the commencement of the surviving spouse’s annuity if the deceased member died while receiving an annuity benefit or on January 1 following the first anniversary of the commencement of the annuity otherwise.

Child Annuity

Under Tier 1, Tier 2 and Tier 3, an annuity is provided for any unmarried child of a deceased employee who is under the age of 18, if the child was conceived or born before withdrawal from service. The employee’s death must occur while the employee is in service or in receipt of an annuity. The child’s annuity is an amount equal to \$220 a month when there is a surviving spouse and \$250 when there is no surviving spouse, subject to maximum limitations.

Note 7 – Pension and Other Postemployment Benefit-Related Note Disclosures (continued)

Ordinary Disability

Under Tier 1, Tier 2 and Tier 3 an employee who becomes disabled as the result of any cause other than an accidental injury incurred while in the performance of an act of duty is entitled to an ordinary disability benefit at the amount equal to 50% of the employee's annual salary at the time of disablement. An employee can receive ordinary disability for a period equal to one fourth of his service credits up to a lifetime maximum of 5 years.

Duty Disability

Under Tier 1, Tier 2 and Tier 3, an employee who becomes disabled as the result of an accidental injury incurred while in the performance of an act of duty is entitled to a duty disability benefit in the amount equal to 75% of the employee's annual salary at the time of injury, reduced by any benefits received by the employee under the provisions of the Workers' Compensation Act. This benefit is limited to age 65 or 5 years from the latest injury, whichever is latest.

Funding Policy

The funding objective is to meet all expected future obligations to Plan participants through its Plan assets and contributions from employee and employer. Member and employer contribution rates are established by state law and may be amended only by the Illinois State Legislature.

Member Contributions

Active members are required to contribute a percentage of their pensionable salary to MEABF. Tier 1 and Tier 2 members contribute 8.5% of their salary (6.5% to provide employee annuity, 1.5% to provide a surviving spouse annuity and .5% to provide post-retirement increases in annuity) in accordance with the statutes. Beginning in 2017, Tier 3 members contribute 11.5% of their pensionable salary (9.5% to provide employee annuity, 1.5% to provide a surviving spouse annuity and .5% to provide post-retirement increases in annuity) in accordance with the statutes.

Under Tier 1, Tier 2 and Tier 3 the employer deducts or picks up the employee's contributions before federal income tax is withheld and remits the contributions collected to the Plan. Member contributions earn interest at the rate of 3% per annum and may be refundable. Employees receiving ordinary or duty disability benefits are credited with a percentage of salary for pension purposes just as though the employee were working but these credits are not refundable. Tier 1 and Tier 2 are credited with 8.5% of salary and Tier 3 is credited with 11.5% of salary.

While the amount of pensionable salary upon which member contributions are made under Tier 1 has no limitation, pensionable salary of active employees under Tier 2 and Tier 3 was limited to \$112,408 in 2017 and \$111,572 in 2016, increased each year by the lesser of 3 percent or 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 the new amount will be calculated and made available to the pension funds.

Note 7 – Pension and Other Postemployment Benefit-Related Note Disclosures **(continued)**

Employer Contributions

The City of Chicago is required by state statutes to contribute the remaining amounts necessary to finance the requirements of MEABF. Effective July 6, 2017 legislation which included a new funding structure to increase employer contributions was put into law. The new structure provides for fixed dollar contributions for payment years 2018 through 2022. For payment years 2023 to 2058 the employer's required annual contribution shall be equal to the sum of the employer's portion of the projected normal cost for that fiscal year, plus an amount determined on a level percentage of employee payroll that is sufficient to bring the total actuarial assets of the Plan up to 90% of the total actuarial liabilities of the Plan by the end of 2058.

Prior to 2017 fiscal year, the employer was required to levy a tax at a rate not more than an amount equal to 1.25 times (current multiple) the total amount of member contributions to the Plan made in the calendar year two years prior to the year for which the annual applicable tax is levied. Annual required contributions (ARC) rates are determined using the entry age normal actuarial funding method. MEABF uses the level dollar open method to amortize the unfunded liability over a thirty year period. The actuarial valuation of the Plan shows that an actuarially determined contribution needed to adequately finance MEABF is \$1,005,456,621 and \$961,769,955 for fiscal years 2017 and 2016, respectively. The statutory employer contributions have been less than the actuarially determined contributions for the past fifteen years. Contribution rates may be increased only by an amendment by the State Legislature to the Illinois Pension Code.

Financial Section: *Notes to Financial Statements*

Note 7 – Pension and Other Postemployment Benefit-Related Note Disclosures (continued)

Net Pension Liability of Participating Employer

The components of the net pension liability as of December 31, 2017 and 2016, were as follows:

| | 2017 | 2016 |
|--|------------------|------------------|
| Total pension liability | \$16,282,396,195 | \$23,291,271,396 |
| Plan fiduciary net position | 4,554,018,287 | 4,436,227,596 |
| Employer's net pension liability | 11,728,377,908 | 18,855,043,800 |
| Plan fiduciary net position as a percentage of total pension liability | 27.97% | 19.05% |

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of December 31, 2017 and 2016, using actuarial assumptions applied to all periods included in the measurement.

| | 2017 | 2016 |
|----------------------------|---|---|
| Inflation | 2.50% | 3.00% |
| Salary increase | 3.50%-7.75% (1.50% to 6.50% for 2018-2022), varying by years of service. | 4.5% - 8.25%, varying by years of service |
| Investment rate of return | 7.0%, net of investment expense | 7.5%, net of investment expense |
| Municipal bond rate | 3.44% based on the Bond Buyer 20-Bond Index of general obligation municipal bonds as of December 31, 2017 | 3.78% based on the Bond Buyer 20-Bond Index of general obligation municipal bonds as of December 31, 2016 |
| Cost of living adjustments | Tier 1: 3.0% compound Tier 2 & 3: the lesser of 3.0% or one-half the change in CPI, simple | Tier 1: 3.0% compound Tier 2: the lesser of 3.0% or one-half the change in CPI, simple |

Post-retirement mortality rates for December 31, 2017 were based on the RP-2014 Healthy Annuitant Mortality Table, set forward two years for males and one year for females, and projected generationally using scale MP-2016. Pre-retirement mortality rates were based on 120% of the RP-2014 Employee Mortality Tables projected generationally using scale MP-2016.

Post-retirement mortality rates for December 31, 2016 were based on the RP-2000 Healthy Annuitant Mortality Table with mortality improvements projected to 2010 based on scale AA. Pre-retirement mortality rates were based on the post-retirement mortality assumption, multiplied by 85% for males and 70% for females.

The actuarial assumptions used in the December 31, 2017, valuation were based on the results of actuarial experience study for the period January 1, 2012 through December 31, 2016. The actuarial assumptions used for December 31, 2016, valuation were based on results of an experience study for the period January 1, 2005 through December 31, 2009.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of December 31, 2017 and 2016 are summarized in the following table:

**Note 7 – Pension and Other Postemployment Benefit-Related Note Disclosures
(continued)**

| | 2017 | | 2016 | |
|----------------------|-------------------|--|-------------------|--|
| | Target allocation | Long-term expected real rate of return | Target allocation | Long-term expected real rate of return |
| Fixed income | 27% | 1.0% | 27% | 0.5% |
| Domestic equity | 26% | 5.6% | 26% | 4.8% |
| International equity | 22% | 5.7% | 22% | 5.0% |
| Hedge Funds | 10% | 3.6% | 10% | 2.8% |
| Private equity | 5% | 9.4% | 5% | 8.6% |
| Real Estate | 10% | 5.4% | 10% | 5.2% |

Discount rate

For December 31, 2017, the discount rate used to measure the total pension liability was 7.0%. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made according to the contribution rate applicable for each member's tier and that employer contributions will be made as specified by Public Act 100-0023. For this purpose, only employer contributions that are intended to fund benefits of current plan members and their beneficiaries are included. Projected employer contributions and contributions from future plan members that are intended to fund the service cost of future plan members and their beneficiaries are not included. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine total pension liability.

For December 31, 2016 the discount rate used to measure the total pension liability was 3.9%. The projection of cash flows used to determine the discount rate assumed plan member contributions would be made at the current contribution rate and that employer contributions would be made at the 1.25 multiple of member contributions from two years prior. For this purpose, only employer contributions that are intended to fund benefits of current plan members and their beneficiaries are included. Projected employer contributions and contributions from future plan members that are intended to fund the service cost of future plan members and their beneficiaries are not included. Based on those assumptions, the pension plan's fiduciary net position was not projected to be available to make all projected future benefit payments of current plan members. The projected benefit payments through 2023 were discounted at the expected long term rate return. Starting in 2024 the projected benefit payments were discounted at the municipal bond rate. Therefore, a single equivalent, blended discount rate of 3.9% was calculated using the long-term expected rate of return and the municipal bond index.

Sensitivity of the net pension liability to changes in the discount rate

The following presents the net pension liability as of December 31, 2017, calculated using the discount rate of 7.0%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1 percentage point lower (6.0%) or 1 percentage point higher (8.0%) than the current rate:

| | 1% Decrease (6.0%) | Current Discount Rate (7.0%) | 1% Increase (8.0%) |
|--|-----------------------|---------------------------------|-----------------------|
| Net pension liability December 31, 2017 | \$13,807,800,455 | \$11,728,377,908 | \$10,006,089,666 |

**Note 7 – Pension and Other Postemployment Benefit-Related Note Disclosures
(continued)**

For comparative purposes, the net pension liability as of December 31, 2016, calculated using the discount rate of 3.9%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1 percentage point lower (2.9%) or 1 percentage point higher (4.9%) than the current rate:

| | 1% Decrease (2.9%) | Current Discount Rate (3.9%) | 1% Increase (4.9%) |
|--|-----------------------|---------------------------------|-----------------------|
| Net pension liability December 31, 2016 | \$22,351,267,299 | \$18,855,043,800 | \$15,983,850,967 |

B. Post-employment Healthcare Subsidy – City of Chicago and Board of Education Retirees

By Illinois Pension Code, MEABF was required to supplement a portion of the cost of the City of Chicago or Board of Education Health Care Plans for eligible annuitants who chose to utilize the health care plan through December 31, 2016. The supplemental benefit payments are remitted monthly to the City of Chicago or the insurance carrier designated by the Board of Education in the following amounts:

Beginning July 1, 2008 and until such time as the City no longer provides a health care plan for such annuitants or December 31, 2016, whichever comes first, \$95 per month for each such annuitant who is not eligible to receive Medicare benefits and \$65 per month for each such annuitants who is eligible to receive Medicare benefits. Based on Public Act 98-0043, December 31, 2016 was the last payment for the healthcare subsidy.

The payments described above were funded on a pay-as-you-go basis by the tax levy authorized under Section 8-173.

As of December 31, 2016, there are 7,930 City annuitants enrolled in the City's health care plan and 942 Board of Education annuitants enrolled in the Board of Education retiree health care plan that were receiving this subsidy benefit. As disclosed above, the retiree health care plan was terminated on December 31, 2016.

The annual required contribution represented a level of funding that if paid on an ongoing basis, was projected to cover normal cost each year and amortize any unfunded actuarial liabilities over thirty years. The estimated City contribution represented the expected benefit payments for the health insurance supplement. In 2016 the Pension Plan received contributions of \$7,725,538 and remitted contributions of \$7,725,538. No amounts were received for 2017..

Funding Status and Funding Progress – Post-employment Healthcare Subsidy for City of Chicago and Board of Education Retirees

Based on Public Act 98-0043 the Post-employment Healthcare subsidy was discontinued as of December 31, 2016. Therefore, no actuarial accrued liability or unfunded actuarial accrued liability is required to be computed.

The schedule of funding progress, presented as required supplementary information (RSI) following the notes to the financial statements, presents multi-year trend information about whether the plan assets are increasing or decreasing over time relative to the actuarial accrued liabilities for benefits. Additional information as of the latest actuarial valuation follows:

**Note 7 – Pension and Other Postemployment Benefit-Related Note Disclosures
(continued)**

| | |
|--------------------------------|---|
| Valuation Date | December 31, 2016 |
| Actuarial Cost Method | Entry Age Normal |
| Actuarial Value of Assets | No Assets (Pay-as-you-go) |
| Amortization Method | Level dollar, closed (30 years open prior to January 1, 2014) |
| Remaining Amortization Period | 0 years closed as of December 31, 2016 |
| Asset Valuation Method | N/A (pay-as-you-go) |
| Actuarial Assumptions: | |
| OPEB Investment Rate of Return | 4.5 percent per year |
| Includes inflation at | 3.0 percent per year |
| Payroll growth | 4.0 percent per year |
| Healthcare Cost Trend Rate | N/A (Trend not applicable – Fixed dollar subsidy) |

C. Post-employment Healthcare Benefits – MEABF as Employer

Staff members or employees of the Municipal Employees' Annuity and Benefit Fund of Chicago are contributing members of the Plan. When the staff members of the Plan eventually retire, if eligible, pension benefits are provided under the provisions of the Illinois Compiled Statutes (ILCS) Chapter 5, Article 8. Retired staff members of the Plan were not eligible to participate in the City of Chicago group health plan nor the Board of Education group health plan; hence were not eligible to receive a health insurance subsidy, a postemployment benefit other than pension (OPEB) under the ILCS Chapter 5, Art. 8.

In prior years MEABF, as an employer, offered subsidized health insurance coverage for its retired employees, or survivors of former employees and eligible dependents receiving an annuity under the MEABF Staff Retiree Healthcare Plan ("MEABF Retiree Healthcare"). At December 31, 2016 14 retirees and beneficiaries were enrolled in the Healthcare Plan. As of January 1, 2017 MEABF discontinued the health subsidy.

Funding

Post-employment healthcare benefits were funded on a pay-as-you-go basis. No assets were accumulated to prefund the healthcare benefits. MEABF and the annuitant shared the total cost of the Staff Retiree Healthcare. For 2016, MEABF, as employer contributed \$135,371. No amounts were contributed in 2017.

Retirees elected dental and vision coverage on a self-paid basis.

Annual OPEB Cost and Net OPEB Obligation – MEABF Staff Retiree Healthcare

The OPEB cost for the staff retiree healthcare benefits was calculated based on the annual required contribution of the Plan as employer (ARC), an amount actuarially determined in accordance with the parameters of GASB Statement 45. The ARC represented a level of funding that, if paid on an ongoing basis, was projected to cover normal costs each year and amortize any unfunded actuarial liabilities over a period not to exceed thirty years.

The components of MEABF's annual OPEB cost for the staff retiree healthcare benefits are shown in the following table:

Financial Section: *Notes to Financial Statements*

Note 7 – Pension and Other Postemployment Benefit-Related Note Disclosures (continued)

| | 2017 | 2016 | 2015 |
|--|--------------------|------------------|------------------|
| Annual OPEB Cost | | | |
| Annual Required Contribution (ARC) | \$ - | \$ 853,059 | \$ 742,131 |
| Interest on Net OPEB Obligation | 242,711 | 213,348 | 190,966 |
| Adjustment to ARC | <u>(5,636,292)</u> | <u>(278,528)</u> | <u>(249,308)</u> |
| Annual OPEB Cost | (5,393,581) | 787,879 | 683,789 |
| Employer Contributions | <u>-</u> | <u>135,371</u> | <u>186,411</u> |
| Increase in NOO | (5,393,581) | 652,508 | 497,378 |
| Net OPEB Obligations (NOO) | | | |
| Net OPEB Obligation at Beginning of Year | 5,393,581 | 4,741,073 | 4,243,695 |
| Increase in NOO | (5,393,581) | 652,508 | 497,378 |
| Net OPEB Obligation at End of Year | \$ - | \$5,393,581 | \$4,741,073 |

The Net OPEB Obligation is the amount recorded in the MEABF's Statement of Fiduciary Net Position as of year-end as the net liability for MEABF Staff Retiree Healthcare OPEB Liability. Due to the discontinuance of the health subsidy, the liability was eliminated in 2017. The employer contributions for 2017 and 2016 consist of \$0 and \$83,045, respectively, explicit subsidy along with \$0 and \$52,326, respectively, implicit subsidy. Implicit subsidy is treated as administrative expense of the defined benefit plan. In 2017 and 2016, MEABF contributed 0% and 15.9%, respectively, of the annual required OPEB contribution to the plan. The Annual *OPEB Cost* recorded in the Statement of Changes in Fiduciary Net Position for 2017 and 2016 as the MEABF Staff Retiree OPEB expense is net of employer implicit and explicit subsidies. The elimination of the liability in 2017 is shown as "other additions – OPEB termination" on the Statement of Changes in Fiduciary Net Position.

The following table is a summary of the OPEB Cost

| Year | Annual OPEB Cost | % of Annual OPEB Obligation Contributed | Net OPEB Obligation |
|------|---------------------|--|------------------------|
| 2017 | \$(5,393,581) | 0% | \$0 |
| 2016 | 787,879 | 17.2% | 5,393,581 |
| 2015 | 683,789 | 27.3% | 4,741,073 |

Financial Section: *Notes to Financial Statements*

Note 7 – Pension and Other Postemployment Benefit-Related Note Disclosures (continued)

Funding Status and Funding Progress – Post-employment Benefit for MEABF Staff Retiree Healthcare

The following table shows funded status and funding progress as of December 31, 2015, per the latest actuarial valuation available.

| Actuarial Value of Assets (a) | Actuarial Accrued Liability (AAL) – Entry Age (b) | Unfunded AAL (UAAL) (b-a) | Funded Ratio (a/b) | Covered Payroll (c) | UAAL as a Percentage of Covered Payroll ((b-a)/c) |
|----------------------------------|--|------------------------------|-----------------------|------------------------|--|
| N/A | \$7,642,615 | \$7,642,615 | 0.0% | \$3,168,250 | 241.2% |

The schedule of funding progress, presented as required supplementary information (RSI) following the notes to the financial statements, presents multi-year trend information about whether the plan assets are increasing or decreasing over time relative to the actuarial accrued liabilities for benefits.

For a plan the size of the MEABF Staff Retiree Healthcare plan, GASB allows a valuation report to be used for up to 3 years if there are no significant changes in plan design, premiums/claims, or demographics that would materially change the results. The latest actuarial valuation included projections through the year ended December 31, 2017. Additional information as of the latest actuarial valuation follows:

| | |
|---|---|
| Valuation Date | December 31, 2015 |
| Actuarial Cost Method | Entry-Age Normal; level percentage of payroll |
| Actuarial Value of Assets | No Asset (pay-as-you-go) |
| Amortization Method | Level dollar open |
| Remaining Amortization Period | 30 years |
| Actuarial assumptions: | |
| Discount rate | 4.50% |
| Inflation rate | 3.00% |
| Projected payroll growth | 4.00% |
| Salary increases | Varies based on years of service from 8.25% to 4.5% |
| Health cost trend rates; | |
| Non-Medicare Medical & Prescription Drugs | 7.25% graded to 5.0% over 9 years |
| Medicare Medical & Prescription Drugs | 8.00% graded to 5.0% over 9 years |

Discontinuance of Subsidized MEABF Staff Retiree Healthcare

The December 31, 2016 actuarial studies used in the preparation of the financial statements were prepared under the assumption that MEABF would continue to offer subsidized health insurance coverage. During 2016, the Board of Trustees voted to discontinue the health subsidy effective January 1, 2017. Consequently, the OPEB liability should have been eliminated at December 31, 2016 and revisions made to the actuarial studies. Since the amount of the OPEB liability was not material to the financial statements, MEABF elected not to revise the actuarial studies or eliminate the liability at December 31, 2016. The net OPEB obligation was eliminated in 2017 as disclosed above.

Disclosure of Information about Actuarial Methods and Assumptions

Actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future. Actuarially determined amounts are subject to continual revision as results are compared to past expectations and new estimates are made about the future.

Actuarial calculations reflect a long-term perspective. Actuarial methods and assumptions used include techniques designed to reduce short-term volatility in actuarial accrued liabilities and the actuarial value of assets.

Note 8 – Net Position Held in Trust for Pension Benefits

Reserves represent the components of the Plan's net position. Reserves are established from member and employer contributions and the accumulation of investment income after satisfying investment and administrative expenses. At least once a year, before any transfer is made from these reserves, interest at 3% is credited to these reserves. The reserves do not represent the present value of assets needed, as determined by actuarial valuation, to satisfy retirement and other benefits as they become due. The Plan's major classes of reserves are as follows:

| | <u>2017</u> | <u>2016</u> |
|----------------------------|-------------------------|-------------------------|
| City contribution Reserves | \$ 1,863,594,045 | \$ 1,830,853,535 |
| Salary Deduction Reserves | 1,864,062,283 | 1,830,459,297 |
| Prior Services Reserves | 10,235,538,278 | 9,175,409,547 |
| Annuity Payment Reserves | 2,318,069,717 | 2,217,643,974 |
| Optional Reserve Account | <u>1,131,872</u> | <u>982,343</u> |
| | 16,282,396,195 | 15,055,348,696 |
| Unreserved Net Deficit | <u>(11,728,377,908)</u> | <u>(10,619,121,100)</u> |
| | <u>\$ 4,554,018,287</u> | <u>\$ 4,436,227,596</u> |

City Contribution Reserves

Amounts contributed by the City for age and service annuity, surviving spouse annuity and supplemental annuity shall be credited to this reserve. When the employee annuity or surviving spouse annuity is granted the amount in this reserve for such annuity will be transferred to the annuity payment fund reserves.

Salary Deduction Reserves

Amounts contributed by the employee or amounts credited for the employee for age and service annuity and surviving spouse annuity shall be credited to this reserve. When the employee annuity or surviving spouse annuity is granted the amount in this reserve for such annuity will be transferred to the annuity payment fund reserves.

Annuity Payment Reserves

Amounts transferred from the City contribution reserves and the salary deduction reserves for annuities which have been granted will be credited to this reserve.

Prior Service Reserves

Amounts contributed by the City for minimum annuities shall be credited to this reserve.

Optional Reserves

Amounts contributed by the aldermen for the alternative plan.

Note 9 – Operating Leases

Office Lease

MEABF moved to a new office location on March 1, 2011 under a fifteen-year, non-cancelable lease agreement with Hines REIT 321 North Clark Street LLC. The lease currently requires monthly payments of \$54,588. The Plan received rent abatements for the initial six full months of the term of the lease, and the initial three calendar months of the third, the fourth, the fifth and sixth lease year and the initial two calendar months of the seventh lease year. Monthly lease payments are subject to an escalation clause for increases in real estate taxes and maintenance expenses.

Disaster Recovery (DR) site

MEABF was a party to an agreement participated by four other pension funds (Laborer's, Police, Fire and Cook County) to lease an offsite office and storage facilities under an extended non-cancelable lease agreement that ended August 31, 2016. Subsequently, MEABF has agreed to a service contract for cloud retention with unlimited storage.

Following is a summary of estimated future lease payments under the Plan's operating leases as of December 31, 2017:

| <u>Year Ending December 31,</u> | <u>Amount</u> |
|-------------------------------------|--------------------|
| 2018 | \$ 691,647 |
| 2019 | 683,026 |
| 2020 | 701,676 |
| 2021 | 720,639 |
| 2022 | 739,926 |
| 2023-February 2026 | <u>2,472,752</u> |
| Total | <u>\$6,009,666</u> |

Total rent expense was \$601,406 and \$571,702 for 2017 and 2016, respectively.

Note 10 – Risk Management

MEABF carries liability insurance coverage provided by private insurance carriers. In order to limit the risk of asset loss from theft, fraud, robbery or burglary, the Plan carries a government crime policy. The Plan carries fiduciary liability insurance that limits the risk of loss arising from court challenges to fiduciary decisions. The Plan also carries cyber liability insurance that limits the risk of defense costs and settlements as a result of failure to protect or the wrongful release of confidential information of participants, beneficiaries and employees of the Plan.

Note 11 – Commitments and Contingencies

Investment Commitments

As of December 31, 2017 and 2016 approximately \$36.7 million and \$47.5 million of capital committed to investments in real estate and private equity funds were undrawn. The Plan believes that the capital may take up to three years to be fully requested.

Litigation

The Plan is subject to claims arising in the ordinary course of its operations. Although the outcome of these lawsuits are not presently determinable, in the opinion of the Plan's management and legal counsel, the resolution of these matters will not have a material adverse effect on the Plan's financial statements.

The Plan is currently one of the four City pension funds named as defendants in the lawsuit *Michael W. Underwood, et al., v. City of Chicago, et al.* involving a 1985 amendment to the Illinois Pension Code previously requiring the Municipal Fund to pay a \$25 monthly healthcare subsidy to those annuitants who are sixty-five (65) years or older with 15 years or more of service. On June 29, 2017, the Appellate Court affirmed the Circuit Court's holding that those annuitants who had joined the Municipal Fund prior to April, 2003, are entitled to a continuation of the subsidies provided in the 1985 amendment and remanded the case to the Circuit Court for further proceedings with respect to how the monthly subsidy would be paid amongst other unresolved matters.

Note 12 – Deferred Compensation Plan

The Fund is a governmental eligible employer within the meaning of Code Section 457(e)(1)(A) and has established a deferred compensation plan (457(b)) for eligible employees. Individual contributions to the plan are equal to the amount of salary reductions elected by each participant for the year up to a maximum allowable by IRS regulations. Total employee contributions were \$242,901 and \$239,964 for 2017 and 2016, respectively. Employer contributions are not allowed.

Financial Section: *Required Supplementary Information*

Required Supplementary Information (Unaudited)

Schedule of Changes in Employer's Net Pension Liability (Pension)

| | 2017 | 2016 | 2015 | 2014 |
|---|---------------------------|--------------------------|--------------------------|---------------------------|
| Total pension liability | | | | |
| Service cost | \$ 572,533,631 | \$ 619,743,849 | \$ 226,816,035 | \$ 247,243,416 |
| Interest | 915,710,984 | 878,369,406 | 909,066,895 | 1,025,763,903 |
| Change of benefit terms | - | - | 2,140,009,339 | (1,990,706,362) |
| Differences between expected and actual experience | (177,754,999) | (127,119,398) | (109,835,037) | (5,504,116) |
| Changes of assumptions | (7,431,191,282) | (578,920,424) | 8,711,754,654 | - |
| Benefit payments, including refunds of employee contributions | (888,173,535) | (859,671,662) | (826,036,323) | (798,622,811) |
| Net change in total pension liability | \$ (7,008,875,201) | \$ (67,598,229) | \$ 11,051,775,563 | \$ (1,521,825,970) |
| Total pension liability – beginning | 23,291,271,396 | 23,358,869,625 | 12,307,094,062 | 13,828,920,032 |
| Total pension liability – ending (a) | \$ 16,282,396,195 | \$ 23,291,271,396 | \$ 23,358,869,625 | \$ 12,307,094,062 |
| Plan fiduciary net position | | | | |
| Contributions – employer | \$ 261,763,635 | \$ 149,718,491 | \$ 149,225,191 | \$ 149,746,748 |
| Contributions - employee | 134,764,920 | 130,390,848 | 131,428,103 | 129,971,981 |
| Net investment income | 610,515,096 | 281,419,146 | 114,025,290 | 283,281,925 |
| Benefit payments, including refunds of employee contributions | (888,173,535) | (859,671,662) | (826,036,323) | (798,622,811) |
| Administrative expenses | (6,473,006) | (7,056,784) | (6,701,000) | (6,567,842) |
| Other - OPEB termination | 5,393,581 | - | - | - |
| Net change in plan fiduciary net position | \$ 117,790,691 | \$ (305,199,961) | \$ (438,058,739) | \$ (242,189,999) |
| Plan fiduciary net position - beginning | 4,436,227,596 | 4,741,427,557 | 5,179,486,296 | 5,421,676,295 |
| Plan fiduciary net position – ending (b) | 4,554,018,287 | 4,436,227,596 | 4,741,427,557 | 5,179,486,296 |
| Employer's net pension liability ending (a)-(b) | \$ 11,728,377,908 | \$ 18,855,043,800 | \$ 18,617,442,068 | \$ 7,127,607,766 |

This is a 10 year schedule however, the information is not required to be presented retroactively. Information will be added to this schedule until 10 years of information is available.

Schedule of Employer's Net Pension Liability (Pension)

| | 2017 | 2016 | 2015 | 2014 |
|--|-------------------|-------------------|-------------------|-------------------|
| Total pension liability | \$ 16,282,396,195 | \$ 23,291,271,396 | \$ 23,358,869,625 | \$ 12,307,094,062 |
| Plan fiduciary net position | 4,554,018,287 | 4,436,227,596 | 4,741,427,557 | 5,179,486,296 |
| Employer's net pension liability | 11,728,377,908 | 18,855,043,800 | 18,617,442,068 | 7,127,607,766 |
| Plan fiduciary net position as a percentage of total pension liability | 27.97% | 19.05% | 20.30% | 42.89% |
| Covered-employee payroll | \$ 1,686,532,720 | \$ 1,646,939,238 | \$ 1,643,480,973 | \$ 1,602,977,593 |
| Employer's net pension liability as a percentage of covered-employee payroll | 695.41% | 1,144.85% | 1,132.81% | 444.65% |

This is a 10 year schedule however, the information is not required to be presented retroactively. Information will be added to this schedule until 10 years of information is available.

Financial Section: *Required Supplementary Information*

Schedule of Employer Contributions (Pension)

| Year Ended December 31, | Actuarially Determined Contributions | Contributions in Relation to the Actuarially Determined Contributions | Contribution Deficiency | Covered Employee Payroll | Contributions as a percentage of Covered Employee Payroll |
|----------------------------|--|--|----------------------------|--------------------------------|--|
| 2017 | \$ 1,005,456,621 | \$ 261,763,635 | \$ 743,692,986 | \$ 1,686,532,720 | 15.5% |
| 2016 | \$ 961,769,955 | \$ 149,718,491 | \$ 812,051,464 | \$ 1,646,939,238 | 9.1% |
| 2015 | \$ 677,200,246 | \$ 149,225,191 | \$ 527,975,055 | \$ 1,643,480,973 | 9.1% |
| 2014 | \$ 839,038,303 | \$ 149,746,748 | \$ 689,291,555 | \$ 1,602,977,593 | 9.3% |
| 2013 | \$ 820,022,689 | \$ 148,196,884 | \$ 671,825,505 | \$ 1,580,288,709 | 9.4% |
| 2012 | \$ 690,822,553 | \$ 148,858,655 | \$ 541,963,898 | \$ 1,590,793,702 | 9.4% |
| 2011 | \$ 611,755,567 | \$ 147,009,321 | \$ 464,746,246 | \$ 1,605,993,339 | 9.2% |
| 2010 | \$ 483,948,339 | \$ 154,752,320 | \$ 329,196,019 | \$ 1,541,388,065 | 10.0% |
| 2009 | \$ 413,508,622 | \$ 148,046,490 | \$ 265,462,132 | \$ 1,551,973,348 | 9.5% |
| 2008 | \$ 360,387,176 | \$ 146,803,250 | \$ 213,584,926 | \$ 1,543,976,553 | 9.5% |

Prior to 2014, the Actuarially Determined Contribution is the same as the Annual Required Contribution as determined under GASB 25

Schedule of Investment Returns

| Year ended December 31 | Annual Money-Weighted Rate of Return, net of investment expense |
|------------------------|---|
| 2017 | 14.9% |
| 2016 | 6.1% |
| 2015 | 2.1% |
| 2014 | 4.8 % |

This is a 10 year schedule however, the information is not required to be presented retroactively. Information will be added to this schedule until 10 years of information is available.

Notes to Required Supplementary Information (Pension)

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the date indicated. Additional information as of the latest actuarial valuation follows.

| | |
|-------------------------------|---|
| Valuation date | December 31, 2017 |
| Actuarial cost method | Entry age normal |
| Amortization method | Level dollar |
| Remaining amortization period | 30 years |
| Asset valuation method | 5 year smoothed market |
| Actuarial assumptions: | |
| Investment rate of return | 7.0%, net of investment expense |
| Projected salary increases | 3.5% to 7.75%(1.5% to 6.5% for 2018-2022), varying by years of service |
| Inflation rate | 2.50% |
| Cost of living adjustments | Tier1: 3.0% compound Tier2 & 3: The lesser of 3% or one-half of the change in CPI, simple. |

Financial Section: *Required Supplementary Information*

Schedule of Funding Progress (Post-employment Healthcare)

| Actuarial Valuation Date | Actuarial Value of Assets (a) | Actuarial Accrued Liability (AAL) – Entry Age (b) | Unfunded AAL (UAAL) (b–a) | Funded Ratio (a/b) | Covered Payroll (c) | UAAL as a Percentage of Covered Payroll ((b–a)/c) |
|--------------------------------|--|--|------------------------------------|--------------------------|---------------------------|--|
| 12/31/17 | \$ - | \$ - | \$ - | 0.00% | \$ 1,686,532,720 | N/A |
| 12/31/16 | \$ - | \$ - | \$ - | 0.00% | \$ 1,646,939,238 | N/A |
| 12/31/15 | \$ - | \$ 8,146,746 | \$ 8,146,746 | 0.00% | \$ 1,643,480,973 | 0.5% |
| 12/31/14 | \$ - | \$ 17,494,941 | \$ 17,494,941 | 0.00% | \$ 1,602,977,593 | 1.1% |
| 12/31/13 ^a | \$ - | \$ 27,573,334 | \$ 27,573,334 | 0.00% | \$ 1,580,288,709 | 1.7% |
| 12/31/12 | \$ - | \$ 162,083,083 | \$ 162,083,083 | 0.00% | \$ 1,590,793,702 | 10.2% |
| 12/31/11 | \$ - | \$ 163,241,898 | \$ 163,241,898 | 0.00% | \$ 1,605,993,339 | 10.2% |
| 12/31/10 | \$ - | \$ 223,564,218 | \$ 223,564,218 | 0.00% | \$ 1,541,388,065 | 14.5% |
| 12/31/09 | \$ - | \$ 224,173,231 | \$ 224,173,231 | 0.00% | \$ 1,551,973,348 | 14.4% |
| 12/31/08 | \$ - | \$ 222,691,036 | \$ 222,691,036 | 0.00% | \$ 1,543,976,553 | 14.4% |

^a Entry age actuarial accrued liability for fiscal year 2013 was determined based on the provisions of P.A. 98-0043.

Based on Public Act 98-0043 the Post-employment Healthcare was discontinued as of December 31, 2016, therefore no actuarial accrued liability or unfunded actuarial accrued liability is required.

Schedule of Employer Contributions (Post-employment Healthcare)

| Year Ended December 31, | Annual Required Contribution | Employer Contributions | |
|----------------------------|------------------------------------|------------------------|---------------------------|
| | | Amount Contributed | Percentage Contributed |
| 2017 | \$ - | \$ - | N/A |
| 2016 | \$ 8,342,459 | \$ 7,725,538 | 92.6% |
| 2015 | \$ 9,174,103 | \$ 8,491,284 | 92.5% |
| 2014 | \$ 9,826,193 | \$ 9,050,883 | 92.1% |
| 2013 | \$ 14,375,793 | \$ 9,508,087 | 66.1% |
| 2012 | \$ 14,631,863 | \$ 9,522,054 | 65.1% |
| 2011 | \$ 22,803,577 | \$ 9,516,053 | 41.7% |
| 2010 | \$ 22,954,501 | \$ 9,549,685 | 41.6% |
| 2009 | \$ 22,966,965 | \$ 9,651,118 | 42.0% |
| 2008 | \$ 23,782,660 | \$ 9,029,362 | 38.0% |

Based on Public Act 98-0043 the Post-employment Healthcare was discontinued as of December 31, 2016, therefore no annual contribution is required.

Financial Section: *Required Supplementary Information*

Note to Schedules of Funding Progress and Employer Contributions (Post-employment Healthcare)

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the date indicated. Additional information as of the latest actuarial valuation follows.

| | |
|-------------------------------|---|
| Valuation Date | December 31, 2016 |
| Actuarial Cost Method | Entry-Age Normal |
| Actuarial Value of Assets | No Asset (pay-as-you-go) |
| Amortization Method | Level dollar, closed (30-year open prior to January 1, 2014) |
| Remaining Amortization Period | 0 years as of December 31, 2016 |
| Actuarial assumptions: | |
| Investment rate of return | 4.50% |
| Inflation rate | 3.00% |
| Payroll growth | 4.00% |
| Medical cost trend rate | N/A (fixed subsidy benefit) |

Schedule of Funding Progress (Post-employment Healthcare - Staff Retiree Healthcare)

| Actuarial Valuation Date | Actuarial Value of Assets (a) | Actuarial Accrued Liability (AAL) – Entry Age (b) | Unfunded AAL (UAAL) (b-a) | Funded Ratio (a/b) | Covered Payroll (c) | UAAL as a Percentage of Covered Payroll ((b-a)/c) |
|--------------------------|-------------------------------|---|---------------------------|--------------------|---------------------|---|
| 12/31/15 | \$ - | \$7,642,615 | \$7,642,615 | 00.0% | \$3,168,520 | 241.2% |
| 12/31/12 | \$ - | \$6,276,765 | \$6,276,765 | 00.0% | \$2,966,755 | 211.6% |
| 12/31/09 | \$ - | \$7,101,870 | \$7,101,870 | 00.0% | \$2,649,696 | 268.0% |
| 12/31/06 | \$ - | \$4,435,400 | \$4,435,400 | 00.0% | \$2,497,700 | 177.6% |

Note: The first Staff Retiree Healthcare OPEB actuarial valuation was performed as of December 31, 2006 and the most recent OPEB actuarial valuation was conducted as of December 31, 2015. The actuarial valuation as of December 31, 2015 included projections through the year ended December 31, 2017.

Financial Section: *Required Supplementary Information*

Schedule of Employer Contributions (Post-Employment Healthcare - Staff Retiree Healthcare)

| Year Ended December 31, | Annual Required Contribution | Employer Contributions | |
|----------------------------|------------------------------------|------------------------|---------------------------|
| | | Amount Contributed | Percentage Contributed |
| 2017 | \$ - | \$ - | N/A |
| 2016 | \$ 853,059 | \$ 135,371 | 15.9% |
| 2015 | \$ 742,131 | \$ 186,411 | 25.1% |
| 2014 | \$ 704,214 | \$ 181,745 | 25.8% |
| 2013 | \$ 667,546 | \$ 162,985 | 24.4% |
| 2012 | \$ 864,676 | \$ 173,544 | 20.1% |
| 2011 | \$ 816,278 | \$ 174,439 | 21.4% |
| 2010 | \$ 770,673 | \$ 146,434 | 19.0% |
| 2009 | \$ 611,526 | \$ 111,840 | 18.3% |
| 2008 | \$ 573,808 | \$ 96,670 | 16.8% |

Actuarial valuation prepared at December 31, 2015 has been revised to reflect discontinuance of OPEB as of January 1, 2017.

Note to Schedules of Funding Progress and Employer Contributions (Post-employment Healthcare - Staff Retiree Healthcare)

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the date indicated. Additional information as of the latest actuarial valuation follows.

| | |
|--|--|
| Valuation date | December 31, 2015 |
| Actuarial cost method | Entry age normal; level percentage of payroll |
| Asset valuation method | No Assets (Pay-as-you-go) |
| Amortization method | 30 year open, level dollar |
| Amortization period | 30 years |
| Actuarial assumptions: | |
| Discount Rate | 4.50% |
| Inflation Rate | 3.00% |
| Projected payroll growth | 4.00% |
| Salaries increases | Varies based on years of service from 8.25% to 4.50% |
| Healthcare trend | |
| Non-Medicare Medical & Prescription Drugs | 7.25% graded to 5.0% over 9 years |
| Medicare Medical & Prescription Drugs | 8.00% graded to 5.0% over 9 years |

Financial Section: *Other Supplementary Information*

Schedule of Administrative and OPEB expenses

Years Ended December 31, 2017 and 2016

| | 2017 | 2016 |
|---|---------------------|---------------------|
| Personnel | | |
| Administrative salaries | \$ 3,219,243 | \$ 3,239,477 |
| Payroll taxes | 44,027 | 77,076 |
| Employee benefits | 1,267,710 | 1,130,344 |
| OPEB expense | - | 652,508 |
| | <u>4,530,980</u> | <u>5,099,405</u> |
| Professional Services | | |
| Actuarial valuation | 84,090 | 92,285 |
| Staff Actuary | - | 52,745 |
| Legal services | 226,777 | 263,187 |
| Medical | 54,370 | 52,786 |
| Audit | 39,000 | 38,000 |
| Legislative liaison services | 18,248 | 17,717 |
| Payroll services | 422,785 | 384,557 |
| IT consulting | 21,797 | 16,732 |
| Other consulting | 6,620 | 8,820 |
| | <u>873,687</u> | <u>926,829</u> |
| Communication | | |
| Printing & Publications | 12,890 | 20,287 |
| Postage | 63,910 | 72,646 |
| Telephone & communications | 31,993 | 36,442 |
| | <u>108,793</u> | <u>129,375</u> |
| Occupancy and Utilities | | |
| Office rent | 601,406 | 571,702 |
| Utilities | 9,961 | 11,561 |
| Office maintenance | 1,318 | 2,141 |
| | <u>612,685</u> | <u>585,404</u> |
| Other operating expense | | |
| Fiduciary and insurance | 224,461 | 207,003 |
| Office supplies and equipment | 47,156 | 35,863 |
| Depreciation | 5,809 | 4,423 |
| Equipment rental and maintenance | 10,064 | 18,889 |
| Training and travel | 10,889 | 7,652 |
| Contractual services | 22,500 | 20,893 |
| Dues and subscriptions | 15,664 | 14,615 |
| Miscellaneous | 10,318 | 6,433 |
| | <u>346,861</u> | <u>315,771</u> |
| Total Administrative and OPEB Expenses | <u>\$ 6,473,006</u> | <u>\$ 7,056,784</u> |

Financial Section: *Other Supplementary Information*

Schedule of Investment Management Compensation

Years Ended December 31, 2017 and 2016

| | 2017 | 2016 |
|--------------------------------------|--------------|--------------|
| Fixed Income Managers | | |
| LM Capital Group | \$ 316,304 | \$ 316,800 |
| MacKay Shields | 709,406 | 866,676 |
| Neuberger Berman | 51,824 | 101,554 |
| Segall Bryant & Hamill | 195,007 | 193,832 |
| Symphony Asset Management | 794,086 | 780,099 |
| UBS Global Asset Management | 67,871 | 91,430 |
| Total Fixed Income | 2,134,498 | 2,350,391 |
| Domestic Equity Managers | | |
| Ariel Investments | 498,510 | 470,118 |
| Castle Ark Management | - | - |
| Geneva Capital Management | 269,772 | 348,721 |
| Great Lakes Advisors | 388,006 | 334,232 |
| Herndon Capital Management | - | 30,118 |
| Holland Capital Management | 40,058 | 321,632 |
| Keeley Asset Management | 551,833 | 601,104 |
| Rhumblin Advisers | 86,136 | 63,486 |
| Total Domestic Equity | 1,834,315 | 2,169,411 |
| International Equity Managers | | |
| Cornerstone Capital Management | 553,952 | 542,533 |
| LSV Asset Management | 708,879 | 601,011 |
| MacKay Shields | | |
| Nothern Trust Company | 168,786 | 230,157 |
| Segall Bryant & Hamill | 385,462 | 84,038 |
| Walter Scott & Partners | 833,103 | 735,096 |
| William Blair | 1,176,594 | 1,082,949 |
| Total International Equity | 3,826,776 | 3,275,784 |
| Global Equity | | |
| FIS Group | 957,400 | 1,146,310 |
| Hedged Equity | | |
| K2 Advisors | 1,111,144 | 1,270,615 |
| The Rock Creek Group | 1,842,785 | 1,869,377 |
| Parametric Defensive Equity | 74,113 | - |
| Neuberger Berman US PutWrite | 50,973 | - |
| Total Hedged Equity | \$ 3,079,015 | \$ 3,139,992 |

Schedule of Investment Management Compensation (continued)

Years Ended December 31, 2017 and 2016

| | 2017 | 2016 |
|---|---------------|---------------|
| Real Estate Managers | | |
| AFL-CIO Building Trust | \$ 1,028,049 | \$ 835,511 |
| American Realty | 672,100 | 684,864 |
| DV Urban | 26,224 | 55,804 |
| J P Morgan | 1,132,961 | 1,017,228 |
| John Buck Company | - | 28,645 |
| Mesirow Real Estate | 561,803 | 945,335 |
| Prudential Asset Mgmt. | - | 1,041,560 |
| Tishman Speyer | 55,232 | 55,447 |
| UBS Realty Advisors | 33,920 | 57,327 |
| Walton Street Partners | 61,002 | 133,294 |
| Total Real Estate | 3,571,291 | 4,855,015 |
| Private Equity Managers | | |
| Adams Street Partners | 391,447 | 434,232 |
| Carpenter Bancorp Fund | 78,793 | 86,778 |
| First Analysis | - | 4,243 |
| GoldPoint Partners | 137,324 | 169,537 |
| Hispania Partners | 66,979 | 36,942 |
| Hopewell Ventures | 38,317 | 64,564 |
| Levine Leichtman | 388,766 | 139,999 |
| MK Capital | 57,970 | 78,464 |
| Mesirow Financial | 300,605 | 407,816 |
| Midwest Mezzanine Fund | 205,769 | 352,123 |
| Morgan Stanley Secondary | 58,007 | 40,576 |
| Muller & Monroe | 79,239 | 77,238 |
| Nogales Investors | 8,792 | 40,304 |
| Prudential Capital Partners | 335,353 | 517,548 |
| RCP Advisors | 20,763 | 149,490 |
| Stepstone | 80,158 | 84,779 |
| TRG Management | 43,018 | 56,851 |
| Total Private Equity | 2,291,300 | 2,741,484 |
| Total Investment Management Fees | 17,694,595 | 19,678,387 |
| Other Investment Expenses | | |
| Investment Consultant | 290,000 | 290,000 |
| Master Custodian | 1,338,045 | 476,783 |
| Investment Legal Services, Dues and Subscriptions | 18,362 | 32,404 |
| Total Other Investment Expenses | 1,646,407 | 799,187 |
| Total Investment Expenses | \$ 19,341,002 | \$ 20,477,574 |

Schedule of Professional and Consulting Costs

YEARS ENDED DECEMBER 31, 2017 AND 2016

| | <u>2017</u> | <u>2016</u> |
|--------------------|-------------------|-------------------|
| Legal Advisors | \$ 226,777 | \$ 263,187 |
| Medical Advisors | 54,370 | 52,786 |
| Consulting Actuary | 84,090 | 145,030 |
| Other Consulting | 46,665 | 43,269 |
| Auditor | 39,000 | 38,000 |
| Payroll Services | 422,785 | 384,557 |
| Total | <u>\$ 873,687</u> | <u>\$ 926,829</u> |

Investment

This report includes the summary from the Investment Consultant regarding 2017 investment results; certification letter from the Plan's custodian for 2017; a summary of the Plan's investment goals, objectives, and guidelines; and informative investment schedules for your review. Data provided to the Plan by its custodian and its investment consultant form the basis for the information that is presented throughout the Investment Section. All portfolio rates of return are presented using a time-weighted rate of return methodology based on fair values. The figures in the Investment Section of the Comprehensive Annual Financial Report may differ from those found in the Financial Section. This is due to a lag in reporting associated with certain classes of investments. The figures found in the Investment Section represent final figures for 2017.

May 30, 2018

The Board of Trustees
Municipal Employees' Annuity & Benefit Fund of Chicago
321 N. Clark Street, Suite 700
Chicago, IL 60654-4767

Dear Trustees:

Marquette Associates would like to provide a summary of the investment results for the Municipal Employees' Annuity & Benefit Fund of Chicago for the year ended December 31, 2017.

Interest rates decreased and credit spreads tightened over the year providing positive returns across fixed income, with significant outperformance of long duration and high yield bonds. U.S. Equities showed strong returns for the year, with the S&P 500 up 21.8% and the Russell 2000 up 14.6%. Broad International equity markets (MSCI All Country World ex-U.S.) gained 27.2% for the year. Emerging markets (MSCI Emerging Markets Index) significantly outperformed developed markets, up 37.3% for the year. Private Real Estate continued solid performance in 2017, up 7.0%.

The Municipal Employees' Annuity & Benefit Fund of Chicago's investment assets totaled \$4.29 billion at December 31, 2017. This represented a decrease of \$0.3 million from December 31, 2016, of which +\$611.6 million was due to investment gains, and -\$611.9 million due to withdrawals for benefits and expenses.

The Total Fund returned 15.1% for calendar 2017, net of fees, outperforming the Policy Benchmark's return of 14.5%. The Fund ranked in the 41st percentile in the InvestorForce Public Defined Benefit Fund peer universe. The 3-year annualized return for the Fund was 7.8% versus 7.0% for the benchmark, ranking the Fund in the 16th percentile. The 5-year annualized return for the Fund was 8.9% versus 8.2% for the benchmark, ranking the Fund in the 33rd percentile.

Factors contributing to 2017 performance include:

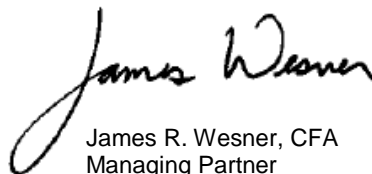
- Fixed Income – Positive returns from the asset class, outperforming the broad U.S. fixed income market, due to significant outperformance of High Yield and Senior Secured Loans.
- U.S. Equity – Strong returns in 2017, with large cap stocks significantly outperforming small cap stocks, and growth significantly outperforming value for the year. MEABF's U.S. Equity Composite underperformed its benchmark, mainly due to the Plan's policy overweight to small cap equities.
- International Equity – MEABF's International Equity Composite outperformed for the year, with strong active manager performance. Emerging markets outperformed developed markets for the year, with value significantly outperforming growth.
- Hedged Equity – The asset class provided solid returns for the year, as hedged equity outperformed other hedge fund strategies in 2017.
- Real Estate – Both open-end and closed-end managers experienced steady income returns for the year.
- Private Equity – The asset class was a moderate detractor from MEABF's performance for the year, returning roughly 9%.

MEABF continues to invest in a well-diversified portfolio of assets to provide growth opportunities for Plan assets in the years to come. The Plan implements this diversified portfolio by using a combination of active and passive management. The Plan continues to have a strong focus on reducing investment management fees.

Sincerely,



Brian Wrubel
President & CEO



James R. Wesner, CFA
Managing Partner



To the Board of Trustees and the Executive Director:

The Northern Trust Company as custodian (“Master Custodian”) of assets of the Municipal Employees’ Annuity and Benefit Fund of Chicago (“Fund”) held by it in a custodial account (the “Account”) has provided annual Statements of Account for the Account to the Fund which to the best of its knowledge provide a complete and accurate reflection of The Northern Trust Company’s record of the investments, receipts, disbursements, purchases and sales of securities and other transactions pertinent to the Account for the period January 1, 2017 through December 31, 2017.

In addition to the custody of assets in the Account, pursuant to and in accordance with the terms of the amended and restated Master Custody Agreement among the Board of Trustees of the Fund and The Northern Trust Company dated September 1, 2013 as amended (the “Custody Agreement”), The Northern Trust Company provided and continues to provide the following services as Master Custodian:

1. Receive and hold all amounts paid to the Account by the Board of Trustees.
2. Accept and deliver securities in connection with investment transactions in the Account in accordance with the instructions of appointed Investment Managers.
3. Collect dividends and registered interest payments.
4. Collect matured or called securities and coupons to the extent provided in the operating guidelines of The Northern Trust Company in effect from time to time.
5. Invest cash balances held from time to time in the individual investment management accounts of the Account in short term-cash equivalent securities.
6. Facilitate the exercising of rights of ownership, including but not limited to, proxy voting, stock subscriptions and conversion rights as directed by the Fund or its appointed investment managers.
7. Hold securities in the Account in the name of the Fund or nominee form or other means as provided in the Custody Agreement.
8. Use the Federal Book Entry Account System for deposit of Treasury securities and clearing corporations as defined in Article 8 of the Illinois Uniform Commercial Code for the deposit of securities.
9. Employ agents to the extent provided in the Custody Agreement.
10. Provide disbursement services.
11. Provide security fail float income to the extent provided in the operating guidelines of The Northern Trust Company in effect from time to time.

THE NORTHERN TRUST COMPANY

By: 

Kimberly A. Miller
Senior Vice President

The Northern Trust Company
50 South La Salle Street
Chicago, Illinois 60603
312-630-6000

Investment Section

Investment Authority and Responsibility

The authority granted to the Board of the Municipal Employees' Annuity and Benefit Fund of Chicago (the "Board") related to investment decisions can be found in the Illinois Compiled Statutes, Chapter 40, Act 5, Section 8-201 and 8-201.1. Section 1-113 also defines investments deemed to be prudent. Any fiduciary with investment authority is required to discharge his or her duties with respect to the Plan with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character with like aims.

In order to clarify the roles and responsibilities of the Board and the various investment professionals engaged by the Board, the following responsibilities have been designated:

The Board assumes the responsibility for establishing goals, objectives and guidelines to direct the investment activity of the Plan.

The Board engages various managers to make investments in accordance with agreed-upon guidelines and applicable statutes. These managers apply their professional judgment in making investment decisions. Managers are given full discretion within their assigned mandate to select, acquire, maintain and dispose of individual investments as authorized by contract.

Plan-level Investment Goals and Objectives

The Board sets the goals and objectives of the investment portfolio solely in the interest of the Plan, its participants and their beneficiaries. The performance objectives of the Fund are threefold:

- The Plan is to meet or exceed its actuarial return assumption of 7.0% on a net-of-fees basis over time with a level of risk deemed appropriate by the Board while maintaining liquidity sufficient to cover benefit payments and other obligations.
- The Plan is to outperform the risk-adjusted return, net-of-fees, of the Plan's policy benchmark.
- The Plan is to rank in at least the top half of the universe of comparable institutional investors with similar risk/return parameters consistently over time.

Investment Manager Goals, Objectives and Guidelines

The guidelines for a particular investment mandate are set at the time of hiring and are included in the contractual agreement between the Plan and the investment manager. The guidelines specify the types of the investments that can be made and contain certain constraints in order to limit risk. Given the investment guidelines, certain goals and objectives are set. Generally, they are as follows:

- Each investment manager is expected to outperform the agreed-upon benchmark on a risk-adjusted-basis over a market cycle (typically a three- to five-year period).
- The total net-of-fees return for the mandate should rank above the median within the respective peer universe.
- The investment manager shall attempt to achieve its return objectives while maintaining an appropriate level of risk as determined by the Board and/or as specified in the investment contract.

Investment Section

Risk Management

Risk management is essential to the Plan's mission and to the success of the Plan's investment program. Most investment decisions have a risk component that must be considered. When making investment decisions, the Board shall make a reasonable effort to consider all risks—liquidity risk, market risk, business risk, credit risk, currency risk, interest rate risk, inflationary risk, etc.— within the context of the Plan's overall portfolio. The Board, with assistance from staff and its investment consultant, shall, taking into account the Plan's ability and the Board's willingness to assume risk, determine an appropriate risk tolerance level for the Plan. Determining the risk tolerance level shall serve as the first step in crafting an appropriate target asset allocation, setting investment goals and objectives, and making other investment-related decisions.

Asset Allocation

The Plan's assets are diversified to minimize risk and to maximize risk adjusted returns. Diversification is accomplished by utilizing appropriate asset allocation targets. Upon advice from staff and the Plan's investment consultant, the Board shall adopt appropriate asset allocation targets. The target allocation mix includes the traditional domestic & international equity and fixed income investments as well as alternative investments such as hedged equity, private equity, and real estate. Proper diversification within each asset class is based on establishing complementary investment objectives and management styles. The Board, staff and investment consultant will review the asset allocation at least annually and consider changes as deemed prudent.

Cash Flow Needs & Portfolio Rebalancing

The extensive operating cash flow needs of the Plan require the liquidation of investment assets on a monthly basis. Liquidity will be primarily drawn from asset classes that exceed their respective allocation targets in an effort to move the Plan's overall asset allocation closer to target allocations.

Should the regular monthly liquidity events associated with benefit payments not be sufficient to keep the portfolio in line with the target allocations, the Plan's portfolio may need to be rebalanced by shifting assets from one asset class to another. In these instances, the investment consultant and staff will bring a rebalancing plan to the Board for its approval. Upon approval by the Board, the staff will work to transition the assets.

Investment Management Fee

The Plan has made conscious efforts to reduce overall investment management expenses to coincide with our liquidity risks and on-going battle with our funding status. Since 2012, invested assets have been reduced by 14.7% while fee reduction was 24%. Over the years, the Fund's investment management fees have reduced significantly while maintaining asset allocation targets and return/risk profiles.

Following factors have attributed to the Fund's success in reducing investment management fees:

- Consolidate over-diversification of managers while moving to passive management in more efficient markets.
- Partnership with existing managers with long relationship in an effort to reduce fees.
- Negotiate with potential investment manager candidates for a highly competitive fee structure.
- Leverage consultant relationship with investment managers to help negotiate and reduce fee structure.

The Board, staff and investment consultant understand the importance of fee reduction within the Plan and are having discussions with managers on a continuous base.

Investment Section

Investment Managers

As of December 31, 2017

Adams Street Partners

Chicago, Illinois
Private Equity Direct Partnerships
Private Equity Fund of Funds

American Realty Advisors

Glendale, California
Real Estate Core Fund

Ariel Investments

Chicago, Illinois
Domestic Equity Small/Mid Cap Value

Capri Capital Partners

Chicago, Illinois
Real Estate Partnership
Real Estate Mezzanine Fund

Carpenter & Company

Irvine, California
Private Equity Direct Partnership

Crescent Capital Group

Los Angeles, California
High Yield Fixed Income

First Analysis

Chicago, Illinois
Private Equity Direct Partnerships

FIS Group, Inc.

Philadelphia, Pennsylvania
Manager of Managers
Global Equity

GoldPoint Partners

New York, New York
Private Equity Mezzanine Fund

Great Lakes Advisors

Chicago, Illinois
Domestic Equity Large Cap Value

Henderson Geneva Capital Management

Terminated September 2017
Milwaukee, Wisconsin
Domestic Equity Mid Cap Growth

Hispania Capital Partners

Chicago, Illinois
Private Equity Direct Partnership

Holland Capital Management

Terminated February 2017
Chicago, Illinois
Domestic Equity Large Cap Growth

Invesco Private Capital

New York, New York
Invesco Private Capital
New York, New York
Private Equity Fund of Funds

John Buck Company

Chicago, Illinois
Real Estate Partnerships

JP Morgan Asset Management

New York, New York
Real Estate Core Fund

K2 Advisors

Stamford, Connecticut
Hedged Equity Fund of Funds

Keeley Asset Management

Chicago, Illinois
Domestic Equity Small Cap Value

Levine Leichtman

Beverly Hills, California
Private Equity Mezzanine Funds

LM Capital

San Diego, California
Fixed Income Core

LSV Asset Management

Chicago, Illinois
International Equity Large Cap Value

Mackay Shields

New York, New York
Fixed Income High Yield
International Equity Large Cap

Mesirow Financial

Chicago, Illinois
Private Equity Direct Partnerships
Private Equity Funds of Funds
Real Estate Direct Partnership

Midwest Mezzanine Funds

Chicago, Illinois
Private Equity Mezzanine Funds

Investment Section

MK Capital

Chicago, Illinois
Private Equity Direct Partnership

Morgan Stanley

West Conshohocken, Pennsylvania
Private Equity Secondary Fund of Funds

Muller & Monroe Asset Management

Chicago, Illinois
Private Equity Funds of Funds

Neuberger Berman

Chicago, Illinois
Fixed Income Enhanced Index
Defensive Equity

Newport Capital Partners

Chicago, Illinois
Real Estate Partnership

Nogales Investors Management

Los Angeles, California
Private Equity Direct Partnerships

Northern Trust Asset Management

Chicago, Illinois
International Equity All-World Ex-US Index
International Equity Small Cap Index

Parametric

Minneapolis, MN
Defensive Equity

PNC Bank - AFL/CIO

Washington, D.C.
Real Estate Core Fund

Prudential Capital Partners

Chicago, Illinois
Private Equity Mezzanine Fund

RCP Advisors

Chicago, IL
Private Equity Secondary Fund of Funds

RhumbLine Advisors

Boston, Massachusetts
Domestic Equity Large Cap Core Index
Domestic Equity Mid Cap Growth Index

The Rock Creek Group

Washington, D.C.
Hedged Equity Fund of Funds

Segall Bryant & Hamill

Chicago, Illinois
Fixed Income Intermediate
Small-Cap International

StepStone Group

San Diego, California
Private Equity Fund of Funds

Symphony Asset Management

San Francisco, California
Fixed Income Senior Bank Loans

Tishman Speyer

New York, New York
Real Estate Partnership

TRG Management

New York, New York
International Private Equity Direct Partnership

UBS Global Asset Management (Americas)

Chicago, IL
Fixed Income Core

UBS Realty Investors

Hartford, Connecticut
Real Estate Partnership

Walter Scott & Partners

Edinburgh, Scotland
International Equity Large Cap Growth

Walton Street Capital

Chicago, Illinois
Real Estate Partnerships

William Blair & Company

Chicago, Illinois
Emerging Markets Equity

Woodland Venture Management

Chicago, Illinois
Private Equity Direct Partnership

Investment Section

Portfolio Performance

As of December 31, 2017

Performance Returns by Asset Class

| | Calendar Year Returns | | | | | Annualized Returns | | |
|---|-----------------------|-------------|-------------|-------------|-------------|--------------------|--------------|---------------|
| | <u>2017</u> | <u>2016</u> | <u>2015</u> | <u>2014</u> | <u>2013</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
| Total Plan | | | | | | | | |
| The Plan - Net of Fees | 15.1% | 6.3% | 2.1% | 5.1% | 16.1% | 7.8% | 8.9% | 5.3% |
| Policy Benchmark | 14.5% | 6.3% | 0.6% | 5.8% | 14.3% | 7.0% | 8.2% | 4.4% |
| Fixed Income | | | | | | | | |
| The Plan | 4.0% | 6.5% | 0.6% | 4.3% | 0.4% | 3.7% | 3.1% | 4.3% |
| Barclays Cap Aggregate Bond Index | 3.5% | 2.6% | 0.6% | 6.0% | -2.0% | 2.2% | 2.1% | 4.0% |
| Domestic Equity | | | | | | | | |
| The Plan | 19.8% | 11.3% | -0.7% | 8.6% | 33.6% | 9.8% | 13.9% | 8.3% |
| S&P 500 Index | 21.8% | 12.0% | 1.4% | 13.7% | 32.4% | 11.4% | 15.8% | 8.5% |
| Russell 2000 Index | 14.6% | 21.3% | -4.4% | 4.9% | 38.8% | 10.0% | 14.1% | 8.7% |
| International Equity | | | | | | | | |
| The Plan | 32.2% | 2.6% | -1.1% | -2.9% | 17.6% | 10.3% | 8.9% | 4.9% |
| MSCI ACWI ex U.S. Index | 27.2% | 4.5% | -5.7% | -3.9% | 15.3% | 7.8% | 6.8% | 1.8% |
| Real Estate | | | | | | | | |
| The Plan | 5.6% | 6.7% | 14.2% | 11.7% | 12.4% | 9.4% | 10.4% | 3.3% |
| NCREIF Property Index | 7.0% | 8.0% | 13.3% | 11.8% | 11.0% | 9.4% | 10.2% | 6.1% |
| Private Equity | | | | | | | | |
| The Plan | 8.8% | 12.8% | 9.2% | 13.9% | 10.9% | 10.0% | 11.0% | 9.4% |
| Cambridge Associates Private Equity Index | 13.1% | 9.7% | 7.3% | 11.2% | 21.0% | 10.0% | 12.2% | 8.2% |
| Hedged Equity | | | | | | | | |
| The Plan | 10.7% | -1.1% | 3.4% | 5.4% | 17.6% | 4.2% | 7.0% | N/A |
| HFRX Equity Hedge Index | 10.0% | 0.1% | -2.3% | 1.4% | 11.1% | 2.4% | 3.9% | -0.6% |

* Comprised of defined benefit public pension plans with over \$1 billion in assets.

Returns are calculated using the time-weighted rate of return method.

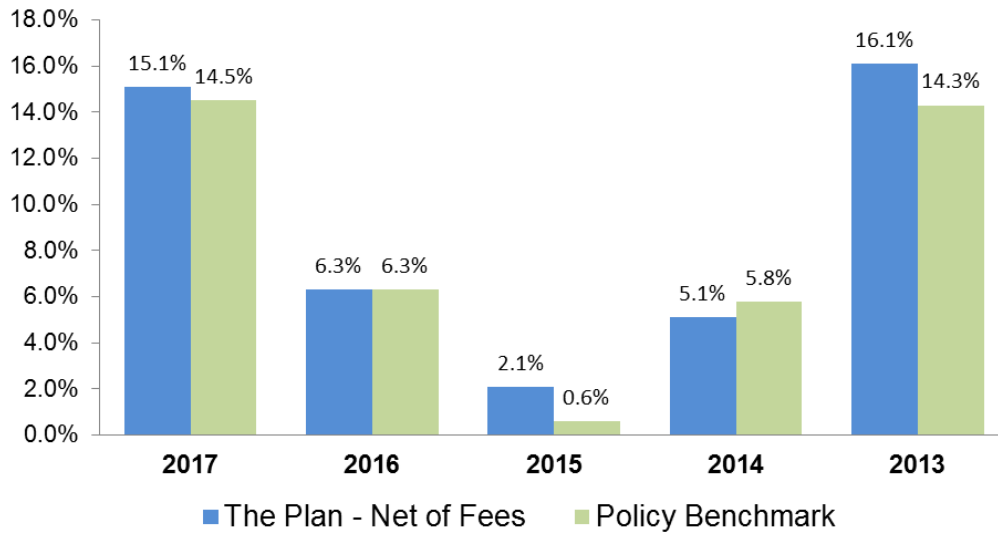
Returns are presented net-of-fees.

Source: Marquette Associates, Investment Consultant

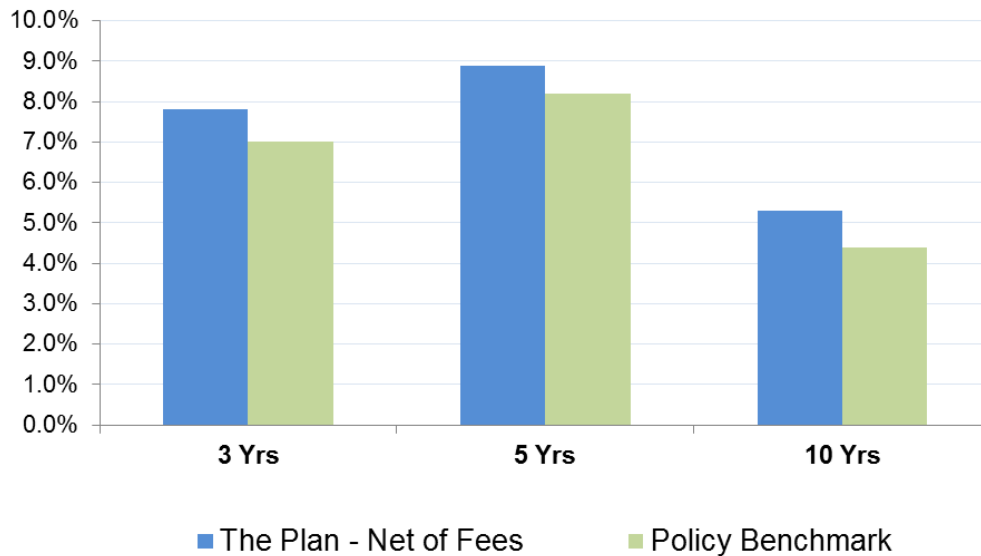
Investment Section

Portfolio Performance (Continued)

Calendar Year Returns - Total Plan



Annualized Returns - Total Plan



Returns are calculated using the time-weighted rate of return method.

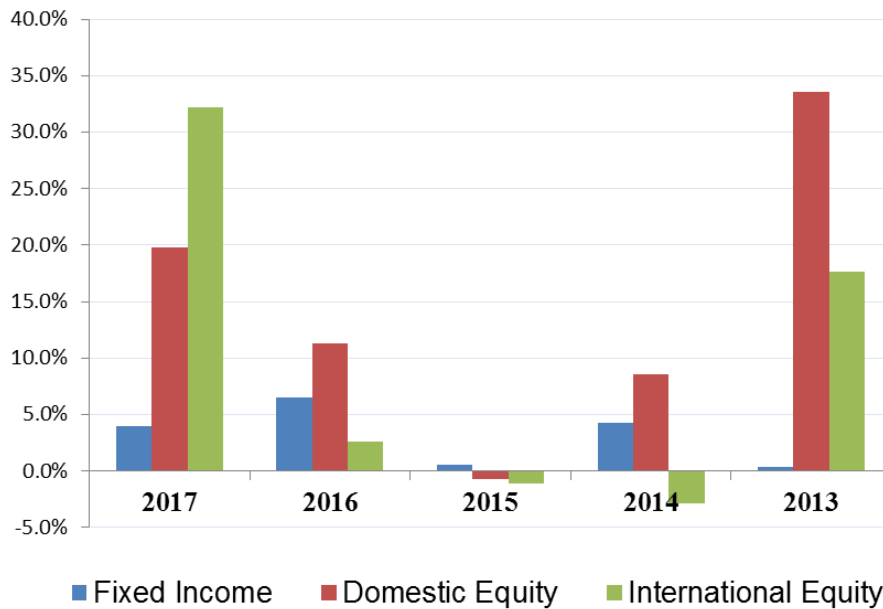
Returns are presented net-of-fees.

Source: Marquette Associates, Investment Consultant

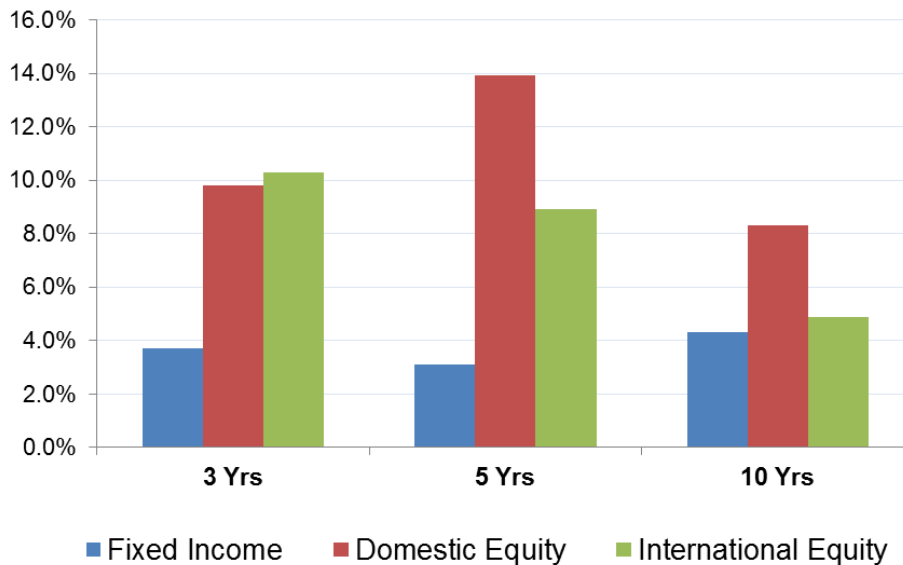
Investment Section

Portfolio Performance (Continued)

Calendar Year Returns - Equity & Fixed Income



Annualized Returns - Equity & Fixed Income



Returns are calculated using the time-weighted rate of return method.

Returns are presented net-of-fees.

Source: Marquette Associates, Investment Consultant

Investment Section

Portfolio Summary

As of December 31, 2017 and December 31, 2016

| Asset Category | As of December 31, 2017 | | | As of December 31, 2016 | | |
|--------------------------|-------------------------|-------------|-------------|-------------------------|-------------|-------------|
| | Fair Value | Percent of | | Fair Value | Percent of | |
| | | Total | Target | | Total | Target |
| Fixed Income | \$ 986,491,904 | 23% | 27% | \$ 1,007,435,747 | 23% | 27% |
| Domestic Equity | 1,207,978,366 | 28% | 26% | 1,058,176,957 | 25% | 26% |
| International Equity | 881,719,408 | 21% | 22% | 868,412,164 | 20% | 22% |
| Hedged Equity | 418,747,415 | 10% | 10% | 463,825,386 | 11% | 10% |
| Real Estate | 431,421,604 | 10% | 10% | 458,150,837 | 11% | 10% |
| Private Equity | 200,760,945 | 4% | 5% | 237,648,563 | 5% | 5% |
| Short-term* | 169,027,392 | 4% | 0% | 192,097,254 | 4% | 0% |
| Total Investments | \$ 4,296,147,034 | 100% | 100% | \$ 4,285,746,908 | 100% | 100% |

Components may not sum to totals due to rounding.

*Short-term Investments include cash necessary to pay following month's benefits and residual cash balance of active investment managers.

Source: Northern Trust Custody Statements

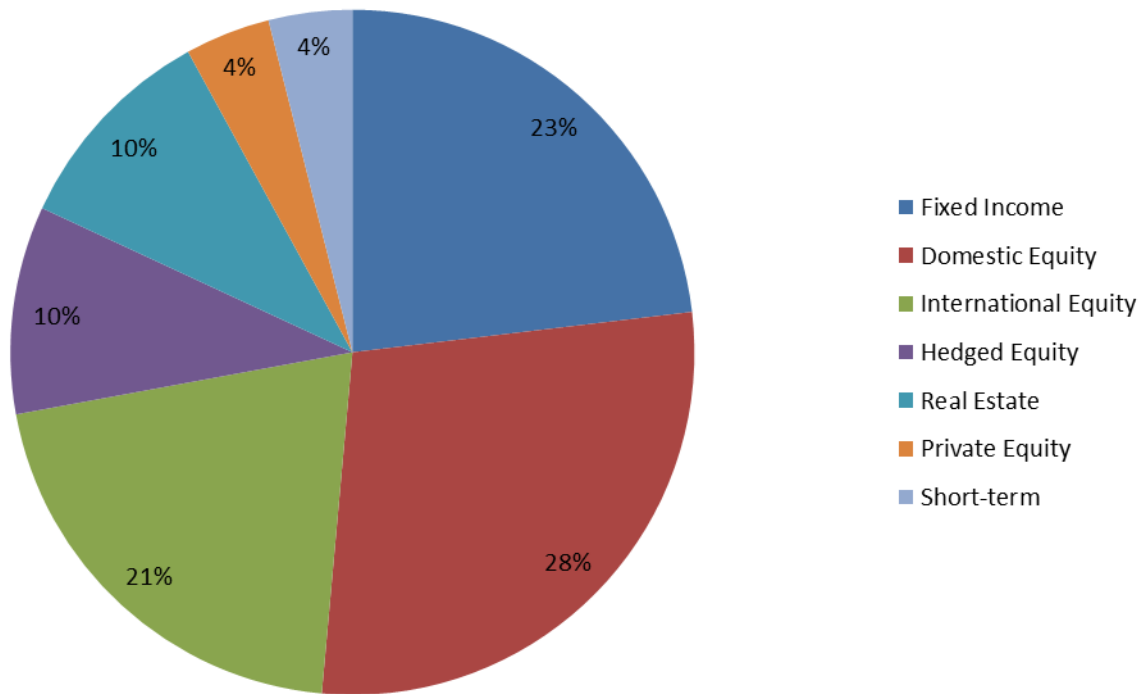
Investment Section

Portfolio Asset Allocation

As of December 31, 2017

| Asset Class | Target Allocation | Actual Allocation |
|----------------------|-------------------|-------------------|
| Fixed Income | 27% | 23% |
| Domestic Equity | 26% | 28% |
| International Equity | 22% | 21% |
| Hedged Equity | 10% | 10% |
| Real Estate | 10% | 10% |
| Private Equity | 5% | 4% |
| Short-term | 0% | 4% |
| Total | 100% | 100% |

Actual Asset Allocation as of December 31, 2017



Components may not sum to totals due to rounding.

Source: Northern Trust Custody Statements

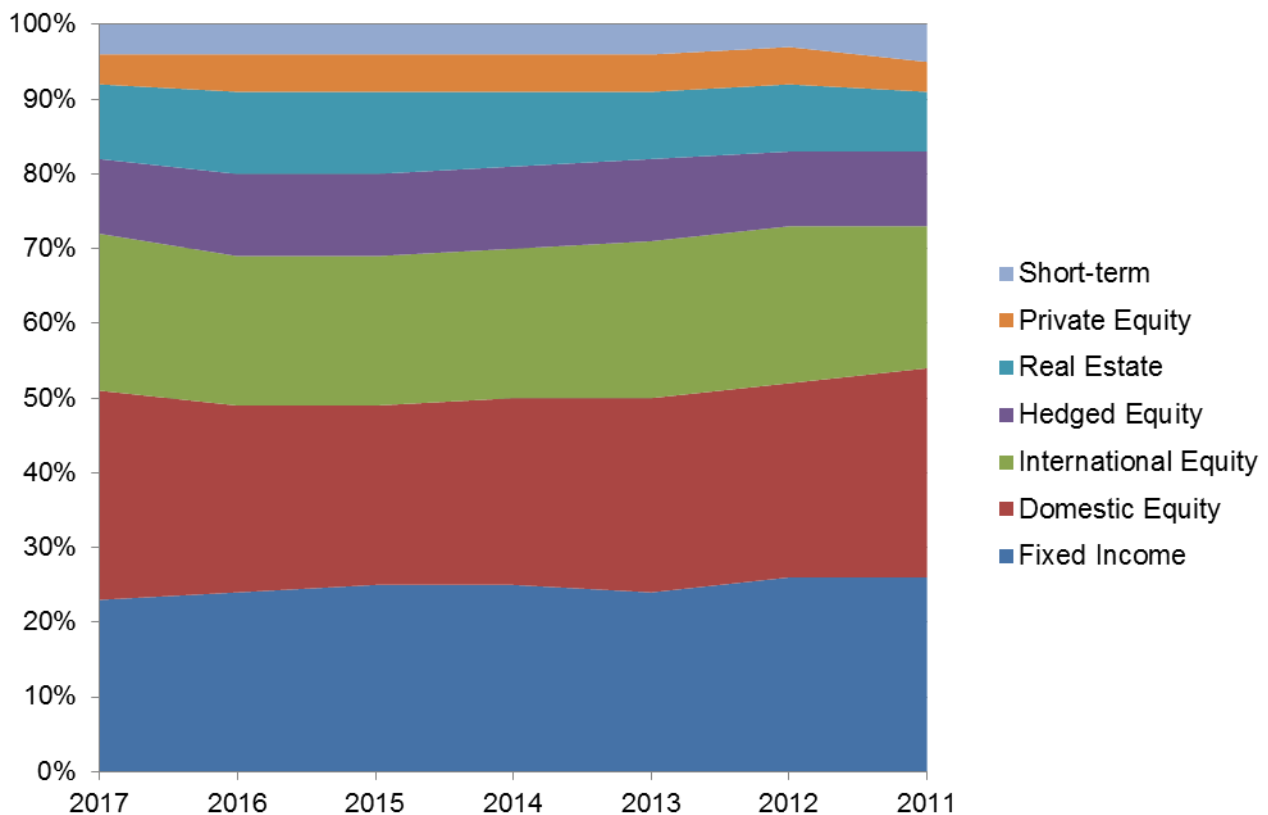
Investment Section

Portfolio Asset Allocation

Last Seven Years

| Asset Class | 2017 | 2016 | 2015 | 2014 | 2013 | 2012 | 2011 |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Fixed Income | 23% | 24% | 25% | 25% | 24% | 26% | 26% |
| Domestic Equity | 28% | 25% | 24% | 25% | 26% | 26% | 28% |
| International Equity | 21% | 20% | 20% | 20% | 21% | 21% | 19% |
| Hedged Equity | 10% | 11% | 11% | 11% | 11% | 10% | 10% |
| Real Estate | 10% | 11% | 11% | 10% | 9% | 9% | 8% |
| Private Equity | 4% | 5% | 5% | 5% | 5% | 5% | 4% |
| Short-term | 4% | 4% | 4% | 4% | 4% | 3% | 5% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Last Seven Years Asset Allocation



Components may not sum to totals due to rounding.

Source: Northern Trust Custody Statements

Investment Section

Domestic Equity Portfolio Summary

As of December 31, 2017

Sector Allocation

| <u>Sector</u> | <u>Fair Value</u> | <u>% of Total</u> | <u>S&P 500</u> |
|----------------------------|-------------------------|-------------------|--------------------|
| Information Technology | \$ 261,495,872 | 21.65% | 23.76% |
| Financials | 211,018,526 | 17.47% | 14.78% |
| Consumer Discretionary | 167,160,399 | 13.84% | 12.20% |
| Industrials | 161,798,029 | 13.39% | 10.26% |
| Health Care | 143,691,976 | 11.90% | 13.84% |
| Energy | 61,456,557 | 5.09% | 6.07% |
| Consumer Staples | 61,386,646 | 5.08% | 8.20% |
| Real Estate | 55,928,928 | 4.63% | 2.89% |
| Materials | 37,928,897 | 3.14% | 3.01% |
| Utilities | 29,674,767 | 2.46% | 2.93% |
| Telecommunication Services | 11,060,971 | 0.92% | 2.06% |
| Miscellaneous/Unclassified | 5,376,798 | 0.45% | 0.00% |
| Total | \$ 1,207,978,366 | 100.00% | 100.00% |

Top 10 Holdings

| <u>Name of Security</u> | <u>Sector</u> | <u>Shares</u> | <u>Fair Value</u> | <u>% of U.S. Equity</u> |
|-------------------------------------|------------------------|------------------|-----------------------|-------------------------|
| APPLE INC COM STK | Information Technology | 131,716 | \$ 22,290,299 | 1.8% |
| MICROSOFT CORP COM | Information Technology | 172,354 | 14,743,161 | 1.2% |
| BERKSHIRE HATHAWAY INC-CL B | Financials | 61,026 | 12,096,574 | 1.0% |
| BANK OF AMERICA CORP | Financials | 339,567 | 10,024,018 | 0.8% |
| AMAZON COM INC COM | Consumer Discretionary | 8,078 | 9,446,979 | 0.8% |
| ALPHABET INC CAP STK USD0.001 CL C | Information Technology | 8,975 | 9,391,440 | 0.8% |
| EXXON MOBIL CORP COM | Energy | 104,722 | 8,758,948 | 0.7% |
| UNITEDHEALTH GROUP INC COM | Health Care | 39,186 | 8,638,946 | 0.7% |
| CITIGROUP INC COM NEW COM NEW | Financials | 115,970 | 8,629,328 | 0.7% |
| FACEBOOK INC COM USD0.000006 CL 'A' | Information Technology | 47,961 | 8,463,198 | 0.7% |
| Total | | 1,029,555 | \$ 112,482,889 | 9.3% |

Note: A complete listing of the portfolio holdings is available for review at the Fund office.

Components may not sum to totals due to rounding.

Source: Northern Trust Custody Statements

Investment Section

International Equity Portfolio Summary

As of December 31, 2017

Country Allocation

| <u>Country</u> | | <u>Fair Value</u> | <u>% of Total</u> | <u>MSCI ACWI ex US</u> |
|----------------------|-----------|--------------------|-------------------|------------------------|
| Japan | \$ | 183,316,391 | 20.79% | 16.52% |
| United Kingdom | | 125,263,114 | 14.21% | 12.24% |
| Germany | | 55,489,247 | 6.29% | 6.76% |
| Switzerland | | 47,958,896 | 5.44% | 5.52% |
| France | | 47,006,946 | 5.33% | 7.34% |
| China | | 46,987,485 | 5.33% | 7.36% |
| India | | 43,170,809 | 4.90% | 2.18% |
| Australia | | 38,942,996 | 4.42% | 4.76% |
| Canada | | 25,199,605 | 2.86% | 6.41% |
| Korea, Republic Of | | 22,549,874 | 2.56% | 3.81% |
| Sweden | | 21,467,145 | 2.43% | 1.85% |
| Hong Kong | | 21,162,534 | 2.40% | 2.46% |
| Denmark | | 18,735,117 | 2.12% | 1.26% |
| Spain | | 18,537,673 | 2.10% | 2.21% |
| Netherlands | | 17,917,259 | 2.03% | 2.45% |
| Italy | | 16,950,437 | 1.92% | 1.61% |
| Taiwan | | 16,654,559 | 1.89% | 2.80% |
| South Africa | | 15,036,887 | 1.71% | 1.77% |
| Brazil | | 14,263,513 | 1.62% | 1.69% |
| Thailand | | 10,029,924 | 1.14% | 0.57% |
| Finland | | 9,208,121 | 1.04% | 0.64% |
| Belgium | | 8,586,219 | 0.97% | 0.76% |
| Norway | | 7,417,845 | 0.84% | 0.45% |
| Singapore | | 6,083,566 | 0.69% | 0.45% |
| Ireland | | 6,023,065 | 0.68% | 0.34% |
| Indonesia | | 5,413,943 | 0.61% | 0.56% |
| Austria | | 4,329,825 | 0.49% | 0.18% |
| Israel | | 4,123,569 | 0.47% | 0.32% |
| Philippines | | 3,477,490 | 0.39% | 0.28% |
| Mexico | | 2,718,212 | 0.31% | 0.73% |
| Turkey | | 2,351,889 | 0.27% | 0.27% |
| New Zealand | | 1,959,359 | 0.22% | 0.12% |
| Russian Federation | | 1,902,784 | 0.22% | 0.83% |
| Portugal | | 1,744,956 | 0.20% | 0.10% |
| United Arab Emirates | | 1,386,162 | 0.16% | 0.16% |
| Hungary | | 1,234,571 | 0.14% | 0.08% |
| Poland | | 1,117,183 | 0.13% | 0.33% |
| Malaysia | | 1,061,254 | 0.12% | 0.58% |
| Remaining Countries | | 4,938,984 | 0.56% | 1.25% |
| Total | \$ | 881,719,408 | 100.00% | 100.00% |

Components may not sum to totals due to rounding.

Source: Northern Trust Custody Statements

Investment Section

International Equity Portfolio Summary (Continued)

As of December 31, 2017

Top 10 Holdings

| Name of Security | Country | Sector | Shares | Fair Value | % of Int'l Equity |
|---|--------------------|------------------------|------------------|----------------------|-------------------|
| TENCENT HLDGS LIMITED COMMON STOCK | China | Information Technology | 259,300 | \$ 13,467,028 | 1.53% |
| ADR ALIBABA GROUP HOLDING LTD SPONSORED ADS | China | Information Technology | 67,328 | 11,609,367 | 1.32% |
| SAMSUNG ELECTRONIC KRW5000 | Korea, Republic Of | Information Technology | 4,444 | 10,577,098 | 1.20% |
| TAIWAN SEMICONDUCTOR MANUFACTURING ADS EACH | Taiwan | Information Technology | 240,617 | 9,540,464 | 1.08% |
| PING AN INSURANCE GROUP 'H' CNY1 | China | Financials | 770,150 | 8,014,494 | 0.91% |
| NASPERS 'N' ZAR0.02 | South Africa | Consumer Discretionary | 24,991 | 6,966,393 | 0.79% |
| ROCHE HLDGS AG GENUSSSCHEINE NPV | Switzerland | Health Care | 24,740 | 6,257,989 | 0.71% |
| NOVO-NORDISK AS DKK0.2 SERIES'B' | Denmark | Health Care | 114,849 | 6,195,889 | 0.70% |
| EXPERIAN ORD USD0.10 | United Kingdom | Industrials | 263,647 | 5,834,770 | 0.66% |
| HOUSING DEVEL FIN INR2 | India | Financials | 202,715 | 5,432,200 | 0.62% |
| Total | | | 1,972,781 | \$ 83,895,691 | 9.52% |

A complete list of holdings is available upon request.

Components may not sum to totals due to rounding.

Source: Northern Trust Custody Statements

Investment Section

Fixed Income Portfolio Summary

As of December 31, 2017

Sector Allocation

| <u>Sector</u> | <u>Fair Value</u> | <u>% of Total</u> | <u>Barclay Agg</u> |
|---------------------------------------|-----------------------|-------------------|--------------------|
| Corporate Bonds | \$ 407,988,476 | 41.36% | 25.71% |
| Bank Loans | 184,424,093 | 18.69% | 0.00% |
| Government Mortgage Backed Securities | 134,807,368 | 13.67% | 28.07% |
| Government Bonds | 133,739,757 | 13.56% | 36.95% |
| Other Fixed Income | 56,064,908 | 5.68% | 2.62% |
| Government Agencies | 32,989,630 | 3.34% | 3.28% |
| Asset Backed Securities | 12,936,169 | 1.31% | 0.52% |
| Municipal/Provincial Bonds | 10,612,972 | 1.08% | 0.98% |
| Commercial Mortgage-Backed | 7,353,587 | 0.75% | 1.87% |
| Corporate Convertible Bonds | 2,853,008 | 0.29% | 0.00% |
| Index Linked Government Bonds | 2,714,757 | 0.28% | 0.00% |
| Non-Government Backed C.M.O.s | 7,179 | 0.00% | 0.00% |
| Total | \$ 986,491,904 | 100.00% | 100.00% |

Top 10 Holdings

| <u>Name of Security</u> | <u>Sub Asset Class</u> | <u>Fair Value</u> | <u>% of Fixed Income</u> |
|--|------------------------|----------------------|--------------------------|
| UNITED STATES TREAS NTS 3.50 DUE 05-15-2020 REG | Government Bonds | \$ 9,329,067 | 0.95% |
| UNITED STATES TREAS DTD 02/15/2015 2% DUE 02-15-2025 REG | Government Bonds | 9,227,968 | 0.94% |
| US TREAS NTS DTD 00363 2.125 DUE 08-15-2021 REG | Government Bonds | 7,610,982 | 0.77% |
| UNITED STATES TREAS NTS DTD 02/15/2013 2% DUE 02-15-2023 REG | Government Bonds | 6,730,144 | 0.68% |
| FNMA FANNIE MAE 2.125 04-24-2026 | Government Agencies | 6,494,389 | 0.66% |
| UNITED STATES TREAS NTS DTD 08/15/2015 2% DUE 08-15-2025 REG | Government Bonds | 6,336,740 | 0.64% |
| UTD STATES TREAS 1.75% DUE 05-15-2022 | Government Bonds | 6,100,217 | 0.62% |
| HUMANA INC 3.15 DUE 12-01-2022 | Corporate Bonds | 6,039,864 | 0.61% |
| UNITED STATES TREAS NTS DTD 05/15/2014 2.5% DUE 05-15-2024 REG | Government Bonds | 5,890,758 | 0.60% |
| UNITED STATES TREAS 2.25% DUE 02-15-2027 REG | Government Bonds | 5,743,613 | 0.58% |
| Total | | \$ 69,503,742 | 7.05% |

A complete list of holdings is available upon request.

Components may not sum to totals due to rounding.

Source: Northern Trust Custody Statements

Investment Section

Domestic Equity Brokerage Commissions

As of December 31, 2017

| <u>Broker Name</u> | <u>Commissions</u> | <u>Shares</u> |
|-----------------------------------|--------------------|-------------------|
| Loop Capital* | \$ 75,496 | 3,604,499 |
| Penserra Securities* | 47,483 | 3,313,181 |
| Drexel Hamilton | 33,400 | 1,136,374 |
| Robert W. Baird & Company Inc. | 25,603 | 560,942 |
| C.L. King & Associates, Inc. | 22,997 | 555,146 |
| Cheevers & Company Inc.* | 16,017 | 1,579,727 |
| Williams Capital* | 14,250 | 468,662 |
| Keefe Bruyette & Woods Inc. | 11,400 | 296,108 |
| Academy Securities Inc. | 7,741 | 211,482 |
| Cantor Fitzgerald & Co. | 6,914 | 197,896 |
| Cabrera Capital* | 6,787 | 126,155 |
| Cowen | 5,601 | 125,364 |
| Itg Australia Limited | 4,704 | 3,309,553 |
| Blaylock & Company Inc.* | 4,569 | 114,300 |
| RBC Dain Rauscher | 4,546 | 126,721 |
| Longbow Securities LLC | 3,138 | 133,970 |
| Instinet | 2,955 | 1,676,385 |
| CJS Securities Inc. | 2,630 | 82,190 |
| Percival Financial Partners* | 2,615 | 104,000 |
| Morgan Stanley | 2,610 | 55,490 |
| Mischler Financial Group | 2,557 | 77,727 |
| Guzman & Company* | 2,431 | 280,724 |
| William Blair & Co | 2,295 | 56,008 |
| Keybanc Capital Markets Inc. | 2,276 | 68,979 |
| Raymond James | 2,170 | 52,015 |
| Liquidnet Inc. | 1,782 | 147,962 |
| Merrill Lynch | 1,671 | 251,339 |
| Credit Suisse | 1,330 | 72,162 |
| Stifel Nicolaus & Co | 1,137 | 48,452 |
| Sturdivant & Co. Inc.* | 1,128 | 25,689 |
| BTIG LLC | 993 | 91,469 |
| Stephens Inc. | 965 | 46,784 |
| J.P. Morgan | 825 | 200,776 |
| Jefferies & Company | 803 | 295,110 |
| Seaport Group | 702 | 16,231 |
| D. A. Davidson & Co. | 606 | 19,059 |
| Jonestrading Inst Serv | 472 | 20,293 |
| Siebert Cisneros Shank & Co.L.L.C | 405 | 11,100 |
| Barclay's Bank | 392 | 4,800 |
| Sanford C. Bernstein & Co. | 376 | 23,900 |
| Dowling & Partners | 368 | 3,000 |
| Pershing Square | 316 | 6,800 |
| Other Brokers | 1,528 | 83,347 |
| Total | \$ 328,981 | 19,681,871 |

* Women, minority, or disabled-owned brokerage firm.

Components may not sum to totals due to rounding.

Source: Northern Trust Custody Statements

Investment Section

International Equity Brokerage Commissions

As of December 31, 2017

| <u>Broker Name</u> | <u>Commissions</u> | <u>Shares</u> |
|-------------------------------------|--------------------|--------------------|
| UBS | \$ 70,276 | 9,628,711 |
| Bank Of America | 45,595 | 11,785,042 |
| CLSA | 40,043 | 7,595,558 |
| Citi Group | 38,209 | 8,654,583 |
| Morgan Stanley | 32,434 | 8,624,254 |
| Bank of New York | 32,054 | 2,598,256 |
| J.P. Morgan | 30,589 | 16,447,849 |
| Berenberg Capital Markets | 29,905 | 1,025,223 |
| BNP Paribas | 29,855 | 4,782,663 |
| Instinet | 27,669 | 6,762,778 |
| Credit Suisse | 24,551 | 12,389,358 |
| Deutsche Bank | 23,463 | 2,048,244 |
| Goldman Sachs | 21,230 | 5,013,275 |
| Loop Capital* | 17,279 | 508,283 |
| Macquarie Bank Limited | 13,741 | 2,256,719 |
| Jefferies & Company | 9,810 | 2,360,727 |
| Societe Generale London Branch | 6,411 | 1,072,469 |
| HSBC | 6,408 | 2,387,899 |
| Credit Lyonnais | 5,958 | 1,864,387 |
| Williams Capital* | 5,697 | 47,632 |
| Barclay's Bank | 5,469 | 661,182 |
| Investment Technology Group Inc. | 4,610 | 1,206,465 |
| Financial Brokerage Group (FBG) | 4,598 | 1,642,708 |
| Itg Australia Limited | 4,014 | 1,632,799 |
| Itau Unibanco | 3,582 | 639,788 |
| Icap Do Brasil Dtm Ltda | 3,433 | 257,316 |
| Penserra Securities* | 3,352 | 24,456,466 |
| Bradesco | 2,755 | 293,757 |
| SMBC | 2,644 | 162,283 |
| Banco Santander S.A. New York | 2,530 | 729,937 |
| Sanford C. Bernstein & Co. | 2,495 | 3,217,427 |
| Brasil Plural CCTVM SA | 2,418 | 277,387 |
| Cimb Securities | 2,384 | 318,254 |
| Mizuho Securites Fixed | 2,040 | 942,069 |
| Liquidnet Inc. | 1,968 | 534,361 |
| Scotia McLeod Inc. | 1,876 | 473,497 |
| JM Financial Institutional | 1,823 | 130,960 |
| China Intl Capital Corp Hk Secs Ltd | 1,773 | 230,165 |
| Kotak Securities Ltd | 1,764 | 200,097 |
| Axis Capital Limited | 1,763 | 976,618 |
| Motilal Oswal Securities Limited | 1,692 | 428,783 |
| Pershing Square | 1,636 | 175,059 |
| Daiwa Capital Markets | 1,568 | 853,023 |
| Standard Bank PLC | 1,522 | 714,617 |
| Other Brokers | 17,568 | 5,622,669 |
| Total | \$ 592,456 | 154,631,597 |

* Women, minority, or disabled-owned brokerage firm.

Components may not sum to totals due to rounding.

Source: Northern Trust Custody Statements

Investment Section

Investment Fees

As of December 31, 2017 (in thousands)

| | 2017 | 2016 |
|--|---------------------------------|---------------------------------|
| <u>Investment Management Fees</u> | | |
| Fixed Income | \$ 2,135 | \$ 2,350 |
| Domestic Equity | 1,834 | 2,169 |
| International Equity | 3,827 | 3,276 |
| Global Equity | 958 | 1,146 |
| Hedged Equity | 3,079 | 3,140 |
| Real Estate | 3,571 | 4,855 |
| Private Equity | 2,291 | 2,744 |
| | \$ 17,695 | \$ 19,680 |
| <u>Other Investment Fees</u> | | |
| Custodial Services - Domestic | \$ 399 | \$ 375 |
| Other Global Custodial Services | 939 | 101 |
| Investment Advisory Services | 290 | 290 |
| Legal Services - Investments | 18 | 32 |
| | \$ 1,646 | \$ 798 |
| Total Investment Fees | \$ 19,341 ⁽¹⁾ | \$ 20,478 ⁽²⁾ |

(1) Total investment fees for 2017 represent approximately 45 bps of total investments.

(2) Total investment fees for 2016 represent approximately 48 bps of total investments.

For a schedule of investment fees by category, please refer to the schedule "Investment Management Compensation" in the financial section on pages 61-62.

Components may not sum to totals due to rounding.

Actuarial



Segal Consulting
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May 16, 2018

The Retirement Board of the
Municipal Employees' Annuity and Benefit Fund of Chicago
321 North Clark Street, Suite 700
Chicago Illinois 60654-4767

Dear Board Members:

We are pleased to submit this annual Actuarial Valuation and Review as of December 31, 2017. It summarizes the actuarial data used in the valuation; establishes the net pension liability under Governmental Accounting Standards Board (GASB) Statement No. 67 as of December 31, 2017, the pension expense for the fiscal year ending December 31, 2017, under GASB Statement No. 68, and the actuarially determined contribution for the year ending December 31, 2018; and analyzes the preceding year's experience.

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

Asset and Membership Data

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

Actuarial Assumptions and Methods

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

Actuarial Section

Funding Adequacy

MEABF is funded by employer and member contributions in accordance with the funding policy specified under the Illinois Pension Code (40 ILCS 5/8), which was revised on July 6, 2017 by Public Act 100-0023. For 2018 through 2022, employer contributions are specified amounts: \$266 million in 2018, \$344 million in 2019, \$421 million in 2020, \$499 million in 2021, and \$576 million in 2022. Starting in 2023, employer contributions are calculated as a level percent of payroll sufficient to bring the total assets of the Fund up to 90% of the actuarial accrued liability by the end of 2058. **The fixed-dollar contributions through 2022 leave the Fund vulnerable to adverse experience. Given the low funded ratio, the Fund is still at risk of potential insolvency if an economic recession or investment market downturn were to occur in the near term. We strongly recommend an actuarial funding method that targets 100% funding where payments at least cover interest on the unfunded actuarial liability and a portion of the principal balance. If the Fund becomes insolvent, the employer will be required to make contributions on a “pay as you go” basis, which means the employer would have to pay all benefits as they become due.**

Financial Results and Membership Data

This report includes the following schedules for the Actuarial and Financial sections of the Comprehensive Annual Financial Report:

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

Limitation of Actuarial Measurements

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


Actuarial Section

Qualifications

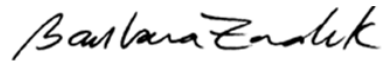
The actuarial calculations were directed under our supervision. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial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

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By: 

*Matthew A. Strom, FSA, MAAA, EA
Vice President and Actuary*



*Jake Libauskas, ASA, MAAA, EA
Consulting Actuary*

Actuarial Section

Valuation Summary

Purpose

This report has been prepared by Segal Consulting to present a valuation of the Municipal Employees' Annuity and Benefit Fund of Chicago (MEABF or Fund or Plan) as of December 31, 2017. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of the Fund, as outlined in 40 ILCS 5/8 and administered by the Retirement Board;
- The characteristics of covered active members, inactive vested members, and retirees and beneficiaries as of December 31, 2017, provided by the MEABF staff;
- The assets of the Plan as of December 31, 2017, provided by the MEABF staff;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

Significant Issues in Valuation Year

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

1. On July 6, 2017, Public Act 100-0023 was signed into law and changed the Plan's funding and benefit provisions as follows:
 - i) In general, members hired on or after, July 6, 2017 are classified as Tier 3 members.
 - ii) All current Tier 2 members were given a one-time option to make an irrevocable election to switch to the Tier 3 benefit structure (elective Tier 3 member).
 - iii) Tier 3 benefit structure is the same as Tier 2 benefit structure, except:
 - a) Eligibility for unreduced minimum formula annuity for Tier 3 is age 65 with 10 years of service, compared to age 67 with 10 years of service for Tier 2.
 - b) Eligibility for reduced minimum formula annuity for Tier 3 is age 60 with 10 years of service, compared to age 62 with 10 years of service for Tier 2.
 - c) Eligibility for annual increase in employee annuity for Tier 3 is the later of age 65 or the first anniversary of the annuity start date, compared to age 67 or the first anniversary of the annuity start date for Tier 2.
 - d) Member contributions for required Tier 3 members are 11.5% of capped salary for 2017. Beginning in 2018, member contribution rate will be the normal cost rate, if less than 11.5%, but not lower than 8.5%. Member contributions for elective Tier 3 members are 10.5% of capped salary for 2018 and 11.5% of capped salary or normal cost rate, if less, for 2019 and each year thereafter. Member contribution rate for Tier 2 is 8.5% of capped salary.
 - iv) For 2018 through 2022, employer contributions are specified amounts: \$266 million in 2018, \$344 million in 2019, \$421 million in 2020, \$499 million in 2021, and \$576 million in 2022. Starting in 2023, employer contributions are calculated as a level percent of payroll sufficient to bring the total assets of the Fund up to 90% of the actuarial accrued liability by the end of 2058.

Actuarial Section

2. An experience review was performed after the last valuation. As a result of this study, the following assumption changes have been adopted for this valuation:
 - i) Inflation assumption was lowered from 3.00% to 2.50%.
 - ii) The Tier 2 and Tier 3 COLA rate and rate of increase of the pensionable salary cap was lowered from 1.50% to 1.25%.
 - iii) Investment return assumption was lowered from 7.50% to 7.00%.
 - iv) Salary increase rates were changed to five-year select and ultimate rates. Ultimate rates were lowered based on merit components, as well as due to lower inflation. Select rates for the next five years (2018 – 2022) are 50 basis points lower than the Fund's recent experience to reflect salary increases in the current CBA, which are generally lower than the ultimate assumption.
 - v) Post-retirement mortality assumption was changed from the RP-2000 Combined Healthy Mortality Table with mortality improvements projected statically to 2010 using Scale AA to the RP-2014 Healthy Annuitant Mortality Tables set forward two years for males and set forward one year for females, projected generationally with Scale MP-2016.
 - vi) Pre-retirement mortality assumption was changed from 85% of the post-retirement mortality assumption for males and 70% of the post-retirement mortality assumption for females to 120% of the RP-2014 Employee Mortality Tables projected generationally with Scale MP-2016 for both males and females.
 - vii) Termination rates were increased for all members.
 - viii) Retirement rates for Tier 1 members were modified to better reflect anticipated future experience.

The total impact of these changes was an increase in the actuarial accrued liability of \$862 million, a decrease in the funded ratio of 1.5%, and an increase in the actuarially determined contribution requirement of 1.0%.

3. For the year ended December 31, 2017, Segal has determined that the asset return on a market basis was 14.6%. After gradual recognition of investment gains and losses under the actuarial smoothing method, the actuarial rate of return was 8.3%. This represents an experience gain when compared to the assumed rate of 7.5%, the investment return assumption for the year ended December 31, 2017 (changed to 7.0% effective January 1, 2018). As of December 31, 2017, the actuarial value of assets (\$4.46 billion) represents 98% of the market value (\$4.55 billion).
4. The funded ratio based on the actuarial value of assets over the actuarial accrued liability as of December 31, 2017, is 27.4%, compared to 30.5% as of December 31, 2016. The funded ratio as of December 31, 2017 before reflecting the assumption changes is 28.9%. The 1.6% decrease in the funded ratio before reflecting the assumption changes was a result of contributions being insufficient to cover the normal cost and interest on the unfunded actuarial accrued liability. Using the market value of assets, the funded ratio as of December 31, 2017, is 28.0%, compared to 29.5% as of December 31, 2016.
5. As shown in Chart 13, for the fiscal year beginning January 1, 2018, the actuarially determined contribution (ADC) for pension benefits is \$1,049,915,647. The expected employer contribution for 2018 (payable in 2019) is \$344,000,000. **Compared to the actuarially determined contribution of \$1,049,915,647, the contribution deficiency is \$705,915,647. Each year there is a contribution deficiency leads to an increased deficiency in all future years.**
6. The total employer contributions for 2017 were expected to be \$266,000,000. Actual employer contributions for 2017 totaled \$261,763,635.

Actuarial Section

7. When measuring pension liability for GASB purposes, the same actuarial cost method (Entry Age method) as is used for funding purposes. In addition, as of December 31, 2017, the GASB blended discount rate calculation results in the same discount rate (7.00%) that is used for funding purposes. This means that the total pension liability (TPL) measure for financial reporting shown in this report will match the actuarial accrued liability (AAL) measure for funding.
8. The net pension liability (NPL) is equal to the difference between the TPL and the Plan's fiduciary net position. The Plan's fiduciary net position is equal to the market value of assets. The NPL decreased from \$18,855,043,800 as of December 31, 2016, to \$11,728,377,908 as of December 31, 2017. The decrease in the NPL is primarily due to the increase in the GASB blended discount rate as a result of the increased future funding provided by Public Act 100-0023.
9. As indicated in Section 2, Subsection B of this report, the total unrecognized investment gain as of December 31, 2017, is \$97,246,543. This investment gain will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, to the extent it is not offset by recognition of investment losses derived from future experience. This implies that earning the assumed rate of investment return of 7.0% per year (net of expenses) on a market value basis will result in investment gains on the actuarial value of assets in the next few years.
10. As mentioned above, the current method used to determine the actuarial value of assets yields an amount that is 97.9% of the market value of assets as of December 31, 2017. Guidelines in Actuarial Standards of Practice No. 44 (Selection and Use of Asset Valuation Methods for Pension Valuations) recommend that asset values fall within a reasonable range around the corresponding market value. We believe the actuarial asset method currently complies with these guidelines.
11. This actuarial valuation report as of December 31, 2017, is based on financial data as of that date. Changes in the value of assets subsequent to that date are not reflected.

Actuarial Section

Summary of Key Valuation Results

| | 2017 | 2016 | |
|--|------------------------|------------------|------------------------|
| | <u>New Assumptions</u> | | <u>Old Assumptions</u> |
| Funding ratios as of December 31: | | | |
| Actuarial accrued liability | \$16,282,396,195 | \$15,420,454,261 | \$15,055,348,696 |
| Fair value of assets | 4,554,018,287 | 4,554,018,287 | 4,436,227,596 |
| Unfunded actuarial accrued liability on a fair value basis | 11,728,377,908 | 10,866,435,974 | 10,619,121,100 |
| Funded ratio on a fair value basis | 27.97% | 29.53% | 29.47% |
| Actuarial value of assets | \$4,456,771,744 | \$4,456,771,744 | \$4,590,366,241 |
| Unfunded actuarial accrued liability on an actuarial value basis | 11,825,624,451 | 10,963,682,517 | 10,464,982,455 |
| Funded ratio on an actuarial value basis | 27.37% | 28.90% | 30.49% |
| Book value of assets | \$3,765,555,325 | \$3,765,555,325 | \$3,816,295,757 |
| Unfunded actuarial accrued liability on a book value basis | 12,516,840,870 | 11,654,898,936 | 11,239,052,940 |
| Funded ratio on a book value basis | 23.13% | 24.42% | 25.35% |

Demographic data as of December 31:

| | | |
|---|-----------------|-----------------|
| Number of retirees and beneficiaries | 25,383 | 25,236 |
| Number of inactive members | 17,549 | 16,876 |
| Number of active members | 30,922 | 30,296 |
| Total pensionable salary supplied by the Fund | \$1,686,532,720 | \$1,646,939,238 |
| Average pensionable salary | \$54,542 | \$54,362 |

| Contribution requirement for Fiscal Year: | 2019 | 2018 | | 2017 |
|---|---------------|---------------|---------------|---------------|
| Statutory City contribution* | \$421,000,000 | \$344,000,000 | \$344,000,000 | \$266,000,000 |
| Actuarially determined contribution requirement | N/A | 1,049,915,647 | 1,039,250,927 | 1,005,456,621 |

*As established by Public Act 100-0023. City contributions are shown in the year that they will be booked.
The contributions will be paid in the following year.

Actuarial Section

Summary of Key Valuation Results

| | 2018 | 2017 |
|--|------------------|------------------|
| Contributions for plan year beginning January 1: | | |
| Actuarially determined contribution requirement | \$1,049,915,647 | \$1,005,456,621 |
| Expected employer contributions | 344,000,000 | 266,000,000* |
| Actual employer contributions** | -- | 261,763,635 |
| Funding elements for plan year beginning January 1: | | |
| Employer normal cost, including administrative expenses, adjusted for timing | \$96,931,103 | \$119,373,624 |
| Market value of assets | 4,554,018,287 | 4,436,227,596 |
| Actuarial value of assets | 4,456,771,744 | 4,590,366,241 |
| Actuarial accrued liability | 16,282,396,195 | 15,055,348,696 |
| Unfunded actuarial accrued liability on an actuarial value basis | 11,825,624,451 | 10,464,982,455 |
| Funded ratio on an actuarial value basis | 27.37% | 30.49% |
| GASB information as of December 31 of the prior year: | | |
| Long-term expected rate of return | 7.00% | 7.50% |
| Municipal bond index | 3.44% | 3.78% |
| Single equivalent discount rate | 7.00% | 3.91% |
| Total pension liability | \$16,282,396,195 | \$23,291,271,396 |
| Plan fiduciary net position | 4,554,018,287 | 4,436,227,596 |
| Net pension liability | 11,728,377,908 | 18,855,043,800 |
| Plan fiduciary net position as a percentage of total pension liability | 27.97% | 19.05% |

*Revised from prior year report pursuant to Public Act 100-0023

**Receivable amount to be paid the following year

Actuarial Section

Summary of Actuarial Valuation Results

The valuation was made with respect to the following data supplied to us:

| | | |
|----|--|--------|
| 1. | Pensioners as of the valuation date (including 4,245 beneficiaries and 1 deferred retiree) | 25,383 |
| 2. | Members inactive during year ended December 31, 2017 with vested rights | 1,933 |
| 3. | Members active during the year ended December 31, 2017 | 30,922 |
| | Fully vested | 15,320 |
| | Not vested | 15,602 |
| 4. | Other non-vested inactive members as of the valuation date | 15,616 |

Determination of Actuarial Accrued Liability:

| | Actuarial Present Value of Projected Benefits | Actuarial Present Value of Future Normal Costs | Actuarial Accrued Liability |
|--------------------------------|---|---|-----------------------------------|
| 1. Active members | | | |
| a. Retirement benefits | \$6,743,323,161 | \$1,165,647,874 | \$5,577,675,287 |
| b. Death benefits | 112,277,629 | 31,245,909 | 81,031,720 |
| c. Withdrawal benefits | <u>685,092,902</u> | <u>471,889,615</u> | <u>213,203,287</u> |
| d. Total | \$7,540,693,692 | \$1,668,783,398 | \$5,871,910,294 |
| 2. Inactive vested members | \$375,138,952 | -- | \$375,138,952 |
| 3. Inactive non-vested members | 130,346,560 | -- | 130,346,560 |
| 4. Retirees and beneficiaries | <u>9,905,000,389</u> | <u>--</u> | <u>9,905,000,389</u> |
| 5. Total | \$17,951,179,593 | \$1,668,783,398 | \$16,282,396,195 |

Determination of Unfunded Actuarial Accrued Liability:

| | |
|--|------------------|
| 1. Actuarial accrued liability | \$16,282,396,195 |
| 2. Actuarial value of assets (\$4,554,018,287 at market value) | 4,456,771,744 |
| 3. Unfunded actuarial accrued liability | \$11,825,624,451 |

Actuarial Section

Summary of Actuarial Valuation Results

| Components of normal cost: | Tier 1 | | Tier 2 | | Tier 3 | | Total | |
|--|---------------------|------------------|---------------------|------------------|---------------------|----------------|---------------------|---------------------|
| | <u>% of Payroll</u> | <u>Amount</u> | <u>% of Payroll</u> | <u>Amount</u> | <u>% of Payroll</u> | <u>Amount</u> | <u>% of Payroll</u> | <u>Amount</u> |
| 1. Retirement | 9.77% | \$119,012,736 | 5.48% | \$23,797,958 | 7.27% | \$6,129,034 | 8.58% | \$148,939,728 |
| 2. Turnover | 3.51% | 42,683,061 | 2.76% | 11,985,360 | 3.33% | 2,803,943 | 3.31% | 57,472,364 |
| 3. Mortality | 0.23% | 2,813,598 | 0.25% | 1,077,865 | 0.24% | 205,531 | 0.24% | 4,096,994 |
| 4. Disability | <u>0.75%</u> | <u>9,132,000</u> | <u>0.75%</u> | <u>3,254,931</u> | <u>0.75%</u> | <u>632,348</u> | <u>0.75%</u> | <u>13,019,279</u> |
| 5. Total normal cost: (1) + (2) + (3) + (4) | 14.26% | \$173,641,395 | 9.24% | \$40,116,114 | 11.59% | \$9,770,856 | 12.88% | \$223,528,365 |
| 6. Total normal cost, adjusted for timing* | 14.75% | 179,616,056 | 9.56% | 41,496,431 | 11.99% | 10,107,052 | 13.32% | 231,219,539 |
| 7. Administrative expenses | <u>0.37%</u> | <u>4,540,304</u> | <u>0.37%</u> | <u>1,618,307</u> | <u>0.37%</u> | <u>314,395</u> | <u>0.37%</u> | <u>6,473,006</u> |
| 8. Total normal cost, including administrative expenses: (6) + (7) | 15.12% | \$184,156,360 | 9.93% | \$43,114,738 | 12.36% | \$10,421,447 | 13.69% | \$237,692,545 |
| 9. Expected employee contributions** | | | | | | | <u>-8.29%</u> | <u>-143,985,711</u> |
| 10. Employer normal cost: (8) + (9) | | | | | | | 5.40% | \$93,706,834 |
| 11. Employer normal cost, adjusted for timing*** | | | | | | | 5.58% | 96,931,103 |

* Reflects timing adjustment to the middle of the year

** Based on payroll, adjusted to the middle of the year

*** Reflects timing adjustment to the end of the year

Actuarially Determined Contribution

| | Year Beginning January 1, 2018 | |
|--|--------------------------------|---------------|
| | Amount | % of Payroll |
| 1. Total normal cost* | \$231,219,539 | 13.32% |
| 2. Administrative expenses | 6,473,006 | 0.37% |
| 3. Expected employee contributions** | <u>-143,985,711</u> | <u>-8.29%</u> |
| 4. Employer normal cost: (1) + (2) + (3) | 93,706,834 | 5.40% |
| 5. Employer normal cost, adjusted for timing*** | 96,931,103 | 5.58% |
| 6. Actuarial accrued liability | 16,282,396,195 | |
| 7. Actuarial value of assets | <u>4,456,771,744</u> | |
| 8. Unfunded/(overfunded) actuarial accrued liability: (6) - (7) | 11,825,624,451 | |
| 9. Payment on unfunded actuarial accrued liability, adjusted for timing*** | 952,984,544 | 54.90% |
| 10. Actuarially determined contribution: (5) + (9) | <u>\$1,049,915,647</u> | <u>60.48%</u> |
| 11. Projected payroll | \$1,735,903,811 | |

* Reflects timing adjustment to the middle of the year

** Based on payroll, adjusted to the middle of the year

*** Employer contributions are assumed to be paid at the end of the year

Actuarial Section

Plan Membership

| | <u>December 31, 2017</u> | <u>December 31, 2016</u> |
|--------------------------------|--------------------------|--------------------------|
| Active Members | | |
| Number* | 30,922 | 30,296 |
| Tier 1 | 19,586 | 20,252 |
| Tier 2 | 9,349 | 10,044 |
| Tier 3 | 1,987 | N/A |
| Vested | 15,320 | 15,741 |
| Non-vested | 15,602 | 14,555 |
| Average age | 46.4 | 46.6 |
| Average years of service | 11.4 | 11.8 |
| Average annual salary | \$54,542 | \$54,362 |
| Inactive Members | | |
| Number | 17,549 | 16,876 |
| Average age | 46.2 | 46.5 |
| Average years of service | 3.7 | 3.8 |
| Retirees | | |
| Number | 21,137 | 20,919 |
| Average age | 72.9 | 72.9 |
| Average annual benefit | \$38,376 | \$37,248 |
| Deferred | | |
| | 1 | 2 |
| Surviving | | |
| Number | 4,007 | 4,085 |
| Average age | 78.4 | 78.5 |
| Average annual benefit | \$14,856 | \$14,484 |
| Reversionary annuitants | | |
| Number | 124 | 128 |
| Average age | 78.5 | 79.8 |
| Average annual benefit | \$5,244 | \$4,932 |
| Children | | |
| | 114 | 102 |
| Total members | | |
| | 73,854 | 72,408 |

*Includes 394 and 373 members receiving disability benefits for 2016 and 2017, respectively

Actuarial Section

Actuarial Experience

To calculate the actuarially determined contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. Overall favorable experience relative to the assumptions (an actuarial gain) causes a decrease in the contribution requirement. On the other hand, overall less favorable experience relative to the assumptions (an actuarial loss) causes an increase in the contribution requirement.

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

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

The total gain is \$149,951,611; \$33,329,605 from investment gains and \$116,622,006 in gains from all other sources. The net experience variation from individual sources other than investments was approximately 0.8% of the actuarial accrued liability.

This chart provides a summary of the actuarial experience during the past year:

Actuarial Experience for Year Ended December 31, 2017

| | |
|---|--------------------|
| 1. Net gain/(loss) from investments | \$33,329,605 |
| 2. Net gain/(loss) from administrative expenses | 583,778 |
| 3. Net gain/(loss) from other experience | <u>116,038,228</u> |
| 4. Net experience gain/(loss): (1) + (2) + (3) | \$149,951,611 |

Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the MEABF's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets for the 2017 Plan year was 7.50% (changed to 7.00%, effective January 1, 2018). The actuarial rate of return on an actuarial basis for the 2017 Plan year was 8.27%. Since the actual return for the year was greater than the assumed return, the Fund experienced an actuarial gain during the year ended December 31, 2017 with regard to its investments.

This chart shows the gain/(loss) due to investment experience:

Actuarial Value Investment Experience for Year Ended December 31, 2017

| | |
|----------------------------------|---------------------|
| Actual return | \$359,129,908 |
| Average value of assets | \$4,344,004,039 |
| Actual rate of return: (1) ÷ (2) | 8.27% |
| Assumed rate of return | 7.50% |
| Expected return: (2) x (4) | \$325,800,303 |
| Actuarial gain/(loss): (1) – (5) | <u>\$33,329,605</u> |

Actuarial Section

Administrative Expenses

Administrative expenses for the year ended December 31, 2017 totaled \$6,473,006 compared to the assumption of \$7,056,784. This resulted in a gain of \$583,778 for the year.

Other Experience

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

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

The net gain from this other experience for the year ended December 31, 2017 amounted to \$116,038,228, which is approximately 0.8% of the actuarial accrued liability

A brief summary of the demographic gain/(loss) experience of the Fund for the year ended December 31, 2017 is shown in the chart below:

Experience Due to Changes in Demographics for Year Ended December 31, 2017

| | | |
|---|---|----------------------|
| 1 | More turnover than expected | \$18,918,871 |
| 2 | More or earlier retirement than expected | -37,321,885 |
| 3 | More deaths than expected among retirees and beneficiaries | 31,942,675 |
| 4 | Lower salary/service increases than expected for continuing actives | 112,812,152 |
| 5 | New entrants | -9,873,490 |
| 6 | Miscellaneous | <u>-440,095</u> |
| 7 | Total | <u>\$116,038,228</u> |

Actuarial Section

Development of Unfunded Actuarial Accrued Liability

| | Year Ending December 31 | | | | |
|---|-------------------------|-------------------------|------------------------|------------------------|------------------------|
| | 2017 | 2016 | 2015 | 2014 | 2013 |
| 1. Unfunded actuarial accrued liability at beginning of year* | \$10,464,982,455 | \$9,840,134,873 | \$7,285,291,571 | \$8,742,285,563 | \$8,564,139,771 |
| 2. Normal cost at beginning of year* | 246,761,737 | 255,682,691 | 233,177,207 | 253,748,078 | 265,457,853 |
| 3. Total contributions | -396,528,555 | -287,834,877 | -289,144,578 | -288,769,612 | -289,237,144 |
| 4. Interest | | | | | |
| (a) Unfunded actuarial accrued liability and normal cost | \$803,380,814 | \$757,186,317 | \$563,885,158 | \$674,702,523 | \$662,219,822 |
| (b) Total contributions | <u>-4,962,323</u> | <u>-4,801,261</u> | <u>-4,839,455</u> | <u>-10,633,094</u> | <u>-10,650,310</u> |
| (c) Total interest: (4a) + (4b) | <u>798,418,491</u> | <u>752,385,056</u> | <u>559,045,703</u> | <u>664,069,429</u> | <u>651,569,512</u> |
| 5. Expected unfunded actuarial accrued liability: (1) + (2) + (3) + (4c) | \$11,113,634,128 | \$10,560,367,743 | \$7,788,369,903 | \$9,371,333,458 | \$9,191,929,992 |
| 6. Changes due to (gain)/loss from: | | | | | |
| (a) Investments | -\$33,329,605 | -\$22,722,207 | \$29,330,715 | -\$86,701,165 | -\$174,927,836 |
| (b) Demographics and other | <u>-116,622,006</u> | <u>-72,663,081</u> | <u>-117,575,084</u> | <u>-8,634,360</u> | <u>-144,376,875</u> |
| (c) Total changes due to (gain)/loss: (6a) + (6b) | -149,951,611 | -95,385,288 | -88,244,369 | -95,335,525 | -319,304,711 |
| 7. Change due to plan provisions | 0 | 0 | 2,140,009,339 | -1,990,706,362 | -130,339,718 |
| 8. Change in actuarial assumptions | <u>861,941,934</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> |
| 9. Unfunded actuarial accrued liability at end of year*: (5) + (6c) + (7) + (8) | <u>\$11,825,624,451</u> | <u>\$10,464,982,455</u> | <u>\$9,840,134,873</u> | <u>\$7,285,291,571</u> | <u>\$8,742,285,563</u> |

* Includes pension and OPEB liabilities for years ended December 31, 2016 and earlier

Actuarial Section

Development of Employer Costs

The amount of actuarially determined contribution is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability. This total amount is then divided by the projected payroll for active members to determine the actuarially determined contribution of 60.48% of payroll. The actuarially determined contribution is based on a 30-year, level dollar amortization of the unfunded actuarial accrued liability. A 30-year “rolling” amortization will never fully fund the unfunded actuarial accrued liability.

This chart shows the calculation of the actuarially determined contribution for the upcoming year:

Actuarially Determined Contribution

| | Year Beginning January 1, 2018 | |
|--|--------------------------------|---------------|
| | Amount | % of Payroll |
| 1. Total normal cost* | \$231,219,539 | 13.32% |
| 2. Administrative expenses | 6,473,006 | 0.37% |
| 3. Expected employee contributions** | <u>-143,985,711</u> | <u>-8.29%</u> |
| 4. Employer normal cost: (1) + (2) + (3) | 93,706,834 | 5.40% |
| 5. Employer normal cost, adjusted for timing*** | 96,931,103 | 5.58% |
| 6. Actuarial accrued liability | 16,282,396,195 | |
| 7. Actuarial value of assets | <u>4,456,771,744</u> | |
| 8. Unfunded/(overfunded) actuarial accrued liability: (6) - (7) | 11,825,624,451 | |
| 9. Payment on unfunded actuarial accrued liability, adjusted for timing*** | 952,984,544 | 54.90% |
| 10. Actuarially determined contribution: (5) + (9) | <u>\$1,049,915,647</u> | <u>60.48%</u> |
| 11. Projected payroll | \$1,735,903,811 | |

* Reflects timing adjustment to the middle of the year

** Based on payroll, adjusted to the middle of the year

*** Employer contributions are assumed to be paid at the end of the year

The contribution requirements as of December 31, 2017, are based on all of the data described in the previous sections, the actuarial assumptions, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

Actuarial Section

Development of Employer Costs (continued)

Reconciliation of Actuarially Determined Contribution

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

Reconciliation of Actuarially Determined Contribution from December 31, 2016 to December 31, 2017

| | |
|--|----------------------------|
| Actuarially Determined Contribution as of December 31, 2016 | \$1,005,456,621 |
| Effect of plan amendment | \$0 |
| Effect of change in asset method | 0 |
| Effect of expected change in amortization payment due to payroll growth | 0 |
| Effect of rolling amortization period | -9,023,401 |
| Effect of change in administrative expense assumption | -603,865 |
| Effect of change in other actuarial assumptions | 15,316,884 |
| Effect of contributions (more)/less than actuarially determined contribution | 64,318,704 |
| Effect of investment (gain)/loss | -2,822,059 |
| Effect of other (gains)/losses on accrued liability | -9,874,529 |
| Effect of net other changes: (gain)/loss* | <u>-12,852,708</u> |
| Total change | <u>\$44,459,026</u> |
| Actuarially Determined Contribution as of December 31, 2017 | \$1,049,915,647 |

*Primarily due to legislative changes: creation of a new tier of pension benefits

Comparison of Employer Contribution to Actuarially Determined Contribution

| Plan Year Ended December 31 | Actuarially Determined Contributions (ADC)* | Actual Contributions** | Percentage Contributed |
|--------------------------------|---|---------------------------|---------------------------|
| 2008 | \$384,169,836 | \$155,832,612 | 40.6% |
| 2009 | 436,475,587 | 157,697,608 | 36.1% |
| 2010 | 506,902,840 | 164,302,004 | 32.4% |
| 2011 | 634,559,144 | 156,525,374 | 24.7% |
| 2012 | 705,454,416 | 158,380,709 | 22.5% |
| 2013 | 834,398,482 | 157,704,971 | 18.9% |
| 2014 | 848,864,496 | 158,797,631 | 18.7% |
| 2015 | 686,373,727 | 157,716,475 | 23.0% |
| 2016 | 970,112,414 | 157,444,029 | 16.2% |
| 2017 | 1,005,456,621 | 261,763,635 | 26.0% |
| 2018 | 1,049,915,647 | -- | -- |

* Prior to 2015, this amount was the Annual Required Contribution (ARC). Includes pension and OPEB.

**Receivable amount to be paid the following year.

Actuarial Section

Schedule of Funding Progress

| Actuarial Valuation Date | Actuarial Value of Assets (a) | Actuarial Accrued Liability (AAL) (b) | Unfunded/ (Overfunded) AAL (UAAL) (b) - (a) | Funded Ratio (a) / (b) | Covered Payroll (c) | UAAL as a Percentage of Covered Payroll [(b) - (a)] / (c) |
|--------------------------|-------------------------------|---------------------------------------|---|------------------------|---------------------|---|
| 12/31/2008 | \$6,669,501,770 | \$10,383,157,695 | \$3,713,655,925 | 64.23% | \$1,543,976,553 | 240.53% |
| 12/31/2009 | 6,295,788,191 | 10,830,119,369 | 4,534,331,178 | 58.13% | 1,551,973,348 | 292.17% |
| 12/31/2010 | 6,003,389,605 | 11,828,665,658 | 5,825,276,053 | 50.75% | 1,541,388,065 | 377.92% |
| 12/31/2011 | 5,552,291,417 | 12,292,930,124 | 6,740,638,707 | 45.17% | 1,605,993,339 | 419.72% |
| 12/31/2012 | 5,073,320,275 | 13,475,376,963 | 8,402,056,688 | 37.65% | 1,590,793,702 | 528.17% |
| 12/31/2013 | 5,114,207,803 | 13,828,920,032 | 8,714,712,229 | 36.98% | 1,580,288,709 | 551.46% |
| 12/31/2014 | 5,039,297,432 | 12,307,094,062 | 7,267,796,630 | 40.94% | 1,602,977,593 | 453.39% |
| 12/31/2015 | 4,815,126,844 | 14,647,114,971 | 9,831,988,127 | 32.87% | 1,643,480,973 | 598.24% |
| 12/31/2016 | 4,590,366,241 | 15,055,348,696 | 10,464,982,455 | 30.49% | 1,646,939,238 | 635.42% |
| 12/31/2017 | 4,456,771,744 | 16,282,396,195 | 11,825,624,451 | 27.37% | 1,686,532,720 | 701.18% |

Solvency Test

| Actuarial Valuation Date | (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) |
| 12/31/2008 | \$1,536,221,953 | \$5,701,015,809 | \$3,368,610,969 | \$6,669,501,770 | 100.00% | 90.04% | 0.00% |
| 12/31/2009 | 1,610,503,053 | 5,874,606,230 | 3,569,183,317 | 6,295,788,191 | 100.00% | 79.75% | 0.00% |
| 12/31/2010 | 1,682,418,161 | 6,438,552,003 | 3,931,259,712 | 6,003,389,605 | 100.00% | 67.11% | 0.00% |
| 12/31/2011 | 1,724,683,910 | 6,803,140,300 | 3,928,347,812 | 5,552,291,417 | 100.00% | 56.26% | 0.00% |
| 12/31/2012 | 1,724,021,890 | 7,633,045,219 | 4,280,392,937 | 5,073,320,275 | 100.00% | 43.88% | 0.00% |
| 12/31/2013 | 1,763,193,047 | 7,938,850,949 | 4,154,449,370 | 5,114,207,803 | 100.00% | 42.21% | 0.00% |
| 12/31/2014 | 1,816,477,893 | 7,029,523,772 | 3,478,587,338 | 5,039,297,432 | 100.00% | 45.85% | 0.00% |
| 12/31/2015 | 1,874,982,804 | 8,427,968,220 | 4,352,310,693 | 4,815,126,844 | 100.00% | 34.89% | 0.00% |
| 12/31/2016 | 1,918,150,355 | 8,725,032,932 | 4,412,165,409 | 4,590,366,241 | 100.00% | 30.63% | 0.00% |
| 12/31/2017 | 1,952,652,300 | 9,905,000,389 | 4,424,743,506 | 4,456,771,744 | 100.00% | 25.28% | 0.00% |

Actuarial Section

Reconciliation of Member Data

| | Active Members* | Inactive Members | Deferred Retirees | Retirees | Beneficiaries | Total |
|--------------------------------|--------------------|---------------------|----------------------|-----------|---------------|-----------|
| Number as of December 31, 2016 | 30,296 | 16,876 | 2 | 20,919 | 4,315 | 72,408 |
| New members | 3,491 | N/A | N/A | N/A | N/A | 3,491 |
| Terminations | -1,392 | 1,392 | 0 | 0 | 0 | 0 |
| Retirements | -920 | -203 | -1 | 1,124 | N/A | 0 |
| Died with beneficiary | -37 | -2 | 0 | -209 | 248 | 0 |
| Died without beneficiary | -24 | -9 | 0 | -712 | -343 | -1,088 |
| Refunds | -760 | -314 | 0 | 0 | 0 | -1,074 |
| Rehire | 268 | -265 | 0 | -3 | N/A | 0 |
| Net transfers | 0 | 73 | 0 | 0 | 0 | 73 |
| Temporary annuity expired | N/A | N/A | NA | -5 | -13 | -18 |
| Data adjustment | <u>0</u> | <u>1</u> | <u>0</u> | <u>23</u> | <u>38</u> | <u>62</u> |
| Number as of December 31, 2017 | 30,922 | 17,549 | 1 | 21,137 | 4,245 | 73,854 |

* Includes members receiving disability benefits

History of Active Member Valuation Data

| Actuarial Valuation Date | Active Members | Percent Increase | Annual Salaries | Percent Increase | Average Salary | Percent Increase | CPI Chicago* |
|--|-------------------|---------------------|--------------------|---------------------|-------------------|---------------------|-----------------|
| 12/31/2008 | 32,563 | (6.66)% | \$1,543,976,553 | (1.31)% | \$47,415 | 5.73% | (0.58)% |
| 12/31/2009 | 31,586 | (3.00)% | 1,551,973,348 | 0.52% | 49,135 | 3.63% | 2.54% |
| 12/31/2010 | 30,726 | (2.72)% | 1,541,388,065 | (0.68)% | 50,166 | 2.10% | 1.23% |
| 12/31/2011 | 31,976 | 4.07% | 1,605,993,339 | 4.19% | 50,225 | 0.12% | 2.06% |
| 12/31/2012 | 31,326 | (2.03)% | 1,590,793,702 | (0.95)% | 50,782 | 1.11% | 1.68% |
| 12/31/2013 | 30,647 | (2.17)% | 1,580,288,709 | (0.66)% | 51,564 | 1.54% | 0.51% |
| 12/31/2014 | 30,160 | (1.59)% | 1,602,977,593 | 1.44% | 53,149 | 3.07% | 1.48% |
| 12/31/2015 | 30,683 | 1.73% | 1,643,480,973 | 2.53% | 53,563 | 0.78% | 0.00% |
| 12/31/2016 | 30,296 | (1.26)% | 1,646,939,238 | 0.21% | 54,362 | 1.49% | 1.86% |
| 12/31/2017 | 30,922 | 2.07% | 1,686,532,720 | 2.40% | 54,542 | 0.33% | 1.66% |
| Average Increase/ (Decrease) Last 5 years | | (0.26)% | | 1.18% | | 1.44% | 1.10% |

* CPI-Chicago as of the valuation date

Actuarial Section

History of Retirees and Beneficiaries Added to Payrolls 2008 – 2017

| Valuation Date | Added to Payroll | | Removed from Payroll | | Payroll End of Year | | Average Annual Benefit | Increase in Average Benefit |
|---|------------------|------------------|----------------------|-----------------|---------------------|-----------------|------------------------|-----------------------------|
| | Number | Annual Benefits* | Number | Annual Benefits | Number | Annual Benefits | | |
| Employee Annuitants (Male and Female) | | | | | | | | |
| 12/31/2008 | 743 | \$34,658,424 | 768 | \$17,767,068 | 18,173 | \$525,707,352 | \$28,928 | 3.46% |
| 12/31/2009 | 840 | 39,821,463 | 768 | 18,900,720 | 18,245 | 546,628,095 | 29,960 | 3.57% |
| 12/31/2010 | 1,008 | 46,836,109 | 815 | 21,038,211 | 18,438 | 572,425,992 | 31,406 | 3.62% |
| 12/31/2011 | 1,149 | 55,405,692 | 774 | 20,754,048 | 18,813 | 607,077,636 | 32,269 | 3.94% |
| 12/31/2012 | 1,559 | 68,828,940 | 758 | 20,349,840 | 19,614 | 655,556,736 | 33,423 | 3.58% |
| 12/31/2013 | 1,242 | 57,147,576 | 743 | 21,682,632 | 20,113 | 691,021,680 | 34,357 | 2.79% |
| 12/31/2014 | 1,054 | 37,110,852 | 756 | 23,299,656 | 20,411 | 704,832,876 | 34,532 | 0.51% |
| 12/31/2015 | 990 | 65,756,124 | 817 | 23,871,948 | 20,584 | 746,717,052 | 36,277 | 5.05% |
| 12/31/2016 | 1,107 | 58,094,440 | 772 | 25,721,880 | 20,919 | 779,089,612 | 37,243 | 2.66% |
| 12/31/2017 | 1,148 | 62,453,527 | 930 | 30,481,722 | 21,137 | 811,061,417 | 38,372 | 3.03% |
| Surviving Spouse and Reversionary Annuitants | | | | | | | | |
| 12/31/2008 | 260 | \$3,989,592 | 260 | \$3,142,752 | 4,378 | \$51,954,588 | \$11,867 | 2.40% |
| 12/31/2009 | 266 | 3,869,064 | 280 | 2,939,460 | 4,364 | 52,884,192 | 12,118 | 2.12% |
| 12/31/2010 | 269 | 4,329,156 | 287 | 3,292,596 | 4,346 | 53,920,752 | 12,407 | 2.38% |
| 12/31/2011** | 362 | 4,152,804 | 241 | 3,479,496 | 4,403 | 54,594,060 | 12,399 | (0.06)% |
| 12/31/2012 | 237 | 4,168,092 | 286 | 3,217,812 | 4,354 | 55,544,340 | 12,757 | 2.89% |
| 12/31/2013 | 270 | 4,593,708 | 279 | 3,096,132 | 4,345 | 57,041,916 | 13,128 | 2.91% |
| 12/31/2014 | 265 | 4,648,596 | 310 | 3,713,844 | 4,300 | 57,976,668 | 13,483 | 2.70% |
| 12/31/2015 | 251 | 4,185,900 | 291 | 3,681,516 | 4,260 | 58,481,052 | 13,728 | 1.82% |
| 12/31/2016 | 235 | 4,862,474 | 282 | 3,544,440 | 4,213 | 59,799,086 | 14,194 | 3.39% |
| 12/31/2017 | 261 | 5,053,290 | 343 | 4,653,334 | 4,131 | 60,199,042 | 14,573 | 2.67% |

*Annual benefits added to payroll include post-retirement increase amounts.

**Number added in 2011 includes 121 reversionary annuitants that are also surviving spouses.

Actuarial Section

Actuarial Reserves Liability

As of December 31, 2017

| | 2017 New Assumptions | 2017 Old Assumptions | 2016 |
|--|-------------------------|-------------------------|----------------------|
| Accrued Liability for Active and Inactive Participants* | \$6,377,395,806 | \$6,380,048,684 | \$6,330,315,764 |
| Reserves for: | | | |
| Service Retirement Pension | \$8,811,148,340 | \$8,046,795,652 | \$7,756,558,336 |
| Future Spouses of Current Retirees | 649,791,536 | 579,809,577 | 559,423,903 |
| Surviving Spouse Pension | 443,026,241 | 412,771,554 | 408,038,420 |
| Child Annuitants | <u>1,034,272</u> | <u>1,028,794</u> | <u>1,012,273</u> |
| Total Accrued Liability | 16,282,396,195 | 15,420,454,261 | 15,055,348,696 |
| Actuarial Net Assets | <u>4,456,771,744</u> | <u>4,456,771,744</u> | <u>4,590,366,241</u> |
| Unfunded Actuarial Liabilities | \$11,825,624,451 | \$10,963,682,517 | \$10,464,982,455 |

*Accrued liability for active participants includes retirement liability for members in ordinary or duty disability status.
Liability for disability benefits is recognized as a one-year term cost of 0.75 percent of pay added to the normal cost.

Statutory Reserves

As of December 31, 2017

| | Annuity Payment Fund | Prior Service Fund | Total |
|---------------------------|-------------------------|-----------------------|------------------|
| Statutory Reserve* | | | |
| Retirees | \$ 1,725,564,342 | \$ 6,152,981,500 | \$ 7,878,545,842 |
| Future Surviving Spouses | 393,972,698 | 471,955,208 | 865,927,906 |
| Spouses** | 198,532,677 | 176,343,532 | 374,876,209 |
| Annual Benefits | | | |
| Retirees | \$ 208,549,638 | \$ 602,511,779 | \$ 811,061,417 |
| Future Surviving Spouses | N/A | N/A | N/A |
| Spouses** | 30,427,278 | 29,771,764 | 60,199,042 |

*As required by State statutes, Statutory Reserves are calculated using the Combined Annuity Mortality Table with interest at 3.00 percent per annum, except for employees and spouses of employees who were participants on or before January 1, 1952, for whom the American Experience Table of Mortality with interest at 4.00 percent per annum is used.

**Surviving spouses also include reversionary annuitants.

Actuarial Section

Actuarial Assumptions and Actuarial Cost Method

Rationale for Assumptions: The information and analysis used in supporting each assumption that has a significant effect on this actuarial valuation is shown in the Experience Review dated September 21, 2017, with a follow-up report dated March 12, 2018. Current data is reviewed in conjunction with each annual valuation.

Mortality Rates:

Post-retirement: The RP-2014 Healthy Annuitant Mortality Table, set forward two years for males and one year for females, projected generationally using scale MP-2016 (effective December 31, 2017).

Pre-retirement: 120% of the RP-2014 Employee Mortality Tables, projected generationally using scale MP-2016 (effective December 31, 2017).

The mortality tables specified above were determined to reasonably reflect the mortality experience of the Plan as of the valuation date. The mortality table was then adjusted to future years using generational projection under scale MP-2016 to reflect future mortality improvements.

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

| <u>Service</u> | <u>Rate (%)</u> | <u>Service</u> | <u>Rate (%)</u> |
|----------------|-----------------|----------------|-----------------|
| 0 - 0.99 | 17.00 | 12 - 12.99 | 4.25 |
| 1 - 1.99 | 16.00 | 13 - 13.99 | 4.00 |
| 2 - 2.99 | 14.00 | 14 - 14.99 | 3.75 |
| 3 - 3.99 | 12.00 | 15 - 15.99 | 3.50 |
| 4 - 4.99 | 10.00 | 16 - 16.99 | 3.25 |
| 5 - 5.99 | 8.00 | 17 - 17.99 | 3.00 |
| 6 - 6.99 | 7.00 | 18 - 18.99 | 2.75 |
| 7 - 7.99 | 6.50 | 19 - 19.99 | 2.50 |
| 8 - 8.99 | 6.00 | 20 - 20.99 | 2.25 |
| 9 - 10.99 | 5.00 | 21+ | 2.00 |
| 11 - 11.99 | 4.50 | | |

Actuarial Section

Retirement Rates:

For employees first hired prior to January 1, 2011, rates of retirement are based on the recent experience of the Fund (effective December 31, 2017).

Tier 1:

| Age and Service-Based Retirement Rates | | | | | | | | |
|---|----------------|----------------|----------------|-----------|----------------|----------------|----------------|------------|
| <u>Service</u> | <u>50 - 54</u> | <u>55 - 59</u> | <u>60 - 64</u> | <u>65</u> | <u>66 - 67</u> | <u>68 - 69</u> | <u>70 - 79</u> | <u>80+</u> |
| 10 - 11 | | 0% | 8% | 40% | 30% | 30% | 35% | 100% |
| 12 - 19 | | 0% | 8% | 30% | 15% | 20% | 22.5% | 100% |
| 20 - 24 | | 8% | 10% | 30% | 15% | 20% | 22.5% | 100% |
| 25 - 29 | | 8% | 10% | 35% | 22.5% | 20% | 22.5% | 100% |
| 30 | 20% | 8% | 15% | 35% | 22.5% | 20% | 22.5% | 100% |
| 31 - 32 | 20% | 8% | 15% | 40% | 22.5% | 20% | 30% | 100% |
| 33 - 34 | 25% | 13% | 15% | 40% | 22.5% | 20% | 30% | 100% |
| 35 - 39 | 25% | 13% | 15% | 45% | 22.5% | 20% | 30% | 100% |
| 40+ | 50% | 50% | 50% | 50% | 50% | 50% | 50% | 100% |

Tier 2:

For employees first hired on or after January 1, 2011 and before July 6, 2017, rates of retirement for each age from 62 to 80 were used (effective December 31, 2011).

| <u>Age</u> | <u>Rate</u> |
|------------|-------------|
| 62 | 40% |
| 63 - 69 | 20% |
| 70 - 79 | 45% |
| 80 + | 100% |

Tier 3:

For employees first hired on or after July 6, 2017, rates of retirement for each age from 62 to 80 were used (effective December 31, 2017).

| <u>Age</u> | <u>Rate</u> |
|------------|-------------|
| 60 | 40% |
| 61 - 69 | 20% |
| 70 - 79 | 45% |
| 80 + | 100% |

Actuarial Section

Disability Benefit Valuation: Disability benefits are valued in normal cost as 0.75% of projected payroll (effective December 31, 2005).

Valuation of Inactive Participants: Inactive members with less than 10 years of service are assumed to take an immediate refund of his or her account balance. For inactive members with 10 or more years of service, the money purchase benefit is estimated by projecting the account balance (including employer contributions, when applicable) to the earliest retirement age. This estimated money purchase benefit is increased by 15% to account for the possibility that the minimum annuity formula is more valuable. For inactive members with 10 or more service and salary information available, the minimum annuity benefit is valued, if it is more valuable than the money purchase benefit.

Unknown Data for Participants: Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.

Spouse: 85% of members are assumed to be married, female spouses are assumed to be four years younger than male spouses, and 100% of spouses are assumed to be opposite gender (effective December 31, 1999).

Member Contributions: Based on payroll, adjusted to the middle of the year.

Net Investment Return: 7.00% per year, net of investment expense (effective December 31, 2017)

Inflation: 2.50% per year (effective December 31, 2017)

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

| Service | Rate for Years 2018 - 2022 (%) | Rate for 2023 and After (%) |
|------------|-----------------------------------|--------------------------------|
| 0 - 0.99 | 6.50 | 7.75 |
| 1 - 1.99 | 5.50 | 7.25 |
| 2 - 2.99 | 4.50 | 6.75 |
| 3 - 3.99 | 3.50 | 6.25 |
| 4 - 4.99 | 3.25 | 5.75 |
| 5 - 5.99 | 3.00 | 5.25 |
| 6 - 6.99 | 2.75 | 4.75 |
| 7 - 7.99 | 2.50 | 4.50 |
| 8 - 8.99 | 2.25 | 4.25 |
| 9 - 9.99 | 2.25 | 4.00 |
| 10 - 25.99 | 2.25 | 3.75 |
| 26+ | 1.50 | 3.50 |

Actuarial Section

Administrative Expenses: Equal to actual expenses for the prior year. For purposes of the 50-year projection, future administrative expenses are assumed to increase by 2.5% each year

Actuarial Value of Assets: Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five - year period (effective December 31, 1999).

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

Summary of Plan Provisions

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

Membership: Any employee of the City of Chicago or the Board of Education employed under the provisions of the municipal personnel ordinance or any person employed by the Municipal Employees' Annuity and Benefit Fund of Chicago who is not participating in any other pension fund or retirement system is covered by the Fund. Current and former employees of the Chicago Housing Authority and the Public Building Commission who have service in this Plan or who reinstate service in this Plan, may elect to participate in this Plan with respect to their employment with the Chicago Housing Authority or the Public Building Commission under certain circumstances.

Tiers:

Tier 1: First hired before January 1, 2011

Tier 2: First hired from non-reciprocal Fund on or after January 1, 2011 and before July 6, 2017

Tier 3: First hired on or after July 6, 2017 or former Tier 2 members that elected to make a one-time irrevocable election to switch to Tier 3 ("elective" Tier 3)

Employee Contributions:

Tier 1 and Tier 2 members of the Fund are required to contribute 8.5% of pensionable salary to the Fund as follows: 6.5% for the employee's retirement annuity, 1.5% for the spouse's annuity, and 0.5% for the automatic increases in the retirement annuity.

Tier 3 members of the Fund are required to contribute 11.5% of pensionable pay for 2017. Beginning in 2018, member contribution rate will be the normal cost rate, if less than 11.5%, but not lower than 8.5%. Elective Tier 3 members are required to contribute 10.5% of pensionable pay for 2018 and 11.5% of pensionable pay for each year thereafter, or normal cost rate if less, subject to an 8.5% floor.

Actuarial Section

Final Average Salary:

For Tier 1 members, the final average salary is the average salary of the highest four consecutive years within the last 10 years of service prior to retirement.

For Tier 2 and Tier 3 members, the final average salary is the average pensionable salary of the highest eight consecutive years within the last 10 years of service prior to retirement. Pensionable salary is limited to \$106,800 in 2011, increased by the lesser of 3% or $\frac{1}{2}$ of the change in CPI-U, not less than zero. For 2017, the salary limit was \$112,408.

Employee Retirement Annuity:

Money Purchase Formula

Eligibility

Tier 1: Age 55 and 10 years of service

Tier 2: Age 62 and 10 years of service

Tier 3: Age 60 and 10 years of service

Amount

The annuity is based on all employee and City contributions. However, for Tier 1 members who retire before age 60 with less than 20 years of service, the annuity is based on employee contributions plus $\frac{1}{10}$ th of the City contributions for each year of service over 10.

Maximum is 60% of highest salary.

Minimum Annuity Formula

Eligibility

Tier 1, the earlier of:

- Age 60 and 10 years of service
- Age 55 and 20 years of service
- Age 50 and 30 years of service

Tier 2: Age 62 and 10 years of service

Tier 3: Age 60 and 10 years of service

Amount

The annuity is equal to 2.4% for each year of service times final average salary.

For Tier 1 members under age 60 with less than 25 years of service, the annuity is reduced by 0.25% for each month that the member is under age 60.

For Tier 2 members under age 67, the annuity is reduced by 0.50% for each month that the member is under age 67.

For Tier 3 members under age 65, the annuity is reduced by 0.50% for each month that the member is under age 65.

Maximum is 80% of final average salary.

Actuarial Section

Post-Retirement Increase:

Tier 1:

An employee annuitant is eligible to receive an annual increase of 3% of the current payable annuity (compound). This increase begins in January of the year of the first payment date following the earlier of:

- 1) the later of the third anniversary of retirement or age 53, or
- 2) the later of the first anniversary of retirement or age 60

Tier 2 and Tier 3:

An employee annuitant or surviving spouse who is eligible to receive an increase in annuity benefit, shall receive an annual increase equal to the lesser of 3% or ½ of the annual unadjusted percentage increase in the Consumer Price Index-U. The increase is based on the amount of the originally granted benefit (simple). This increase begins in January of the year of the first payment date following the later of:

- 1) the attainment of age 67 for Tier 2 members or age 65 for Tier 3 members, or
- 2) the first anniversary of the annuity start date

Reversionary Annuity:

An employee may elect to reduce his or her annuity by an amount less than or equal to \$400 to provide a reversionary annuity for a spouse, parent, child, brother, or sister, to begin upon the employee's death. The election must be made before retirement and have been in effect one year prior to death. The one-year requirement is waived if the beneficiary is the employee's spouse. The death of the employee before retirement voids this election. The reversionary annuity for a spouse when added to the spouse's annuity cannot exceed 100% of the employee's reduced annuity. The amount of the monthly reversionary annuity is determined by multiplying the amount of the monthly reduction in the employee's annuity by a factor based on the age of the employee and the difference between the ages of the employee and the reversionary annuitant at the start date of the employee's annuity.

Elected City Officer's Optional Plan:

An alternative plan for elected officials of 3% of final salary for the first eight years, 4% for the next four years, and 5% thereafter, subject to an 80% maximum, is available. The elected official must contribute an additional 3% of salary to receive these benefits. This plan also includes alternative widow and disability benefit formulas. This plan became effective upon approval from the IRS on September 17, 1991. Public Act 100-0023 closed this Plan to officers elected after July 6, 2017.

Actuarial Section

Spouse Annuity:

The surviving spouse annuity is the greater of the annuity under the money purchase formula or the minimum annuity formula. Surviving spouses who remarry on or after September 4, 2000, will not have their annuities terminated.

Money Purchase Formula

When an employee retires, the spouse's annuity is fixed, based on employee and City contributions for the spouse's annuity and a joint life age factor.

If the employee dies in service, the spouse's annuity is based on all contributions.

For 3% annuities fixed on or after August 1, 1983, the "Combined Annuity Mortality Table" shall continue to be used; however, surviving spouse's single life annuities and reversionary annuities shall be computed using the best factor (the factor producing the highest annuity), without regard to gender.

Minimum Annuity Formula

If the employee retires or dies in service and is at least age 55 with 20 or more years of service, or is at least age 50 with 30 or more years of service, the spouse's annuity is equal to half the amount of the annuity the employee was entitled to receive at the time of retirement or death in service. This annuity must be reduced by 0.25% for each month the spouse is under age 55 (or age 50 if the employee had at least 25 years of service) at the time the employee retires or dies in service.

If the employee dies while receiving a retirement annuity, the spouse is eligible for an annuity of one half of the employee's annuity at death. This annuity is reduced by 0.25% for each month the spouse is under age 55 (or age 50 if the employee had at least 25 years of service) at the time of the employee's death.

If the employee dies in service with at least 10 years of service, the spouse is entitled to an annuity of half of the minimum formula annuity earned and accrued to the credit of the employee at the date of death. This annuity is not reduced due to the age of the employee or spouse. The spouse is eligible for this annuity only if the marriage was in effect for at least 10 years.

The spouse will receive a minimum annuity of \$800 per month if the employee retires with at least 10 years of service or dies in service with at least five years of service.

For Tier 2 and Tier 3 members, the annuity payable to the surviving spouse is equal to 66 2/3% of the participant's accrued retirement annuity without a reduction due to age.

Child Annuity:

A child's annuity is provided for an unmarried child of a deceased employee who is under the age of 18, if the child was born before the withdrawal from service. The annuity is \$220 per month while the spouse of the deceased employee is alive and \$250 per month if the spouse is deceased.

Actuarial Section

Ordinary Disability Benefit:

This benefit is granted for disabilities incurred other than in performance of an act of duty and is 50% of salary as of the last day worked. The first payment shall be made one month after the disablement occurs provided the employee is not then in receipt of salary. Length of time on disability is limited to a maximum of 25% of the employee's total service or five years, whichever occurs first.

The Fund contributes salary deductions for annuity purposes for the ordinary disability benefit. Such amounts contributed by the Fund after December 31, 2000, while the employee is receiving ordinary disability benefits, are not refundable to the employee and will be used for annuity purposes only.

Duty Disability Benefit:

Any employee who becomes disabled as the result of an injury incurred in the performance of any act of duty has a right to receive a duty disability benefit in the amount of 75% of salary at date of injury, plus \$10 a month for each unmarried child less than age 18. Child's duty disability benefit is limited to 15% of the employee's salary as of the date of injury. Duty disability benefits begin one day after the later of the last day worked or the last day paid.

If the disability has resulted from any mental disorder, physical defect or disease which existed at the time such injury was sustained, the duty disability benefit shall be 50% of salary at date of injury. Disablement because of heart attacks, strokes, or any disablement due to heart disease shall not be considered the result of an accident suffered in the performance of duty. However, the employee will receive service credit and the City will contribute salary deductions for annuity purposes if the employee is receiving Workers' Compensation.

A duty disability benefit is payable to age 65 if the disability benefits begin before age 60. For an employee who begins disability on or after age 60, disability benefits will continue for five years. A duty disability benefit which continues for more than five years and which starts before the employee's age 60, will be increased by 10% on January 1st of the sixth year.

The City contributes salary deductions for annuity purposes for the duty disability benefit. Such amounts contributed by the City after December 31, 1981, while the employee is receiving duty disability benefits, are not refundable to the employee and will be used for annuity purposes only.

Actuarial Section

Refunds:

Tier 1:

An employee who resigns before age 55, or before age 60 with less than 10 years of service, is entitled to all salary deductions accumulated with interest to date of resignation, plus the 0.50% deducted for annuity increase purposes without interest.

Tier 2 and Tier 3:

An employee who resigns before age 62 (or age 60 for Tier 3) without regard to length of service, or who resigns with less than 10 years of service regardless of age, is entitled to all salary deductions accumulated with interest to date of resignation, plus the 0.50% deducted for annuity increase purposes without interest.

All Tiers:

Amounts contributed by the employee, excluding the 0.50% deductions for annuity increase, that have not been paid out as annuity are refundable to the employee's estate with interest to the date of retirement or death, if the employee died in service.

If the annuity of an employee or spouse is less than \$800 a month, the employee or spouse may elect to receive a refund in lieu of an annuity.

If unmarried at the time of retirement, the employee is entitled to a refund, with interest, of contributions made for the spouse's annuity.

Plan Year:

January 1 through December 31

Statistical

The Statistical Section presents additional information to provide financial users with added historical perspective, context and detail to assist in using the information in the financial statements; and additional analytical information on Plan membership data, retirement benefits and other postemployment benefits.

The schedules beginning on page 115 through page 117 show financial trends information that assist users in understanding and assessing how the Plan's financial position has changed over time. A schedule on page 118 allocates revenues or additions to fiduciary net position by source. A schedule on page 119 allocates expenses or deductions from fiduciary net position by type. The schedule on page 120 shows the refunds of contributions and the schedule on page 121 allocates the total benefits that were paid.

The schedules presented immediately following the financial trends information contain additional analytical information on the level of monthly or annual benefits by type of benefit, by number of retirees, and years of service. A schedule on page 122 provides information on the average monthly benefit payments to new retirees. Schedules on pages 123 and 124 provides information on average employee retirement benefit payable, current retirees and beneficiaries by range of pension amounts, history of retirees and beneficiaries by type of benefit, and covered employees by age and years of service. A schedule on page 125 provides information on Plan membership data.

Statistical Section

Changes in Fiduciary Net Position

(Last ten years)

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|--------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Additions: | | | | | |
| Employer contributions | \$ 261,763,635 | \$ 157,444,029 | \$ 157,716,475 | \$ 158,797,631 | \$ 157,704,971 |
| Member contributions | 134,764,920 | 130,390,848 | 131,428,104 | 129,971,981 | 131,532,173 |
| Net investment income | 610,515,096 | 281,419,146 | 114,025,290 | 283,268,612 | 735,272,432 |
| Other additions | 5,393,581 | - | - | 13,313 | - |
| Total Additions | \$ 1,012,437,232 | \$ 569,254,023 | \$ 403,169,869 | \$ 572,051,537 | \$ 1,024,509,576 |
| Deductions: | | | | | |
| Annuities | \$ 842,632,392 | \$ 813,092,340 | \$ 782,083,805 | \$ 754,391,331 | \$ 723,880,608 |
| Disabilities | 11,711,092 | 12,004,051 | 12,266,647 | 11,905,700 | 12,158,883 |
| Healthcare Subsidy | - | 7,725,538 | 8,491,284 | 9,050,883 | 9,508,087 |
| Refunds | 33,830,051 | 34,575,271 | 31,685,872 | 32,325,780 | 33,456,449 |
| Administrative Expenses | 6,473,006 | 7,056,784 | 6,701,000 | 6,567,842 | 6,498,913 |
| Total Deductions | \$ 894,646,541 | \$ 874,453,984 | \$ 841,228,608 | \$ 814,241,536 | \$ 785,502,940 |
| Net Increase/(Decrease) | 117,790,691 | (305,199,961) | (438,058,739) | (242,189,999) | 239,006,636 |
| Beginning of year | 4,436,227,596 | 4,741,427,557 | 5,179,486,296 | 5,421,676,295 | 5,182,669,659 |
| End of year | \$ 4,554,018,287 | \$ 4,436,227,596 | \$ 4,741,427,557 | \$ 5,179,486,296 | \$ 5,421,676,295 |

Statistical Section

Changes in Fiduciary Net Position (continued)

(Last ten years)

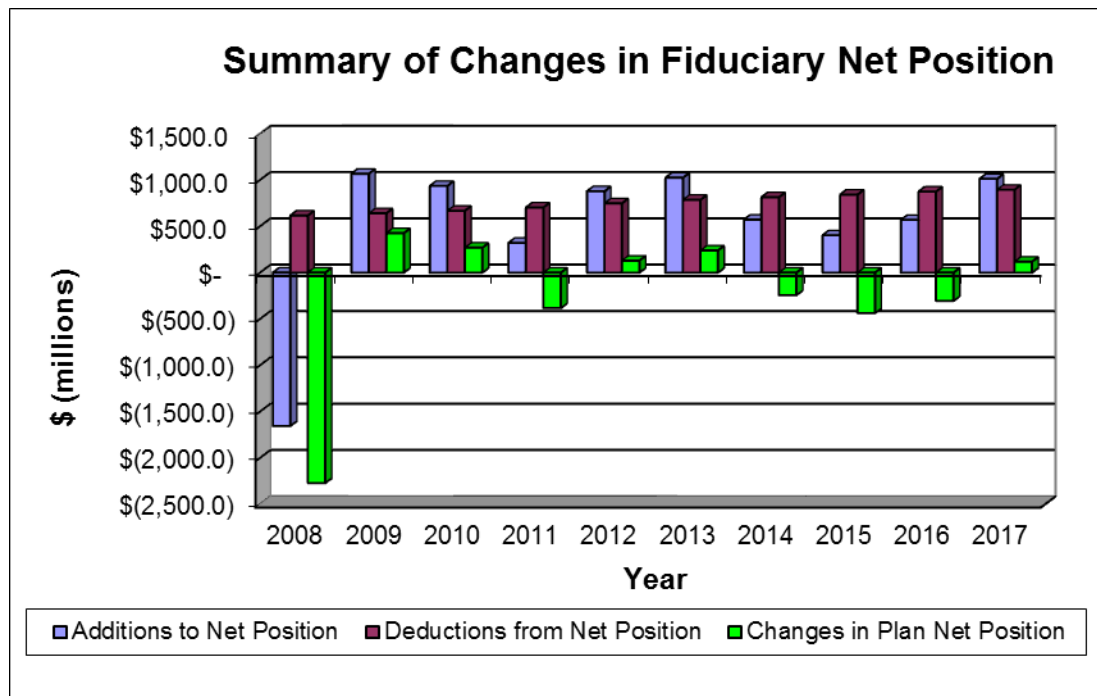
| | 2012 | 2011 | 2010 | 2009 | 2008 |
|--------------------------------|------------------------|-------------------------|-------------------------|-------------------------|---------------------------|
| Additions: | | | | | |
| Employer contributions | \$ 158,380,709 | \$ 156,525,374 | \$ 164,302,005 | \$ 157,697,608 | \$ 155,832,612 |
| Member contributions | 130,266,293 | 132,596,417 | 133,299,542 | 130,980,605 | 137,748,907 |
| Net investment income | 589,198,468 | 31,583,226 | 638,568,991 | 778,562,620 | (1,947,575,935) |
| Other additions | - | - | 24,435 | - | - |
| Total Additions | \$ 877,845,470 | \$ 320,705,017 | \$ 936,194,973 | \$ 1,067,240,833 | \$ (1,653,994,416) |
| Deductions: | | | | | |
| Annuities | \$ 681,508,540 | \$ 640,090,207 | \$ 607,540,457 | \$ 583,436,041 | \$ 561,947,108 |
| Disabilities | 13,643,816 | 13,963,941 | 13,041,253 | 11,682,652 | 11,687,603 |
| Health Care Subsidy | 9,522,054 | 9,516,053 | 9,549,685 | 9,651,118 | 9,029,362 |
| Refunds | 36,908,784 | 32,104,031 | 29,949,703 | 28,094,365 | 25,501,985 |
| Administrative Expenses | 6,841,486 | 7,375,338 | 6,744,947 | 7,765,918 | 7,749,714 |
| Total Deductions | \$ 748,424,680 | \$ 703,049,570 | \$ 666,826,045 | \$ 640,630,094 | \$ 615,915,772 |
| Net Increase/(Decrease) | 129,420,790 | (382,344,553) | 269,368,928 | 426,610,739 | (2,269,910,188) |
| Beginning of year | 5,053,248,869 | 5,435,593,422 | 5,166,224,494 | 4,739,613,755 | 7,009,523,943 |
| End of year | \$5,182,669,659 | \$ 5,053,248,869 | \$ 5,435,593,422 | \$ 5,166,224,494 | \$ 4,739,613,755 |

Statistical Section

Summary of Changes in Fiduciary Net Position

(Last ten years)

| Year | Additions to Net Position | Deductions from Net Position | Increase (Decrease) in Net Position |
|------|------------------------------|---------------------------------|--|
| 2008 | \$ (1,653,994,416) | \$ 615,915,772 | \$ (2,269,910,188) |
| 2009 | 1,067,240,833 | 640,630,094 | 426,610,739 |
| 2010 | 936,194,973 | 666,826,045 | 269,368,928 |
| 2011 | 320,705,017 | 703,049,570 | (382,344,553) |
| 2012 | 877,845,470 | 748,424,680 | 129,420,790 |
| 2013 | 1,024,509,576 | 785,502,940 | 239,006,636 |
| 2014 | 572,051,537 | 814,241,536 | (242,189,999) |
| 2015 | 403,169,869 | 841,228,608 | (438,058,739) |
| 2016 | 569,254,023 | 874,453,984 | (305,199,961) |
| 2017 | 1,012,437,232 | 894,646,541 | 117,790,691 |

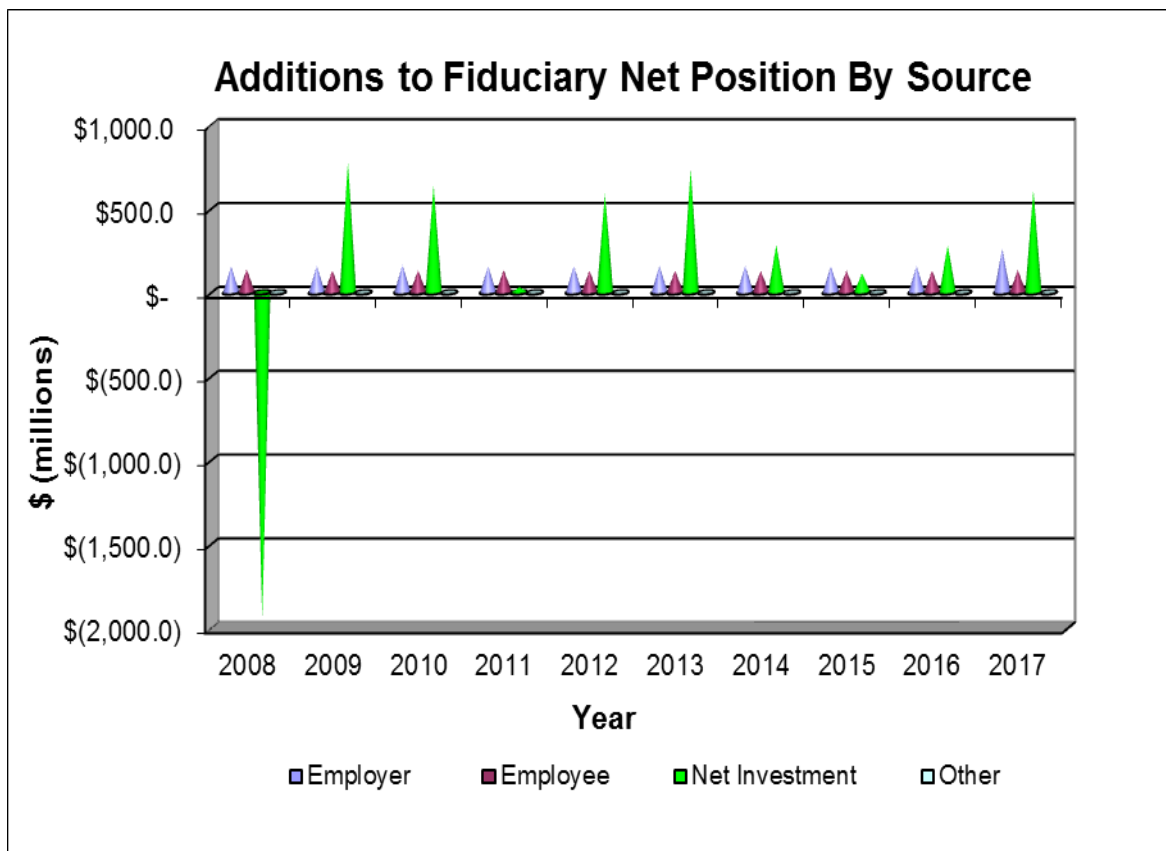


Statistical Section

Additions to Fiduciary Net Position By Source

(Last ten years)

| Year | Employer Contributions | Employee Contributions | Investment Income (net of expense) | Other Income | Total |
|------|------------------------|------------------------|------------------------------------|--------------|--------------------|
| 2008 | \$ 155,832,612 | \$ 137,748,907 | \$ (1,947,575,935) | \$ - | \$ (1,653,994,416) |
| 2009 | 157,697,608 | 130,980,605 | 778,562,620 | - | 1,067,240,833 |
| 2010 | 164,302,005 | 133,299,542 | 638,568,991 | 24,435 | 936,194,973 |
| 2011 | 156,525,374 | 132,596,417 | 31,583,226 | - | 320,705,017 |
| 2012 | 158,380,709 | 130,266,293 | 589,198,468 | - | 877,845,470 |
| 2013 | 157,704,971 | 131,532,173 | 735,272,432 | - | 1,024,509,576 |
| 2014 | 158,797,631 | 129,971,981 | 283,268,612 | 13,313 | 572,051,537 |
| 2015 | 157,716,475 | 131,428,104 | 114,025,290 | - | 403,169,869 |
| 2016 | 157,444,029 | 130,390,848 | 281,419,146 | - | 569,254,023 |
| 2017 | 261,763,635 | 134,764,920 | 610,515,096 | 5,393,581 | 1,012,437,232 |

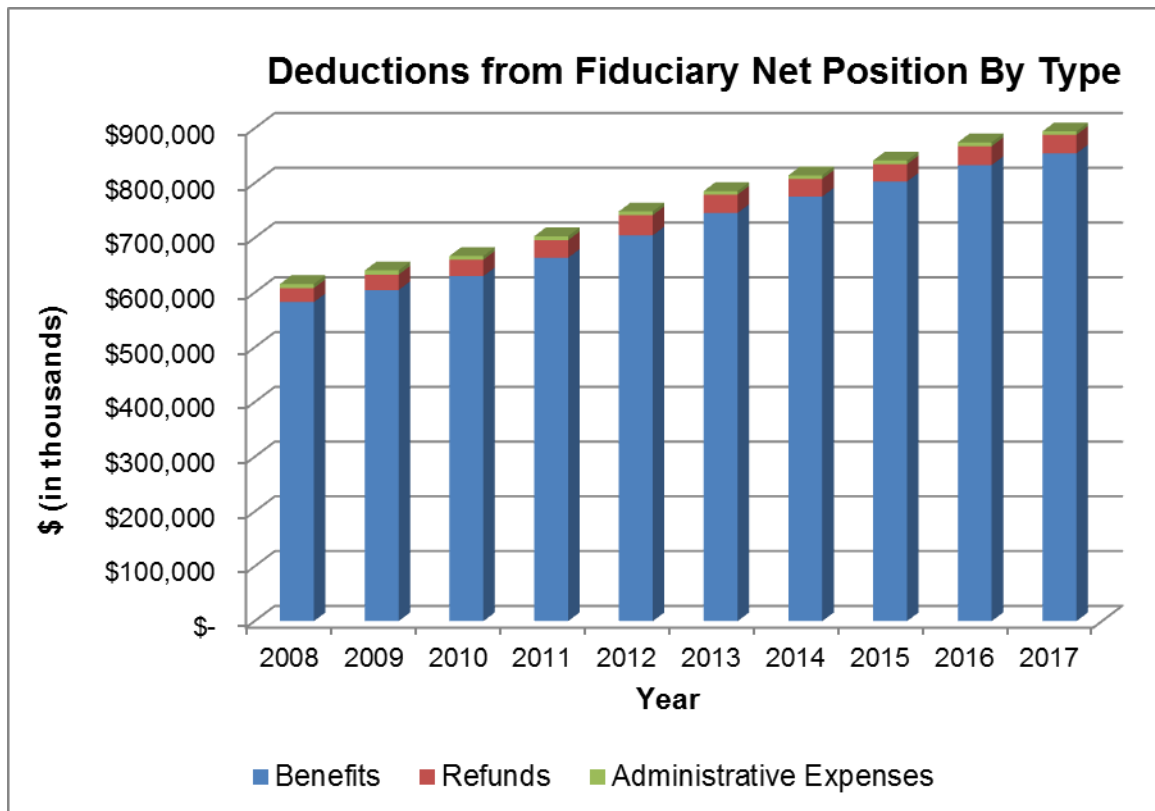


Statistical Section

Deductions from Fiduciary Net Position By Type

(Last ten years)

| Year | Benefits | Refunds | Administrative Expense | Total |
|------|----------------|---------------|------------------------|----------------|
| 2008 | \$ 582,664,073 | \$ 25,501,985 | \$ 7,749,714 | \$ 615,915,772 |
| 2009 | 604,769,811 | 28,094,365 | 7,765,918 | 640,630,094 |
| 2010 | 630,131,395 | 29,949,703 | 6,744,947 | 666,826,045 |
| 2011 | 663,570,201 | 32,104,031 | 7,375,338 | 703,049,570 |
| 2012 | 704,674,410 | 36,908,784 | 6,841,486 | 748,424,680 |
| 2013 | 745,547,578 | 33,456,449 | 6,498,913 | 785,502,940 |
| 2014 | 775,347,914 | 32,325,780 | 6,567,842 | 814,241,536 |
| 2015 | 802,841,736 | 31,685,872 | 6,701,000 | 841,228,608 |
| 2016 | 832,821,929 | 34,575,271 | 7,056,784 | 874,453,984 |
| 2017 | 854,343,484 | 33,830,051 | 6,473,006 | 894,646,541 |



Statistical Section

Refunds by Type

(Last ten years)

| Year | Separation | Death | Others ¹ | Total |
|------|---------------|--------------|---------------------|---------------|
| 2008 | \$ 22,271,312 | \$ 2,380,730 | \$ 849,943 | \$ 25,501,985 |
| 2009 | 24,942,884 | 2,670,267 | 481,214 | 28,094,365 |
| 2010 | 26,888,718 | 3,269,824 | (208,839) | 29,949,703 |
| 2011 | 29,482,493 | 1,976,182 | 645,356 | 32,104,031 |
| 2012 | 34,519,018 | 2,389,915 | (149) | 36,908,784 |
| 2013 | 30,765,181 | 2,711,770 | (20,502) | 33,456,449 |
| 2014 | 29,219,994 | 3,211,181 | (105,395) | 32,325,780 |
| 2015 | 27,325,678 | 4,570,458 | (210,264) | 31,685,872 |
| 2016 | 30,676,911 | 3,899,766 | (1,406) | 34,575,271 |
| 2017 | 31,091,785 | 3,160,126 | (421,860) | 33,830,051 |

¹Others include transfer of contributions to other Funds and refunds due to error in deductions

Statistical Section

Benefits by Type - Last ten years

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|----------------------------------|----------------|----------------|----------------|----------------|----------------|
| Annuities: | | | | | |
| Employee | \$ 781,897,484 | \$ 753,153,639 | \$ 723,152,347 | \$ 696,095,106 | \$ 666,939,420 |
| Surviving Spouse | 60,357,230 | 59,627,061 | 58,554,347 | 57,902,663 | 56,522,097 |
| Children | 377,678 | 311,640 | 377,111 | 393,562 | 419,091 |
| Total Annuities | 842,632,392 | 813,092,340 | 782,083,805 | 754,391,331 | 723,880,608 |
| Disabilities: | | | | | |
| Ordinary | 7,351,851 | 7,685,452 | 8,315,568 | 8,067,664 | 8,161,747 |
| Duty | 4,359,241 | 4,318,599 | 3,951,079 | 3,838,036 | 3,997,136 |
| Total Disabilities | 11,711,092 | 12,004,051 | 12,266,647 | 11,905,700 | 12,158,883 |
| Postemployment Healthcare | | | | | |
| Employee | - | 6,530,366 | 7,219,202 | 7,726,595 | 8,137,318 |
| Surviving Spouse | - | 1,194,032 | 1,270,277 | 1,319,793 | 1,363,359 |
| Children | - | 1,140 | 1,805 | 4,495 | 7,410 |
| Total Healthcare Subsidy | - | 7,725,538 | 8,491,284 | 9,050,883 | 9,508,087 |
| Total Benefits | \$ 854,343,484 | \$ 832,821,929 | \$ 802,841,736 | \$ 775,347,914 | \$ 745,547,578 |
| | 2012 | 2011 | 2010 | 2009 | 2008 |
| Annuities: | | | | | |
| Employee | \$ 624,554,190 | \$ 584,973,939 | \$ 553,066,295 | \$ 530,008,332 | \$ 509,510,036 |
| Surviving Spouse | 56,494,913 | 54,600,246 | 53,970,603 | 52,904,482 | 51,880,155 |
| Children | 459,437 | 516,022 | 503,559 | 523,227 | 556,917 |
| Total Annuities | 681,508,540 | 640,090,207 | 607,540,457 | 583,436,041 | 561,947,108 |
| Disabilities: | | | | | |
| Ordinary | 9,477,385 | 9,708,906 | 9,274,262 | 8,290,644 | 8,311,069 |
| Duty | 4,166,431 | 4,255,035 | 3,766,991 | 3,392,008 | 3,376,534 |
| Total Disabilities | 13,643,816 | 13,963,941 | 13,041,253 | 11,682,652 | 11,687,603 |
| Postemployment Healthcare | | | | | |
| Employee | 8,120,476 | 8,070,084 | 8,068,820 | 8,155,184 | 7,628,736 |
| Surviving Spouse | 1,395,783 | 1,439,177 | 1,472,885 | 1,487,337 | 1,389,751 |
| Children | 5,795 | 6,792 | 7,980 | 8,597 | 10,875 |
| Total Healthcare Subsidy | 9,522,054 | 9,516,053 | 9,549,685 | 9,651,118 | 9,029,362 |
| Total Benefits | \$ 704,674,410 | \$ 663,570,201 | \$ 630,131,395 | \$ 604,769,811 | \$ 582,664,073 |

Statistical Section

History of Average Pension Benefit Payments to New Retirees¹

(Last ten years)

| Retirement Effective Dates | Year of Service | | | | | Total | |
|----------------------------|---------------------------------------|----------|----------|----------|-----------|----------|----------|
| | 10-14 | 15-19 | 20-24 | 25-29 | 30 & Over | | |
| 2008 | Average Monthly Benefit at Retirement | \$ 1,293 | \$ 1,630 | \$ 2,031 | \$ 2,765 | \$ 4,129 | \$ 2,847 |
| | Average Final Average Salary | \$ 3,980 | \$ 3,565 | \$ 3,981 | \$ 4,199 | \$ 5,285 | \$ 4,491 |
| | Number of Active Recipients | 60 | 65 | 106 | 63 | 206 | 500 |
| 2009 | Average Monthly Benefit at Retirement | \$ 1,407 | \$ 1,790 | \$ 2,275 | \$ 3,255 | \$ 4,082 | \$ 2,969 |
| | Average Final Average Salary | \$ 4,664 | \$ 4,148 | \$ 4,406 | \$ 5,005 | \$ 5,209 | \$ 4,794 |
| | Number of Active Recipients | 57 | 75 | 153 | 92 | 231 | 608 |
| 2010 | Average Monthly Benefit at Retirement | \$ 1,334 | \$ 1,835 | \$ 2,215 | \$ 3,208 | \$ 4,354 | \$ 3,129 |
| | Average Final Average Salary | \$ 4,418 | \$ 4,311 | \$ 4,278 | \$ 4,945 | \$ 5,590 | \$ 4,933 |
| | Number of Active Recipients | 60 | 77 | 169 | 132 | 287 | 725 |
| 2011 | Average Monthly Benefit at Retirement | \$ 1,350 | \$ 1,981 | \$ 2,432 | \$ 3,459 | \$ 4,696 | \$ 3,361 |
| | Average Final Average Salary | \$ 4,261 | \$ 4,506 | \$ 4,661 | \$ 5,265 | \$ 6,046 | \$ 5,257 |
| | Number of Active Recipients | 66 | 88 | 193 | 185 | 311 | 843 |
| 2012 | Average Monthly Benefit at Retirement | \$ 1,295 | \$ 2,014 | \$ 2,391 | \$ 3,362 | \$ 4,506 | \$ 3,230 |
| | Average Final Average Salary | \$ 4,400 | \$ 4,893 | \$ 4,533 | \$ 5,094 | \$ 5,737 | \$ 5,125 |
| | Number of Active Recipients | 93 | 132 | 274 | 254 | 418 | 1,171 |
| 2013 | Average Monthly Benefit at Retirement | \$ 1,304 | \$ 1,998 | \$ 2,348 | \$ 3,259 | \$ 4,446 | \$ 3,065 |
| | Average Final Average Salary | \$ 4,456 | \$ 4,890 | \$ 4,314 | \$ 4,953 | \$ 5,668 | \$ 5,030 |
| | Number of Active Recipients | 104 | 106 | 204 | 216 | 290 | 920 |
| 2014 | Average Monthly Benefit at Retirement | \$ 1,169 | \$ 1,760 | \$ 2,290 | \$ 3,137 | \$ 4,350 | \$ 2,891 |
| | Average Final Average Salary | \$ 4,161 | \$ 4,528 | \$ 4,597 | \$ 4,877 | \$ 5,644 | \$ 4,921 |
| | Number of Active Recipients | 93 | 92 | 185 | 203 | 223 | 796 |
| 2015 | Average Monthly Benefit at Retirement | \$ 1,275 | \$ 1,959 | \$ 2,279 | \$ 3,405 | \$ 4,446 | \$ 3,048 |
| | Average Final Average Salary | \$ 4,439 | \$ 4,685 | \$ 4,387 | \$ 5,174 | \$ 5,724 | \$ 5,031 |
| | Number of Active Recipients | 68 | 119 | 171 | 180 | 227 | 765 |
| 2016 | Average Monthly Benefit at Retirement | \$ 1,347 | \$ 1,909 | \$ 2,350 | \$ 3,383 | \$ 4,795 | \$ 3,126 |
| | Average Final Average Salary | \$ 5,096 | \$ 4,836 | \$ 4,604 | \$ 5,199 | \$ 6,276 | \$ 5,306 |
| | Number of Active Recipients | 83 | 113 | 208 | 199 | 237 | 840 |
| 2017 | Average Monthly Benefit at Retirement | \$ 1,306 | \$ 1,938 | \$ 2,480 | \$ 3,687 | \$ 4,889 | \$ 3,273 |
| | Average Final Average Salary | \$ 4,734 | \$ 4,860 | \$ 4,841 | \$ 5,526 | \$ 6,293 | \$ 5,434 |
| | Number of Active Recipients | 91 | 122 | 197 | 247 | 245 | 902 |

¹This schedule excludes reciprocal annuities, money purchase annuities and minimum annuities

Source of Data: Actuarial Valuation and Review as of December 31, 2017

Statistical Section

Average Employee Retirement Benefits Payable

(last ten years)

| Valuation Date | Average Annual Benefit | Average Current Age Of Retirees | Average Benefit At Retirement Current Year | Average Age At Retirement Current Year | Average Service Years At Retirement Current Year |
|----------------|------------------------|---------------------------------|--|--|--|
| 12/31/2008 | \$28,928 | 72.6 | \$27,750 | 62.4 | 24.30 |
| 12/31/2009 | \$29,960 | 72.8 | \$29,843 | 62.9 | 23.90 |
| 12/31/2010 | \$31,046 | 72.8 | \$31,290 | 62.2 | 24.25 |
| 12/31/2011 | \$32,269 | 72.7 | \$34,513 | 62.1 | 24.86 |
| 12/31/2012 | \$33,423 | 72.6 | \$33,508 | 62.7 | 24.81 |
| 12/31/2013 | \$34,357 | 72.6 | \$31,177 | 63.0 | 23.55 |
| 12/31/2014 | \$34,532 | 72.7 | \$29,775 | 62.5 | 23.35 |
| 12/31/2015 | \$36,277 | 72.8 | \$31,686 | 62.6 | 23.48 |
| 12/31/2016 | \$37,243 | 72.9 | \$32,000 | 62.0 | 23.50 |
| 12/31/2017 | \$38,372 | 72.9 | \$34,413 | 62.0 | 24.16 |

Source of Data: Actuarial Valuation and Review as of December 31, 2017

Current Retirees & Beneficiaries by Range of Pension Amounts

As of December 31, 2017

| Amount of Monthly Benefit | Number of Employee Annuitants | Number of Spouse Annuitants | Number of Reversionary Annuitants | Number of Child Annuitants | Total Number of Annuitants |
|---------------------------|-------------------------------|-----------------------------|-----------------------------------|----------------------------|----------------------------|
| Under \$500 | 761 | 184 | 78 | 114 | 1,137 |
| \$500 - \$999 | 1,554 | 2,082 | 40 | - | 3,676 |
| \$1,000 - \$1,499 | 2,811 | 658 | 3 | - | 3,472 |
| \$1,500 - \$1,999 | 2,726 | 468 | 3 | - | 3,197 |
| \$2,000 - \$2,499 | 2,001 | 307 | - | - | 2,308 |
| \$2,500 - \$2,999 | 1,892 | 192 | - | - | 2,084 |
| \$3,000 - \$3,499 | 1,434 | 73 | - | - | 1,507 |
| \$3,500 - \$3,999 | 1,291 | 34 | - | - | 1,325 |
| \$4,000 - \$4,499 | 1,169 | 6 | - | - | 1,175 |
| \$4,500 - \$4,999 | 1,049 | 1 | - | - | 1,050 |
| \$5,000 - \$5,499 | 1,024 | 2 | - | - | 1,026 |
| \$5,500 - \$5,999 | 820 | - | - | - | 820 |
| \$6,000 - \$6,499 | 812 | - | - | - | 812 |
| \$6,500 - \$6,999 | 627 | - | - | - | 627 |
| \$7,000 & Over | 1,166 | - | - | - | 1,166 |
| Totals | 21,137 | 4,007 | 124 | 114 | 25,382 |

Source of Data: Actuarial Valuation and Review as of December 31, 2017

Statistical Section

History of Retirees and Beneficiaries By Type of Benefit

(Last ten years)

| Valuation Date | Annuitants | | | | Disability | | Compensation | Reciprocal | |
|----------------|------------|--------|-------|---------------|------------|------|--------------|------------|--------|
| | Employee | Spouse | Child | Reversionary* | Ordinary | Duty | Annuitants** | Employee | Spouse |
| 12/31/2008 | 15,804 | 4,018 | 174 | | 266 | 192 | 2 | 2,369 | 360 |
| 12/31/2009 | 15,838 | 4,008 | 167 | | 306 | 220 | 2 | 2,407 | 356 |
| 12/31/2010 | 15,961 | 3,982 | 173 | | 304 | 246 | 2 | 2,477 | 364 |
| 12/31/2011 | 16,230 | 3,910 | 164 | 129 | 346 | 264 | 2 | 2,583 | 364 |
| 12/30/2012 | 16,874 | 3,864 | 149 | 129 | 280 | 250 | 2 | 2,740 | 361 |
| 12/30/2013 | 17,320 | 3,844 | 141 | 138 | 227 | 213 | 2 | 2,793 | 363 |
| 12/31/2014 | 17,553 | 3,798 | 141 | 139 | 195 | 225 | 2 | 2,858 | 363 |
| 12/31/2015 | 17,697 | 3,757 | 118 | 134 | 187 | 213 | 2 | 2,887 | 369 |
| 12/30/2016 | 17,954 | 3,706 | 102 | 128 | 178 | 216 | 2 | 2,965 | 379 |
| 12/30/2017 | 18,113 | 3,633 | 114 | 124 | 162 | 211 | 2 | 3,024 | 374 |

* Prior to December 31, 2011, reversionary annuitants were included with spouse annuitants.

** Compensation annuitants also included with spouse annuitants

Source of Data: Actuarial Valuation and Review as of December 31, 2017

Covered Employees by Age & Years of Service

| Attained Age | Completed Years of Service | | | | | | | | | Total |
|--------------|----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|------------|---------------|
| | Under 1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35 & Over | |
| Under 20 | 39 | 15 | - | - | - | - | - | - | - | 54 |
| 20-24 | 367 | 572 | 14 | - | - | - | - | - | - | 953 |
| 25-29 | 589 | 1,664 | 372 | 13 | - | - | - | - | - | 2,638 |
| 30-34 | 416 | 1,594 | 777 | 278 | 43 | - | - | - | - | 3,108 |
| 35-39 | 361 | 1,305 | 678 | 585 | 287 | 55 | - | - | - | 3,271 |
| 40-44 | 295 | 1,014 | 607 | 629 | 599 | 267 | 21 | - | - | 3,432 |
| 45-49 | 220 | 973 | 580 | 698 | 873 | 633 | 305 | 16 | - | 4,298 |
| 50-54 | 172 | 692 | 504 | 660 | 961 | 737 | 659 | 171 | 7 | 4,563 |
| 55-59 | 117 | 521 | 378 | 660 | 966 | 723 | 628 | 324 | 54 | 4,371 |
| 60-64 | 47 | 260 | 227 | 414 | 598 | 497 | 440 | 232 | 103 | 2,818 |
| 65-69 | 17 | 63 | 87 | 161 | 209 | 186 | 161 | 87 | 42 | 1,013 |
| 70 & Over | 3 | 31 | 31 | 55 | 64 | 63 | 68 | 38 | 50 | 403 |
| Total | 2,643 | 8,704 | 4,255 | 4,153 | 4,600 | 3,161 | 2,282 | 868 | 256 | 30,922 |

Source of Data: Actuarial Valuation and Review as of December 31, 2017

Statistical Section

10-Year History of Plan Membership

(Last ten years)

| Year | Member | | Retirees | Beneficiaries | Total |
|------|--------|----------|----------|---------------|--------|
| | Active | Inactive | | | |
| 2008 | 32,563 | 12,082 | 18,178 | 4,552 | 67,375 |
| 2009 | 31,586 | 12,919 | 18,251 | 4,531 | 67,287 |
| 2010 | 30,726 | 13,866 | 18,441 | 4,519 | 67,552 |
| 2011 | 31,976 | 12,762 | 18,815 | 4,567 | 68,120 |
| 2012 | 31,326 | 13,465 | 19,617 | 4,503 | 68,911 |
| 2013 | 30,647 | 14,254 | 20,116 | 4,486 | 69,503 |
| 2014 | 30,160 | 15,495 | 20,414 | 4,441 | 70,510 |
| 2015 | 30,683 | 16,268 | 20,586 | 4,378 | 71,915 |
| 2016 | 30,296 | 16,876 | 20,921 | 4,315 | 72,408 |
| 2017 | 30,922 | 17,549 | 21,138 | 4,245 | 73,854 |

10-Year History of Covered Employees

(Last ten years)

| Year | Male | Female | Total |
|------|--------------|--------------|--------------|
| | Participants | Participants | Participants |
| 2008 | 12,822 | 19,741 | 32,563 |
| 2009 | 12,598 | 18,988 | 31,586 |
| 2010 | 12,377 | 18,349 | 30,726 |
| 2011 | 12,828 | 19,148 | 31,976 |
| 2012 | 12,696 | 18,630 | 31,326 |
| 2013 | 12,622 | 18,025 | 30,647 |
| 2014 | 12,464 | 17,696 | 30,160 |
| 2015 | 12,618 | 18,065 | 30,683 |
| 2016 | 12,482 | 17,814 | 30,296 |
| 2017 | 12,518 | 18,404 | 30,922 |

Source of Data: Actuarial Valuation and Review as of December 31, 2017

Appendix A

APPENDIX A

LEGISLATIVE CHANGES IN PLAN PROVISIONS 2008 THROUGH 2017

2008 Session

- No Changes.

2009 Session

SB 2520

- Approved February 17, 2009.
- Provides that, before any action is taken by the Board on an application for a duty disability benefit or a widow's compensation or supplemental benefit, the employee or widow shall file a claim with the employer to establish that the disability or death occurred while the employee was acting within the scope of and in the course of his or her duties. Provides an offset of disability benefits for any amounts provided to the employee or surviving spouse as temporary total disability payments, permanent disability payments, a lump sum settlement award, or other payment under the Workers' Compensation Act or the Workers' Occupational Diseases Act. Makes other changes concerning disability benefits.

HB 2557

- Approved August 25, 2009.
- Provides that it is the public policy of the State to encourage pension funds to promote the economy of Illinois through the use of economic opportunity investments within the bounds of financial and fiduciary prudence. Provides that the pension funds submit a report to the Governor and General Assembly by September 1 of each year identifying the economic opportunity investments made by the Fund, the primary location of the business or project, the percentage of the Fund's assets in economic opportunity investments, and the actions the Fund has taken to increase the use of economic opportunity investments.
- Requires the Fund to instruct the investment advisors to utilize investment strategies designed to ensure that all securities transactions are executed in such a manner that the total explicit and implicit costs and the total proceeds in every transaction are the most favorable under the circumstances.

SB 364

- Approved April 3, 2009.
- Requires Board members to file a verified written statement of economic interest annually with the office of the Clerk of Cook County.
- Requires the Board to adopt a policy that sets quantifiable utilization goals for the management of assets in specific asset classes for emerging investment managers. Goals shall be separated by minority ownership, female ownership, and person with a disability ownership.
- Requires that if at least one emerging firm(s) meet criteria of search process, at least one shall be invited to present to the Board for final consideration.
- Requires the Board to adopt a policy that sets forth goals for increasing the racial, ethnic and gender diversity of its fiduciaries, including its consultants and senior staff.
- Requires the Board to adopt a policy that sets forth goals for utilization of WMDBE firms for all contracts and services, based on the percentage of total dollar amount of all contracts let.
- Requires the Board to adopt a policy that sets forth goals for increasing the utilization of minority broker-dealers.
- Requires an annual report to the Governor and General Assembly on the utilization of "emerging firms" as defined by Article 1 of the Pension Code.

APPENDIX A

2009 Session (continued)

SB 364

- Requires the Board to award all contracts for investment services using a competitive process that is substantially similar to the process required for the procurement of professional services under Article 35 of the Illinois Procurement Code. Requires the Board to adopt a procurement policy which will be posted on the Fund's website and filed with the Illinois Procurement Policy Board.
- Provides that a person may not act as a consultant or investment adviser unless that person is registered as an investment adviser or bank under the federal Investment Advisers Act of 1940.
- Requires investment contracts between the Retirement Board and investment service providers to include certain required information.
- Provides consultant contracts cannot exceed five years in duration; however, incumbent consultant may compete for new contract.
- Requires investment consultants and advisers to disclose all direct and indirect fees, commissions, penalties, and other compensation paid by or on behalf of the investment consultant or adviser in connection with the services provided.
- Requires that a description of every contract let for investment services be posted on the website, including name of entity awarded the contract, amount of contract, total fees paid, and disclosure describing the factors that contributed to the selection.
- Requires the Fund to maintain a website that shall include standard investment reporting, a copy of relevant Board policies, a listing of investment consultants and managers, a notification of any requests for investment services, and the names and e-mail addresses of Board members, Fund directors, and senior staff.
- Requires Board members to attend at least eight hours of ethics training per year and requires each Board to annually certify its member's compliance and submit an annual certification to the Division of Insurance of the Department of Financial and Professional Regulation.
- Prohibits any Fund trustee or employee or their spouses or immediate family living with them to intentionally solicit or accept any gift from any prohibited source as prescribed in Article 10 of the State Officials and Employees Ethics Act, including educational materials and missions and travel expenses for discussing Fund business.
- Provides that any person who knowingly makes any false statement or falsifies or permits falsifying any record of the pension fund in an attempt to defraud is guilty of a Class 3 felony.
- Provides that no person or entity shall retain a person or entity to influence the outcome of an investment decision or the procurement of investment advice to a pension fund for compensation, contingent upon the decision of the Board.
- Requires approval for travel or education mission expense of a Trustee by a majority of the Board prior to mission.

SB 1440

- Approved August 18, 2009.
- Provides that the Fund may, and to the extent required by federal law shall, allow an employee to roll over a refund, lump-sum benefit, or other non-periodic distribution (including the non-taxable portion) directly to any entity that is designated in writing by the person, is qualified under federal law to accept the distribution, and has agreed to accept the distribution.

SB 1705

- Approved August 25, 2009.
- Provides the Municipal fund will send city contributions to the Fire fund for a fireman who was employed by the Chicago Fire Department and participated in the Municipal fund, terminated that service, and received a refund, if the employee establishes the service under the Fire fund.

APPENDIX A

2010 Session

Public Act 96-0889 (SB 1946)

- Approved April 14, 2010.
- Establishes a new tier of benefits for participants that first become members on or after the effective date of January 1, 2011.
 - Final average compensation is based on the average of the highest consecutive eight years within the last ten years of service.
 - Establishes a cap on final average salary of \$106,800, as automatically increased by the lesser of 3 percent or one-half of the annual increase in the Consumer Price Index-U during the preceding 12-months.
 - Increases eligibility for a retirement annuity:
 - Age 67 with 10 years of service for an unreduced benefit.
 - Age 62 with 10 years of service for a reduced benefit. Reduction is one-half percent for each full month that retirement precedes age 67.
 - Changes provisions for automatic increases in annuity:
 - Increases begin in the year following the later of the first anniversary of the annuity start date and attainment of age 67.
 - Increases are equal to the lesser of 3 percent or one-half of the annual increase in the Consumer Price Index-U during the preceding 12-months.
 - Increases are based on the amount of the originally granted benefit (not compounded).
 - Changes benefits provided to surviving spouses:
 - Surviving spouse annuity is equal to 66 2/3 percent of the participant's earned retirement annuity at the date of death.
 - Provides an automatic increase in annuity:
 - Increases begin on January 1 in the year following the commencement of the survivor's annuity if the deceased member died while receiving a retirement annuity and January 1 following the first anniversary of commencement otherwise.
 - Increases are equal to the lesser of 3 percent or one-half of the annual increase in the Consumer Price Index-U during the preceding 12-months.
 - Increases are based on the amount of the originally granted benefit (not compounded).
 - Establishes that members that are receiving a retirement annuity and accept a full-time position under the same Article or another Article established under the Illinois Compiled Statutes would have their benefits suspended during employment. Their benefits would be recalculated, if applicable, upon termination of employment.

Public Act 96-1490 (SB 550)

- Approved December 30, 2010.
- Amends certain provisions established in SB1946 that apply to participants that first become members on or after January 1, 2011:
 - Establishes the period for calculating the annual unadjusted percentage increase in the Consumer Price Index-U as the 12-month period ending with September for purposes of capping salary and calculating the automatic increase in annuity percentage.
 - Establishes that the salary cap of \$106,800 applies for all purposes under the Code, including the calculation of benefits and employee contributions.
 - Establishes that the survivor's annuity is calculated with no reduction due to age.
 - Establishes that members who withdraw before age 62, or with less than 10 years of service, regardless of age, are entitled to all salary deductions for retirement annuity and spouse annuity accumulated with interest to date of resignation, plus the 0.50 percent deducted for annuity increase purposes without interest.
 - Establishes that increases in annuity for employee annuitants commence on January 1.

APPENDIX A

2011 Session

Public Act 97-0530 (SB 1672)

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

Public Act 97-0609 (SB 1831)

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

Public Act 97-0504 (HB 1670)

- Approved August 23, 2011.
- Amends the Open Meetings Act.
 - Requires each elected or appointed member of a public body subject to this Act who is such a member on the effective date of the amendatory Act to successfully complete the electronic training curriculum developed and administered by the Public Access Counselor.
 - Requires those members to complete the training not later than one year after the effective date of the amendatory Act.
 - Requires each elected or appointed member of a public body subject to the Act who becomes such a member after the effective date of the amendatory Act to successfully complete the electronic training curriculum developed and administered by the Public Access Counselor.
- Requires those members to complete the training not later than the 90th day after the date the member either (i) takes the oath of office, if the member is required to take an oath of office to assume the person's duties as a member of the public body or (ii) otherwise assumes responsibilities as a member of the public body, if the member is not required to take an oath of office to assume the person's duties as a member of the governmental body.
- Requires each member who successfully completes the curriculum to file a copy of the certificate of completion with the public body.
- Provides that the failure of one or more members of a public body to complete the training required by this Section does not affect the validity of an action taken by the public body.
- Provides that an elected or appointed member of a public body subject to this Act who has successfully completed the required training and filed a copy of the certificate of completion with the public body is not required to subsequently complete that training.

APPENDIX A

2012 Session

Public Act 97-0651 (HB 3813)

- Approved and effective January 5, 2012.
- Requires any reasonable suspicion of fraud against the Fund to be reported to the State's Attorney for investigation.
- Changes provisions for Union Leaves of Absence as follows:
 - Service credit can be accrued only for union leaves that begin before the effective date of this amendatory Act.
 - "Any pension plan established by the local labor organization" is defined as any pension plan in which the member can receive credit as a result of his membership in the local labor organization. This is a declaration of existing law.
 - Salary used for calculation of final average salary must be a salary paid by an employer, not by the union. This is a declaration of existing law.
 - Minimum annuity section 11-134 is changed to add to the final average salary the product of (1) final average salary, (2) the average percentage increase in the CPI during the leave of absence, and (3) the number of years of leave of absence. This does not seem to deal with a situation where the employee may have been on leave within the last 10 years but is last with Municipal. It also only amends paragraph (f-1) which applies to those members who go on annuity on or after the attainment of age 60.
 - Does not change that contributions are based on current salary with the union.

Public Act 97-0967 (HB 3969)

- Approved and effective August 16, 2012.
- Applies if the member retired after the effective date with less than 2 years of service in a participating system under the Reciprocal Act after General Assembly service.
- Requires that if the final average salary in a participating system is used to calculate the annuity, the employer must pay the General Assembly Retirement System for any increased cost of the General Assembly annuity that is attributable to the higher salary under the participating system.

2013 Session

Public Act 98-0043 (HB 1584)

- Approved and effective June 28, 2013
- Changes the duration of health insurance supplement payments to eligible employee annuitants to "Beginning July 1, 2008, and until such time as the city no longer provides a health care plan for such annuitants or December 31, 2016, whichever comes first."

Public Act 98-0433 (HB 2620)

- Approved and effective August 16, 2013
- Allows for an additional exception to the RFP process for obtaining investment services for "contracts for follow-on funds with the same fund sponsor through close-end funds"

APPENDIX A

2014 Session

Public Act 98-0641 (SB 1922)

- Approved and effective June 9, 2014
- Implements a funding policy designed to achieve 90% funded ratio by 2055
- Provides for incrementally increased employer contribution multiple, which eventually converts to actuarial-based funding.
- Caps the current pension levy at the full required city contribution amount.
- Creates payment obligation to the fund; provides enforcement.
- Provides for incrementally increased employee contributions.
- Tier 1: Ties annual increase in retirement annuity to inflation, subject to 3% cap, delays initial annual increase by one year, and eliminates annual increases in 2017, 2019 and 2025 for most annuitants.
- Tier 2: Reduces minimum retirement age by 2 years, delays the initial annual increase by one year for some retirees, and eliminates the annual increases in 2025.

Public Act 98-1022 (SB 452)

- Approved and effective August 22, 2014
- Requires investment managers and consultants entering into a contract to disclose information on use of vendors owned by minorities, females, and persons with disabilities.
- Requires minority consideration to be “within the bounds of financial and fiduciary prudence.”
- Defines “minority investment managers” and requires funds to adopt a policy to increase goals for utilization. Requires annual review.
- Declares it is the public policy of the State to encourage use of minority investment managers.

2015 Session

Public Act 99-0462 (SB 1334)

- Approved August 25, 2015
- Sets aspirational goals that, beginning January 1, 2016, at least 20% of the total funds under management be managed by emerging investment managers and that at least 20% of the investment advisors be minorities, females, and persons with disabilities.
- Sets the aspirational goal that, beginning January 1, 2016, at least 20% of contracts for “information technology services”, “accounting services”, “insurance brokers”, “architectural and engineering services”, and “legal services” be awarded to businesses owned by minorities, females, and person with disabilities.

Jones et al. v. Municipal Employees’ Annuity and Benefit Fund of Chicago, et al.

Johnson et al. v. Municipal Employees’ Annuity and Benefit Fund of Chicago, et al.

- Public Act 98-0641 was ruled unconstitutional by the circuit court on July 24, 2015. On March 24, 2016, the Illinois Supreme Court affirmed the circuit court’s decision.
- Restores full automatic annual increase, the date of initial increase and eliminates increase holidays
- For Tier 2, changes retirement age for unreduced benefits back to age 67 and for reduced benefits to age 62
- Eliminates new funding policy

APPENDIX A

2016 Session

Public Act 99-0683 (HB 6030)

- Approved July 29, 2016
- Requires every pension fund or retirement system under the Code to develop and implement, by no later than June 30, 2017, a process to identify annuitants who are deceased. The process shall require the pension fund or retirement system to check for any deceased annuitants at least once per month and shall include the use of commonly accepted methods to identify persons who are deceased, which include but are not limited to, the use of a third party entity that specializes in the identification of deceased persons, the use of data provided by the Social Security Administration, the use of data provided by the Department of Public Health's Office of Vital Records, or the use of any other method that is commonly used by other states to identify deceased persons.

2017 Session

Public Act 100-0023 (SB 0042)

- Approved July 6, 2017 (effective date)
- Creates a new tier of benefit eligibility and contribution requirements for members (Tier 3) who first become members on or after the effective date of the Act. Benefit structure would be consistent with a Tier 2 member, except as reflected below:
 - Members would contribute 11.5%
 - Beginning January 1, 2018, members would contribute the lesser of 11.5% or the normal cost of the accrued benefit calculated on an annual basis; not less than 8.5%
 - Qualified members would be able to retire at 65 years of age undiscounted and 60 to 64 years of age discounted
- A Tier 2 member would have from October 1 to November 15, 2017 to make an irrevocable election to become a Tier 3 member
- Creates an optional benefits structure for certain Tier 2 members. Must be passed by resolution or ordinance by the governing body of the local government.
- Requires law department employees first hired after the effective date of the Act to be members of the Fund.
- The City of Chicago will increase contributions to the Fund from 2018 to 2022 (ramp period) and then begin paying a required contribution to achieve 90% funding in 40 years (2058).
- The Fund's ability to subrogate a disability injury of a member that was caused by a third party.
- Closes the Alternative Annuity for City Officers Plan to officers who first become an elected officer after the effective date of the Act.
- Felony conviction. Any refund to a person who was convicted of a felony that was in relation to their service as a municipal employee, shall be reduced by any benefit received by the person prior to the calculation of the refund. This relates to persons who first became members after the effective date of the Act.

APPENDIX A

2017 Session (continued)

Public Act 100-0334 (HB0350)

- Approved and effective August 25, 2017
- Provides for the forfeiture of benefits for any person who otherwise would receive a survivor benefit who is convicted of any felony relating to or arising out of or in connection with the service of the member from whom the benefit results
- Provides that this legislation will not affect any right to survivor benefits prior to the effective date of this Act.

Public Act 100-0542 (SB1714)

- Approved and effective November 8, 2017
- Amends the General Provisions Article 1 of the Illinois Pension Code
- Requires an investment consultant to annually disclose to the Board (of a retirement system, pension fund, or investment board) the following:
 - Total searches conducted for investment services in the prior year
 - Total searches conducted for investment services in the prior year that include minority owned, female owned, or businesses owned by persons with a disability (MWDBE), number of MWDBE recommendations made, and amounts awarded to the MWDBE
 - Requires a consultant to disclose any compensation or economic opportunity received in the last 24 months from any investment advisors recommended to or retained by the Board (of a retirement system, pension fund, or investment board).
 - Requires consideration of these disclosures before awarding any contract for consulting services.

End of Report

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